

**Environmental Assessment
Ticonderoga Chilson Water Transmission Main
Facility Hazard Mitigation Relocation Project
Town of Ticonderoga, Essex County, New York**

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FEMA

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LIST OF ACRONYMS

amsl	Above Mean Sea Level
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
AD	Area of Disturbance
APA	Adirondack Park Agency
APE	Area of Potential Effect
ASTM	American Society for Testing and Materials
BCA	Benefit Cost Analysis
BFE	Base Flood Elevation
BMP	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	Diameter at Breast Height
DRP	Data Recovery Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EO	Executive Order
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
LF	Linear Foot
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHP	Natural Heritage Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NYNHP	New York Natural Heritage Program
NYS	New York State
NYSBC	New York State Building Code
NYSDEC	New York State Department of Environmental Conservation
NYSDHSES	New York State Division of Homeland Security and Emergency Services
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSECL	New York State Environmental Conservation Law

LIST OF ACRONYMS, Cont.

NYSOPRHP	New York State Office of Parks, Recreation, and Historic Preservation
OSHA	Occupational Safety and Health Administration
PAF	Public Archaeology Facility
PRV	Pressure Reducing Valve/Station
ROW	Right-of-Way
SEQRA	State Environmental Quality Review Act
SF	Square Foot
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SPDES	State Pollutant Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Office
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

The Town of Ticonderoga, herein referred to as the “Subgrantee,” has requested financial assistance from the U.S. Department of Homeland Security-Federal Emergency Management Agency (FEMA) to replace and relocate a section of the Chilson Water Transmission Main located in the Town of Ticonderoga, Essex County, New York. The new section of water main would replace the function of the water main that was damaged in the heavy rains and flooding experienced during Hurricane Irene. The storm incident that occurred August 26 to September 5, 2011, was declared a major disaster by President Barack H. Obama on August 31, 2011 (FEMA 4020-DR-NY) and subsequently amended. Federal public assistance was made available to affected communities and non-profit organizations in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 U.S.C. 5172 et seq.), as amended. The New York State Division of Homeland Security and Emergency Services (NYS DHSES) is the Grantee partner for the proposed action. The Public Assistance Subgrant Application reference number is PW-06009 in DR 04020-NY.

The Chilson Water Transmission Main located along and under Chilson Brook, parallels NYS Route 74 (*Appendices A and B*). With the event of Hurricane Irene, heavy rain and flooding washed out ground cover and collapsed banks, leaving pipe exposed to the natural elements and causing two water main breaks. Temporary repairs have been made; however, the type of pipe used in the temporary repairs is not intended to be a permanent solution (*Appendix B*). This water supply line has sustained repetitive damage in previous disaster events. In order to make permanent repairs to the line and also prevent future storm damages to the line, the applicant proposes to relocate the Chilson Water Transmission Main to a new, less hazardous location. As the cost of this proposed 406 hazard mitigation measure is significantly higher than the cost to repair the water main, FEMA conducted a Benefit Cost Analysis (BCA) in accordance with FEMA Recovery Policy 9526.1, VII.B.3. The BCA compares the total project cost to the total cost of the projected benefits such as future damage to the facility, necessary emergency protective measures, temporary facilities, loss of function, and cost avoidance. The BCA resulted in a Benefit Cost Ratio of 1.22, showing the proposed mitigation measures to be cost effective. The water main will be relocated from its current location in Chilson Brook to a location along the NYS Route 74 right-of-way (ROW; *Appendix A*). This option will allow for easier access to the water main for maintenance and will minimize the environmental disturbance caused by the project. This option will mitigate the hazard of new breaks occurring within the brook. The proposed project would provide reliable water service to the Town and mitigate future damage from storm events.

FEMA is required as a Federal agency to evaluate the potential environmental impacts of its proposed actions, and alternatives to proposed actions, in order to make an informed decision in defining a proposed project for implementation. FEMA must consider and incorporate, to the extent practicable, measures to avoid, minimize, or mitigate adverse impacts to the human environment. The environmental analysis is conducted in compliance with the National Environmental Policy Act (NEPA), and its implementing regulations at 40 Code of Federal Regulation (CFR) Parts 1500-1508 and FEMA’s regulations at 44 CFR Part 10. FEMA evaluates financial assistance projects prior to grant approval. This Environmental Assessment (EA) serves as documentation of FEMA’s analysis of the potential environmental impacts of the proposed

relocation of the Chilson Water Transmission Main, including analysis of project alternatives, and identification of impact minimization measures. The document serves as written communication of the environmental evaluation for public and interested party comment. Public involvement is a component of NEPA to inform an agency's determination of whether to prepare an Environmental Impact Statement (EIS) or issue a Finding of No Significant Impact (FONSI).

2.0 Purpose and Need

The objective of the Public Assistance Grant Program is to provide assistance to State, Tribal, and local governments and certain types of private nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies. The purpose of this project is to restore and enhance the resiliency of the transmission line infrastructure necessary to provide safe and reliable water service to the Town of Ticonderoga. The need for the project is to fully restore the water main that was damaged during the declared incident and address the repetitive damage and potential risk of future damage of the existing main as a parameter of the implemented alternative. Although residents are currently receiving water service, the repairs to the water main are temporary. In time, these temporary installations will fail, disrupting the potable water infrastructure to the community again. Furthermore, the current location of the water main is a river bed prone to flooding and erosion, which has caused repetitive damage and interruption of water service.

3.0 Background Information

The Town of Ticonderoga is located in the southeast section of Essex County, within the Adirondack Park boundary. The Chilson Water Transmission Main is a component of the Town-operated water supply system that serves approximately 4,000-5,000 people within the Village and Town of Ticonderoga. The Chilson Water Transmission Main is a 12" cast iron transmission main installed in the late 1800s to deliver water from the Chilson Reservoir to the community. The secondary Gooseneck Pond system was installed in 1891 and serves the majority of the users located upland from the water source. The town purchased the 10-acre lot that houses the current one million-gallon Chilson Reservoir in 1889 for the purpose of installing a reservoir and opening a waterworks. The existing reservoir was built on the site in 1931. The Chilson Water Transmission Main follows the meander of Chilson Brook for approximately 5,866 LF, located in a steep, rugged ravine that is susceptible to severe scour and erosion from the riparian influence of Chilson Brook.

As mentioned previously, temporary repairs were made to return the water main to service immediately after the storm. These temporary repairs underwent prior federal agency environmental and historic preservation compliance review. Town personnel located the water main breaks and installed replacement sections of pipe consisting of C-900 plastic pipe and Hymax couplers. A small excavator was lowered into the brook valley to divert the stream and provide some protection of the exposed main within the brook bed. The Subgrantee has identified a high risk potential of future damage of the line due to erosional processes from stream channel evolution and flooding.

4.0 Alternatives

NEPA requires the analysis of reasonable alternatives as part of the environmental review process for the proposed project. Inclusion of a No Action Alternative in the environmental analysis and documentation is required under NEPA. The No Action Alternative is used to evaluate the effects of not providing eligible assistance for the project, thus providing a benchmark against which “action alternatives” may be evaluated. In developing alternatives to the proposed project, the Subgrantee identified the following as project objectives in addition to basic purpose and need: cost effective construction, minimize maintenance, avoid disturbances to the natural environment, optimize the use of public funds, and eliminate future threats to public health and safety.

4.1 Alternatives Considered in this EA

Two viable action alternatives were developed that would relocate the water transmission main along primary transportation ROWs, including Old Chilson Road, which is a Town-maintained thoroughfare, and NYS Route 74, which is a NYS DOT-maintained highway. The three alternatives discussed in this EA are as follows:

- No Action Alternative (4.2.1)
- Alternative I - Replacement: Relocation of the Chilson Transmission Main along NYS Route 74 (4.2.2)
- Alternative II - Replacement: Relocation of the Chilson Transmission Main along Old Chilson Road (4.2.3)

4.1.1 No Action Alternative

Under the No Action Alternative, it is anticipated that absent Federal financial assistance, the Subgrantee would leave the temporary repairs in place and not pursue permanent replacement of the temporary facilities with the strong likelihood that future flooding and erosion would damage the infrastructure again during subsequent major storm events. This alternative would also subject the town and community to future risk of water delivery disruptions and create potential adverse public health and safety impacts as occurred during Hurricane Irene, where the force of runoff dislodged supporting material and resulted in several breaks in the pipeline, allowing untreated water, stones, and debris to enter into the main. This alternative would not address the project’s purpose and need.

4.1.2 Alternative I: Relocation (NYS Route 74)

Under Alternative I, the Subgrantee’s proposed alternative, the Subgrantee would abandon the 5,866 LF of water transmission main along Chilson Brook, rerouting the transmission main along NYS Route 74 within the NYS DOT ROW. The replacement pipe would consist of 5,533 LF of 12” diameter ductile iron pipe, Special Thickness Class 56, installed through traditional trenching methods. The western terminus would be at the Chilson Reservoir site at 253 Old Chilson Road. The line would travel north from the reservoir and cross the Chilson Brook Valley on town-owned property paralleling an existing overhead power line corridor before proceeding in a northerly direction and continuing to the south side of Chilson Middle Road. From that point it would continue eastward, following the south side of the NYS Route 74 shoulder and ROW,

until reaching the eastern terminus at the existing main where it crosses the highway near the intersection of Race Track Road. See *Appendix B*. The existing water main would be capped and abandoned in place as the potential environmental impacts that would result from removing the line may be greater than those resulting from the abandoned line. Small sections may need to be removed if they conflict with the new construction.

This routing would provide access to an area of the watershed with a more gentle topography, permitting a more stable and reliable solution for construction of a stream crossing. An access road and maintenance corridor would be required for construction and maintenance/inspection equipment as well as provide adequate ground coverage for the water main at the northern end of the Town-owned property. The access road would connect to the NYS Route 74 ROW in an area of the Town-owned property that was previously disturbed through construction of other water utilities. This alternative is cost effective and meets the project purpose and need.

4.1.3 Alternative II: Relocation (Old Chilson Road)

Under Alternative II, the Subgrantee would also abandon the 5,866 ft. of heavy duty cast iron transmission main in its current location in the riparian corridor of Chilson Brook; however, the line would be rerouted along Old Chilson Road as an alternative location. The replacement main under this routing alternative would include comparable 12” diameter ductile iron pipe, Special Thickness Class 56, 8,324 LF in length. From the existing Chilson Reservoir, the relocated main would proceed east along the Old Chilson Road ROW to Race Track Road. Approximately 400 feet prior to the intersection of Old Chilson Road and Race Track Road, a stream crossing of Chilson Brook would need to be constructed to access the existing water infrastructure, before connecting at an alternate location along Race Track Road. As stated under Alternative I above, the existing water main would be capped and abandoned in place as the potential environmental impacts that would result from removing the line may be greater than those resulting from the abandoned line. Small sections may need to be removed if they conflict with the new construction.

Although a viable alternative, the additional 2,458 LF of pipe would increase construction costs as compared to Alternative I. Future operating and maintenance costs for the community would also be higher as compared to Alternative I, as more pipe would eventually need replacement and ongoing hydrant flushing or valve repairs would further the expense of routine maintenance.

4.2 Identification of Preferred Alternative – Alternative I Relocation (NYS Route 74)

Of the replacement Actions identified, Alternative I rerouting the transmission main along NYS Route 74 was determined to be the least costly option with no increased impacts on the human environment when compared to the other alternatives; and is the Subgrantee’s preferred option. The cost for replacement along NYS Route 74 was estimated to be \$2.16 million as compared to the cost of installation along the Old Chilson Road of \$3.01 million. The cost difference of approximately \$994,000 was mainly attributable to the longer circuitous routing of the water main along Old Chilson Road, which is a narrow, winding, and steep road from the reservoir to a connection to existing infrastructure at Race Track Road. The No Action Alternative was also considered and exhibits very high long-term risks to public health and safety as well as

incremental costs for future construction and maintenance. The forgoing Environmental Assessment demonstrates the process and considerations inherent in the evaluation of addressing this most critical community asset.

4.3 Alternatives Considered and Dismissed

In an effort to restore the water transmission to pre-disaster condition and address repetitive damages in the present location, the alternative to replace the line in kind and in its existing location was dismissed as an alternative. This alternative was found to have higher impacts to the natural environment and higher costs due to construction constraints from steep site conditions, lack of access, and the potential ongoing threat of recurrent damage in the floodplain.

Directional drilling was also considered as an alternative construction methodology for the stream crossings necessary to relocate the water main, and was initially pursued to minimize stream impacts in project plans. This construction method was ultimately dismissed as more data was gathered regarding site conditions. It was subsequently determined that the directional drill method was less likely to be successful and would potentially result in additional environmental impacts. The bedrock underlying the stream is a severely fractured type that drilling slurry often seeps into, reducing its effectiveness and resulting in the loss of drilling abilities, damage to equipment, and the potential for release of the slurry into the brook and wetlands. The soil above the bedrock layers is a mixture of cobbles, boulders, and sand, which is also not conducive to directional drilling. Furthermore, previous drilling attempts on the property similar to directional drilling have been unsuccessful due to these site conditions; therefore, this alternative was dismissed and stream crossings will be made through open cut trenching methods. See May 1, 2014 letter to NYS DEC in *Appendix D* for more information.

5.0 Affected Environment and Environmental Consequences

Table 1 on Page 6 summarizes potential impacts of the No Action Alternatives and Alternatives I and II. The following sections provide a more detailed description of the affected environment and potential environmental impacts of the three alternatives.

5.1 Topography, Soils, and Geology

5.1.1 Existing Conditions

Topography

The proposed project is located in the Chilson Brook Valley along the eastern extent of the Adirondack Mountains. The existing water transmission main follows the natural flow of the brook from the Chilson Reservoir to a pressure reducing station on Race Track Road a distance of approximately 5,866 LF. From the reservoir along the current route of the water transmission main, there is approximately a 319 foot change in elevation to the bottom of Chilson Hill where the Race Track Road pressure reducing vault is located. The Chilson Brook Valley continues above the reservoir for roughly two miles to elevation 1,200 ft with steep mountain slopes that continue to the southwest of the Valley and form the watershed area for Chilson Brook.

Table 1 Summary of Potential Environmental Impacts and Mitigation

Resource	Potential Impacts			Agency/ Permits	Mitigation
	No Action Alternative	Alternative I	Alternative II		
Topography, Geology and Soils	No impact	No significant impact. Short term impacts to <1 acre of soil disturbed during construction; minor long-term impacts to area graded for access and pipe coverage.	No significant impact. Short term impacts to just over one acre of soil disturbed during construction.	NYS DEC NYS DOT	Best management practices for erosion and sediment control. Disturbed areas will be backfilled with native material, graded and seeded to match pre-construction conditions.
Land Use and Zoning	No impact	No impact	No impact	NYS APA, Ag & Markets	N/A
Water Resources and Water Quality	Negative impact	No significant impact. Short term impacts during construction; no long-term impacts.	No significant impact; Short term impacts during construction; no long-term impacts.	USACE NYS DEC	Compliance with permit conditions to avoid long-term impacts
Wetlands	Potential negative impact due to repetitive repairs in area and risk of release during future water main breaks.	No significant impact. Short term impacts through temporary crossing of wetland; no long-term impacts.	No significant impact. Short term impacts through temporary crossing of wetland; no long-term impacts.	NYS DEC, APA USACE	Compliance with NYS DEC, APA, and USACE permit conditions to avoid long-term impacts. Best management practices for erosion and sediment control.
Floodplains	Potential negative impact due to repetitive repairs in area and risk of release during water main breaks.	Positive impacts through relocation of most of line out of floodplain and erosional areas.	Positive impacts through relocation of most of line out of floodplain and erosional areas.		N/A
Vegetation	No impact	No significant impact. Trees to be removed for access lane. Shrubs and grasses removed for water main	No significant impact; no long-term impact. Grasses will be removed from road ROW in trenching areas.		Reseeding and mulching of disturbed areas will return disturbed areas to natural state.
Wildlife and Fisheries Habitat	No impact	No impact	No impact		N/A
Threatened and Endangered Species and Critical Habitat	No impact	No impact with conditions for time frame of work completed.	No impact.	NYSDEC, NHP, USFWS	Removal of trees can only occur in allotted time as directed by the NYS DEC and USFWS.
Cultural Resources	No impact	No impact	No impact	NYSHPO	N/A
Aesthetic and Visual Resources	Minor negative impact	Short-term construction impacts; no long-term impacts.	Short-term construction impacts; no long-term impacts.		Reseeding and mulching of disturbed areas will return disturbed areas to natural state.
Socioeconomic Resources	Potential negative impact from future loss of service.	Positive impact from restoration of reliable and safe water supply and long-term maintenance cost reduction.	Positive impact from restoration of reliable and safe water supply.		N/A
Environmental Justice	No impact	No impact	No impact		N/A
Air Quality	No impact	Short-term impacts from dust and emissions due to construction; no long-term impact.	Short-term impacts from dust and emissions due to construction; no long-term impact.	NYS DOT	Dust control as needed per NYS DOT permits. Best management practices.
Contaminated Materials	No impact	No impact	No impact		Best management practices.
Noise	No impact	Short-term impacts from construction noise; no long-term impact.	Short-term impacts from construction noise; no long-term impact.		Use of manufacturer specified noise reduction equipment during construction.
Traffic	No impact	Short-term impact during construction, no long term impact.	Short-term impact during construction, no long-term impact.	NYS DOT	Compliance with NYS DOT regulations and highway work permit.
Infrastructure	Negative impacts due to likelihood of future damages and loss of service.	Positive impact	Positive impact	NYS DOH	Compliance with 10 State Standards for design
Public Health and Safety	Potential negative impact from future damages.	Positive impact due to return of safe and reliable water supply to community.	Positive impact due to return of safe and reliable water supply to community.	NYS DOH	Compliance with Federal, State, and local safety standards and codes.
Climate Change	No impact	No impact	No impact		N/A
Cumulative Impacts	No cumulative impacts	No cumulative impacts	No cumulative impacts		N/A

Soils

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) operates the Web Soil Survey, which includes the soils of Essex County (NRCS USDA, 2013). The Web Soil Survey maps show soils on the site as being composed of a wide array of soil types and slope characteristics including the following: Chatfield-Hollis complex (CoD), Claverack loamy fine sand (CqB), Covington clay (CvA), Gougeville muck loamy fine sand (GoA), Kingsbury silty clay loam (KyA), Rippowam fine sandy loam (RmA), Vergennes silty clay loam (VeB, VeC, VeD, and VeE), Windsor loamy sand (WnB, WnC, WnD, and WnE).

At the bottom of Chilson Hill, where the topography is representative of the Champlain Valley and clay soils predominate, the Town has had issues involving the corrosion of iron pipe due to the reactivity of the soils with metal. This concern has been problematic to the community and has resulted in the premature failure of portions of the water distribution system and has necessitated the use of specific pipe wrap to protect it from the corrosive effects of the clay soils. The aggressive nature of the clay soils on ductile iron pipe have been addressed in project design through the incorporation of polyethylene pipe wrap into project plans and specifications.

The Farmland Protection Policy Act (FPPA) requires Federal agencies to minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural use and to assess potential conversion of farmland to developed property. The KyA, VeC, VeB and RmA soils are categorized as Farmland of Statewide Importance. The CqB soils are categorized as Prime Farmland soils. The eastern portion of the project area (approximately 1,000 LF) is within an Agricultural District (Essex County Agricultural District 1).

Geology

The upland areas surrounding Ticonderoga to the west are underlain by Precambrian-age crystalline rocks. These rocks form a border along the southeast edge of the Marcy Massif, a 50-mile wide intrusion of anorthosite that is the dominant feature of the eastern Adirondacks. They extend westward from the west edge of the Champlain Valley, and include Bear Mountain and Mount Defiance to the south. The Precambrian rocks are in some places overlain by sedimentary rocks of Paleozoic age whose dominant structural characteristic is their layered bedding. Bedrock beneath most of the low relief area from Ticonderoga north to Stony Point (including all the area of the platform east of Route 9N to Lake Champlain) generally consists of these nearly flat-lying sedimentary rocks, much of which are covered by a layer of glacial sediments.

Specific to the project area, bedrock where it is not exposed is generally covered by a thin layer of glacial till with boulders presenting some difficulty for installation of subsurface structures such as water mains. Geoprobes were used to identify areas along the recommended route of the new water main to insure sufficient bury depth and determine the extent of rock removal.

5.1.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact topography, geology, or soils. The current water transmission main would remain at its present location along Chilson Brook.

Alternative I

Alternative I would have minor impacts to the physical features of the project site, including ground disturbance during construction and the creation of an access road to provide equipment access and provide proper cover for the water main. Some impacts to soils and topography (ground disturbance) during construction would occur from tree removal and grading of the access lane. Best management practices (BMPs) will be utilized to minimize erosion and control sediment, including use of filter fabric adjacent to all areas of soil disturbances to reduce transport of dislodged soils into nearby streams and seeding/mulching of disturbed soils to help establish a vegetative cover and stabilize disturbed areas. The area of disturbance would be approximately 5,533 LF or 33,198 square feet (SF), including the area along the stream crossing, and incorporates less than one acre of overall surface soil disturbance. Along the length of the proposed water transmission main within the NYS Route 74 corridor, excavation of the road shoulder would take place for the installation of the main, which would then be backfilled with sand bedding and native material; finish grading, topsoil, seeding, and mulching will be conducted as appropriate, conforming to NYS DOT highway work permit conditions. The project requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) developed in accordance with the “New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity” General Permit Number GP-0-10-001, effective January 29, 2010 through January 28, 2015. The SWPPP and accompanying plans identify and detail stormwater management, pollution prevention, and erosion and sediment control measures necessary during and following completion of construction. Access may be temporarily disrupted to two properties where driveways extend into the ROW, requiring restoration and relocation of impacted areas.

FEMA consulted with the US Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), and determined that the project is exempt from the FPPA provision. Although the project does include soils designated as being of statewide importance, the project is only impacting a small area that will be restored to its previous state after construction (see letter in *Appendix D*).

Alternative II

This alternative will involve considerably more soil disturbance as compared to Alternative I due to the increased length of the water main. While more soils will require excavation, the majority of the area impacted has been previously disturbed through the construction of Old Chilson Road and during road maintenance. It is assumed that this alternative would also be exempt from FPPA due to the nature of the project and the small area of disturbance; however, USDA-NRCS was only consulted on the preferred alternative.

The area of disturbance would be approximately 8,324 LF, equating to approximately 49,944 SF and representing 1.18 acres of ground disturbance that includes trenching activity and disturbed soils and vegetation within the road ROW. Along the length of the proposed water transmission main, excavation of the road shoulder would take place for the installation of the main, which would be backfilled with sand bedding and native material; finish grading, topsoil seeding, and mulching will also be conducted as necessary. This option would also disrupt access to four residential properties where driveways extend into the ROW, requiring restoration and relocation of impacted areas. As discussed under Alternative I, preparation of a SWPP may be required.

5.2 Land Use and Zoning

5.2.1 Existing Conditions

The existing facility is located along Chilson Brook, within the Chilson Brook Watershed that encompasses a 20 square mile area of the Town of Ticonderoga in Essex County, New York. The Chilson Brook watershed is a sub watershed of the much larger Lake Champlain watershed and discharges to the LaChute River in the Hamlet of Ticonderoga, approximately two miles upstream from Lake Champlain and one to three miles from the project sites. Land use within the project area of Alternative I consists of 10 acres of town-owned land adjacent to the Chilson Reservoir designated for public utility use, as well as the section along NYS Route 74 that is primarily undeveloped private forest and agricultural land and some commercial development where the highway approaches the intersection with Race Track Road. The land use along the Alternative II route is primarily rural residential with some agricultural use as the steep road approaches the flat terrain in proximity to Race Track Road. Both alternatives enter a designated Agricultural District for the easternmost 1,000 LF, which falls under the jurisdiction of the NYS Department of Agriculture and Markets (Ag and Markets).

The NYS Adirondack Park Agency (NYS APA) is responsible for developing long-range land use plans for public and private lands, maintaining the protection of the forest preserve, and overseeing development proposals of privately owned lands within the Adirondack Park, which includes the project area. The NYS APA determines permitting requirements based on the existing laws and regulations, including the Adirondack Park Land Use and Development Plan Map (*Appendix A*). The NYS APA has zoned this area for Moderate Intensity and Rural Use. See *Appendix C*, SEQRA Documents- Environmental Assessment Form for additional site details.

5.2.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact land use or local zoning.

Alternative I

Implementation of the action complies with local zoning and NYS APA regulations (*Appendix A*). The Subgrantee has provided project information and plans to the APA. On Sept. 30, 2013 the APA responded, determining that the project was in compliance with their requirements based on the project information available at that time. A permit was later issued for work being conducted within wetlands under APA jurisdiction. Project engineers will submit the final plans to the agency to ensure that they are still in compliance (*Appendix D*). As the project is located within a designated Agricultural District, the Subgrantee provided a Preliminary Notice of Intent (NOI) and Final NOI to the NYS Department of Ag and Markets pursuant to the Ag and Markets Law Section 305(4). The NOIs were accepted by Ag and Markets with no objections and the Town is compliant with Ag and Markets Law (*Appendix D*).

Alternative II

Although Alternative II was not included in the above-noted consultations, the impacts would likely be similar to those identified above under Alternative I. This alternative complies with local zoning and NYS APA regulations and would not adversely impact land uses.

5.3 Water Resources and Water Quality

Congress enacted the Federal Water Pollution Control Act in 1948, which was reorganized and expanded in 1972, and became known as the Clean Water Act (CWA) in 1977, as amended. The CWA regulates discharge of pollutants into water with sections falling under the jurisdiction of the U.S Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA). Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into Waters of the United States and traditional navigable waterways. The USACE regulates activities within navigable waters, as authorized under the 1899 Rivers and Harbors Act. Under National Pollutant Discharge Elimination System (NPDES), the EPA regulates both point and non-point pollutant sources, including stormwater. Activities that disturb one (1) acre of ground or more are required to apply for an SPDES permit administered in NYS through the NYSDEC.

5.3.1 Existing Conditions

The project site is located near the Hamlet of Chilson, approximately four miles west of Lake Champlain and three miles from the Hamlet of Ticonderoga. The natural stream drainage area encompassing the Chilson Brook watershed is the primary host for the project and the alternatives reviewed herein. There are no residential properties that exist in the immediate vicinity of the project site. The existing Chilson Reservoir and water transmission main are located in a generally flat section of the watershed; however, just east of the reservoir Chilson Brook begins a steep decline of 5.2% as the topography drops toward Lake Champlain and the Champlain Valley. Chilson Brook is stocked with 350 8-9 inch brook trout annually by the Essex County Fish Hatchery (NYSDEC) and is classified as a Class C (T) stream. The “T” standard means that this stream’s highest and best use is to support trout. In accordance with NYS Environmental Conservation Law, any disturbance to the bed or banks of a stream with trout standards would be prohibited without a permit from the NYSDEC (NYSDEC-Mapper, 2013).

5.3.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would potentially result in continued periodic impairments to the water quality and natural resources of Chilson Brook. The proximity of the existing water transmission main to the brook may lead to future adverse impacts to the water main as erosion and runoff would occasionally result in a broken water main allowing chlorine-treated water to be discharged into the environment without de-chlorination treatment. The treated water from the Town’s water supply system would continue to infiltrate into the surface water through existing cracks and leaks which may or may not be observable. However, the risks of catastrophic failure of the water main as occurred in August of 2011 would continue and increase in probability as the brook changes flow intensity and meanders in vicinity of the pipeline. The unpredictability of pipe failure and weather related impacts place the town’s water system in constant jeopardy and compromise the long term water quality of Chilson Brook.

Alternative I

This alternative would abandon the existing water transmission main in place and reroute a new transmission main from the reservoir northerly along an access lane, before continuing across Chilson Brook to the NYS Route 74 ROW. No impact to surface water quality of Chilson Brook

would occur as minimization and mitigation measures, through permitting, would be required to avoid any adverse impacts to the natural environment, including any necessary conditions to avoid impacts to fish passage during the channeling of the brook. The Subgrantee has applied for permits from NYS DEC and USACE as the project may require a NYS DEC Article 15 – Protection of Waters Permit and a USACE nationwide permit for open cut trenching to install the water main across Chilson Brook. An approximately 12-foot wide area of disturbance would cross the brook, requiring the brook to be temporarily channeled through a culvert pipe using sand bags to divert the flow into the culvert and avoid the trench. Approximately 35 cubic yards of brook bed material would be removed for the installation of the water main, which will be buried and encased in concrete. The trench will be refilled with the existing brook bed material up to 12 inches below the existing elevations of the brook bed. Geogrid fabric and clean rip rap will be placed to match existing brook bed grades. The action will be controlled to prevent pollutants from entering water resources during the construction phase. Silt fences will be placed downstream and alongside the brook bed. No long-term impacts to Chilson Brook bed and banks would be expected. In addition, a highway work permit would be needed from the NYS DOT for work along the highway ROW and would require the utilization of erosion prevention measures and site restoration. A SWPPP is required and must be approved prior to construction, in accordance with the NYS stormwater SPDES General Permit for Construction Activities (GP-0-10-001). No impacts to groundwater quality would be anticipated as excavation would not reach high groundwater table depths and there would be no discharge of sanitary wastes into groundwater.

Alternative II

This alternative would reroute a new water transmission main from the existing reservoir and follow along Old Chilson Road to Race Track Road, where the new main would be connected to the existing infrastructure. No impact to surface water quality of Chilson Brook would occur as minimization and mitigation measures, through permitting, would be required to avoid any adverse impacts to the natural environment, including impacts to fish passage that may occur through the stream channeling. The project may require a NYS DEC Article 15 – Protection of Waters Permit and a USACE nationwide permit for the stream disturbance necessary to construct the line across Chilson Brook. Similar minimization efforts would be made as discussed under Alternative I if an open cut is required for the stream crossing. The action will be controlled to prevent pollutants from entering water resources during the construction phase. No long-term impacts to Chilson Brook bed and banks would be expected. A SWPPP is required and must be approved prior to construction, in accordance with the NYS stormwater SPDES General Permit for Construction Activities (GP-0-10-001). No impacts to groundwater quality would be anticipated as excavation would not reach high groundwater table depths and there would be no discharge of sanitary wastes into groundwater.

5.4 Wetlands

Executive Order (EO) 11990 “Wetlands Protection” requires that Federal agencies take actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the beneficial effects of wetlands. Compliance with this EO is insured through the process of identifying whether the action would be located within or would potentially affect Federally-regulated wetlands (USFWS 1977). Federal regulation of wetlands is under the jurisdiction of the USACE. Federal actions within wetlands require the Federal agency to conduct an Eight-Step

Review Process. This process, like NEPA, requires the evaluation of alternatives prior to funding the action. FEMA’s regulations for conducting the Eight-Step Review process are contained in 44 CFR Part 9.5. NYSDEC also regulates and protects freshwater wetlands as defined by NYS’ Environmental Conservation Law (NYSECL) Article 24. The Eight-Step Review Process for this project can be found in *Appendix F*. The NYS APA also regulates and issues permits regarding work that may impact streams and wetlands within the Adirondack Park.

5.4.1 Existing Conditions

Based on a wetlands review of the proposed project site for the presence of NYS regulated freshwater wetlands conducted at the NYSDEC’s “Environmental Resource Mapper” website, no state regulated wetlands are within the Area of Disturbance (AD). Based on a review of the United States Fish and Wildlife Service’s (USFWS) National Wetlands Inventory (NWI) website; Federally-regulated wetlands are present along Alternative I (USFWS-NWI 2014). The Chilson Reservoir is identified as a PUBHx (Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated) and there are two USFWS identified wetlands located to the northwest of the reservoir on the town-owned property. The proposed route of the new water main crosses a PUBFb (Palustrine, Unconsolidated Bottom, Semi permanently Flooded, Trees, Shrubs, Mosses) and is located within 200 feet of a PEM1Eb (Palustrine, Emergent, Persistent Vegetation, Seasonally Flooded). These wetlands measure less than one acre. One small wetland is also identified by the USFWS near Alternative II that would not be directly impacted: a PSS1E (Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded/Saturated). See *Appendix A*.

In addition, the Adirondack Park Agency (APA) was contacted and indicated that a wetland habitat subject to agency jurisdiction was identified in the vicinity of the proposed action (*Appendix D*). A site visit was conducted by APA staff and the wetlands along the proposed route were delineated. The proposed route of the water line crosses both Chilson Brook as well as the APA-delineated wetland, which corresponds with the PuBFb wetland identified on the NWI website (*Appendix A*).

5.4.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not have an impact on wetlands as no work would be completed. Future maintenance of the line may require access across wetlands and has the potential to result in temporary impacts.

Alternative I

As Alternative I requires trenching to install the water main along the new route as well as equipment access during construction, this alternative would result in temporary impacts to wetlands. The work area would be approximately 12’ wide, including the 6’ trench area and 6’ equipment access, and would extend approximately 194’ across wetlands identified on the town-owned property. Design of the access road and route of the water main has taken wetland locations into consideration and best management practices (BMPs) such as silt fencing will be utilized to avoid additional impacts to the wetlands from the nearby water main installation and access road construction. The Subgrantee has applied for the necessary permits from APA, NYS DEC, and USACE. APA provided an approved permit, which is included in *Appendix D*. The

project must comply with all relevant permit conditions. The proposed open cut requires the temporary removal and storage of approximately 246 square yards of wetland hydric soils that will be carefully removed, stored on tarps, and replaced upon installation of the water main.

Alternative II

Alternative II would also result in temporary impacts to wetlands as it would require a similar stream crossing approximately 400 feet from the intersection with Race Track Road, where wetlands under APA jurisdiction surround Chilson Brook. Although there are no federally-identified wetlands in the AD, it is likely that wetlands would be identified in the case of an APA site visit, which could necessitate the application for permits from APA, NYS DEC, and USACE. Similar minimization efforts would be required under Alternative II in order to avoid permanent or significant impacts to wetlands.

5.5 Floodplains

EO 11988 “Floodplain Management” requires that Federal agencies avoid funding activities that directly or indirectly support occupancy, modification, or development of the 100-year floodplain whenever there are practicable alternatives (FEMA 2010). FEMA uses Flood Insurance Rate Maps (FIRMs) to identify floodplains for the NFIP. Federal actions within the 100-year floodplain, or 500-year floodplain for critical actions, require the Federal agency to conduct an Eight-Step Review Process. This process, like NEPA, requires the evaluation of alternatives prior to funding the action. FEMA’s regulations for conducting Eight-Step processes are contained in 44 CFR Part 9.5. The Eight-Step Review Process conducted for this project can be found in *Appendix F*.

5.5.1 Existing Conditions

While not mapped in a Special Flood Hazard Area (SFHA) or 500-year floodplain for flood insurance purposes, Chilson Brook has a base flood and floodplain and floodplain habitat function and value. As the existing water main is located in the bed of the creek, it is considered to be within the floodplain. According to the FIRM (Community Panel Number 3611590015C, effective September 6, 1996), both Alternatives I and II are entirely located in an area identified as Zone X, which is an area determined to be outside of the 500-year floodplain (See *Appendix A*). However, both alternatives would cross the stream and are therefore within the floodplain for a short distance. The repair and replacement of the water transmission line would be a critical action as defined at 44 CFR Part 9.4, as a critical component of water supply to the community; therefore, impacts to and by the 500-year floodplain are considered in accordance with EO 11988 and 44 CFR Part 9.

5.5.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The no action alternative would leave the existing water main in use within the floodplain, thereby having the potential to affect or be affected by the floodplain.

Alternative I

Alternative I would relocate the majority of the water transmission main out of both the 100-year and 500-year floodplains; therefore it would have a positive impact through flood and erosion

damage risk reduction. The only section that would remain in the floodplain is the short distance where it must cross Chilson Brook, and temporary impacts to floodplain would be mitigated to the extent possible through minimization of disruption of fish passage and minimization of the duration of disturbance to the aquatic environment.

Alternative II

Similarly to Alternative I, Alternative II would relocate the majority of the water transmission main out of both the 100-year and 500-year floodplains, thereby having a positive impact through flood and erosion damage risk reduction. The potential temporary impacts are the same as described above for Alternative I.

5.6 Vegetation

5.6.1 Existing Conditions

The project location includes a 10-acre parcel of land owned by the Town of Ticonderoga that is vegetated with a mixed hardwood and softwood forest typical of Adirondack foothills. The property includes public water utility structures such as the one million gallon open storage reservoir, a small control building, and the underground water pipes that divert water toward the control building and then back to the transmission main for distribution to the community. The remaining +4,000 ft of proposed water main would be located within the NYS DOT Route 74 ROW. Any soil disturbances would require re-seeding to establish cover grasses to protect soils from erosion.

5.6.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact vegetation as no work would be completed. As ongoing repairs are completed to the existing water transmission main, minor temporary impacts to vegetation may be anticipated. Heavy equipment usage in the repairs could affect vegetation along the brook and would require reseeded in areas of soil disturbance.

Alternative I

Minor impact to vegetation is anticipated as in addition to the trenching for the water line, an approximately 6,000 SF area of the town-owned property would need to be cleared to construct a lane to allow equipment access during construction, ongoing maintenance access, and adequate fill placed to cover the water main. Approximately 100 trees would be removed from the construction site. The types and sizes of trees to be removed are listed in Table 2. Any grasses located within the project sites would be replaced during restoration through seeding and mulching activity.

Table 2. Type, Number and Average Diameter of Trees to be removed

<u>Type of Trees</u>	<u>Number of Trees</u>	<u>Avg. Dia</u>
Pine	36	17
Maple	40	13
Hemlock	3	11
Aspen	1	14
Ash	10	10

<u>Type of Trees</u>	<u>Number of Trees</u>	<u>Avg. Dia</u>
Oak	3	13
Elm	2	7
Birch	2	12
Basswood	3	17
TOTAL	100	

Alternative II

Alternative II would result in some minor impacts to vegetation where the proposed rerouting of a new transmission main within the ROW of Old Chilson Road may require removal of saplings and shrubs that may interfere with equipment access for trenching and alignment of the water main. Any grasses located within the project sites would be replaced during restoration through seeding and mulching activity. No trees are proposed for removal under this alternative.

5.7 Wildlife and Fisheries Habitat

5.7.1 Existing Conditions

The project location includes a 10-acre parcel of land owned by the Town of Ticonderoga that is vegetated with a mixed hardwood and softwood forest typical of Adirondack foothills. The existing transmission main is located within the riparian corridor of Chilson Brook. The undeveloped areas of the property consist of northern forest habitat, suitable for wildlife such as mammals, birds, amphibians, and reptiles typical of the region. Chilson Brook flows through the property and is classified by NYS as a Class C (T) stream, indicating that for this stream, the highest and best use is that it could support trout. In addition, Federal agencies must evaluate potential impacts to migratory bird habitat per the Migratory Bird Treaty Act. There is no sensitive migratory bird habitat along any of the potential project routes.

5.7.2 Potential Impacts and Proposed Mitigation

None of the alternatives would permanently impact wildlife in the area. Some populations may be displaced temporarily during construction, but ample habitat exists to accommodate any displaced wildlife resources. It is estimated that approximately 6,000 SF of forested area would be affected by the construction on the property owned by the Town and the remainder of the project sites are located within ROW. Although fish passage may be temporarily hindered during the stream channeling as the water main is laid across the brook, the fish habitat of the stream will be improved in the long term by reducing unnatural inflow and infiltration of drinking water into natural stream habitats from the cracked and broken water main. In accordance with Migratory Bird Treaty Act, FEMA has determined that there would be no significant adverse impact to migratory bird habitat and no take of migratory bird species associated with any of the project alternatives.

5.8 Threatened and Endangered Species and Critical Habitat

The Endangered Species Act (ESA) of 1973 provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead Federal agencies for implementing ESA are USFWS and National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NMFS). The law requires Federal agencies to

ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a “taking” of any listed species of endangered fish or wildlife.

5.8.1 Existing Conditions

The USFWS’s Endangered Species Program webpage and IPaC system was reviewed to determine whether any Federally-threatened or endangered species were known to be located at or near the site (USFWS 2005; USFWS 2014). The USFWS website provides a list of federally-listed species by county; as of February 2014, the Indiana bat (*Myotis sodalis*) is listed as an endangered species in Essex County. The Northern Long-eared Bat (*Myotis septentrionalis*), is proposed to be listed in Essex County as endangered on the federal threatened and endangered species list. The three alternatives are located within 10 miles of the Bennett Hill Hitchcock Mine and the Main Graphite Mine and within 20 miles of the Barton Hill Mine, all of which are identified as Indiana bat hibernacula. The New York Natural Heritage Program (NHP) and NYS DEC Region 5 were consulted and indicated that the Eastern small-footed bat (*Myotis Leibii*) in addition to Hibernaculum may be present in the vicinity of the project area. The Eastern small-footed bat is a Species of Special Concern in New York, though is not Federally or State designated as endangered or threatened (*Appendix D*).

5.8.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not affect endangered, threatened, or rare species or any critical habitat.

Alternative I

The Indiana, Northern long-eared, and Eastern small-footed bats require mature specific tree species for habitat during migration, and may also roost in rock crevices and talus areas. Tree removal is proposed to create access for equipment to the property and trenching activities may also disrupt these habitats. Approximately 100 trees are proposed for removal, as discussed in section 5.6.2.

FEMA consulted with USFWS regarding the proposed action and determined that the project may affect but is not likely to adversely affect both the Indiana bat and the Northern long-eared bat. USFWS concurred with FEMA’s findings (November 20, 2013; *Appendix D*). In order to comply with this finding, tree removal can only be conducted between November 1 and March 31 to avoid the roosting period of the Indiana bat and the Northern long-eared bat. In addition, the removal of standing trees (live or dead) greater than or equal to 4 inches diameter at breast height (DBH) with loose bark should be avoided as much as possible and bright colored flagging or fencing should designate the trees to be removed prior to construction activities to differentiate them from protected trees.

In consultation, NYS DEC Region 5 also suggested limiting tree clearing and any disturbance of rocky outcrops and talus piles with solar exposure to the period between late October and mid-March in order to minimize potential impacts to the Eastern small-footed bat. These conservation measures will be reflected in the final grant condition documentation.

Alternative II

No trees would be removed under Alternative II, therefore this alternative has no potential to impact identified threatened or endangered species. Should tree removal be found necessary, the same project conditions would be required for Alternative II as Alternative I.

5.9 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800 requires Federal agencies to consider the effects of their actions on historic properties and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on Federal projects that would have an effect on historic properties. These actions must take place prior to the expenditure of Federal funds. Historic properties include districts, buildings, structures, objects, landscapes, archaeological sites, and traditional cultural properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP).

5.9.1 Existing Conditions

Alternatives I and II would include the construction of a new below ground ductile iron water main, which would require limited tree clearing and trenching. The Area of Potential Effects (APE) for each alternative would be the area of ground disturbance throughout the length of the project. According to the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) website, the project site is located within an archeologically sensitive area; however, there are no previously identified historic properties in the APE.

A Phase I Cultural Resources Survey was completed for Alternative I to determine the potential for the presence of intact, in-situ cultural material, particularly deeply buried material, within alluvium and colluvium in the APE of the proposed project. Much of the APE was previously disturbed, and no archaeological deposits were identified through the survey. No further cultural resources work is recommended for the project. Cultural resources investigations can be found in *Appendix E*.

5.9.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact cultural resources.

Alternative I

There are no historic structures within the APE of Alternative I. Furthermore, as discussed above, a Phase I Cultural Resources Survey revealed no archaeological deposits or potential for pre-historic or historic resources in the APE. FEMA finds that this alternative has no potential to affect historic resources. SHPO concurred with these findings in a letter dated December 30, 2013 (reference number 12PR03581; *Appendix E*).

FEMA consulted with the St. Regis Mohawk Tribe, provided information regarding the undertaking and its potential effects to historic properties, and afforded the Tribe an opportunity to participate in the consultation. No response was received from the Tribe.

Alternative II

The proposed action would affect only previously disturbed areas of the ROW of Old Chilson Road, and would not have the potential to affect cultural resources.

5.10 Aesthetics and Visual Resources

5.10.1 Existing Conditions

The town-owned property at the western terminus of the project site is predominantly forested land with the water building and Chilson Reservoir. The existing and proposed water mains are all belowground and not visible except where washed out in the creek area. The site is bordered on the north by NYS Route 74 and on the south by Old Chilson Road. To the east and west, it is bordered by additional forested land and residential properties of the Town of Ticonderoga. NYS Route 74 continues east into the Village of Ticonderoga, passing through the Agricultural District at the east end of the project area and continuing into an area of commercial properties near the intersection with NYS Route 9N.

5.10.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative may have a minor negative impact on aesthetic or visual resources. Currently, the water main is visible in the stream bed of Chilson Brook.

Alternative I

Temporary impacts are expected to aesthetics and visual resources during construction. No long-term impacts to aesthetics and visual resources would be expected. The alternative consists of the routing of an underground public utility that would not be visible once construction is completed and the excavation areas returned to their natural state. The tree removal proposed on the town-owned property would not have any impacts as the trees proposed for removal are on the interior of the lot and would not impact any important viewsheds.

Alternative II

Temporary impacts are expected to aesthetics and visual resources during construction. No long-term impacts to aesthetics and visual resources would be expected. This alternative consists of the routing of an underground public utility that would not be visible once construction is completed and the excavation areas returned to their natural state.

5.11 Socioeconomic Resources

5.11.1 Existing Conditions

According to the American Community Survey (ACS), sponsored by the U.S. Census Bureau, the 2010 Population for the Town of Ticonderoga was 5,045 persons and Essex County had a population of 39,309 persons (US Census Bureau 2010). The total number of persons receiving water from this project is estimated between 4,000 and 5,000. The total number of households in the entire Town is 2,423; approximately 80 percent of which is served by the Chilson Water Transmission Main. The Median Household Income for the Town is \$41,189 and the Median Household Income for the County is \$47,400.

5.11.2 Potential Impacts and Proposed Mitigation

No Action Alternative

This alternative would likely have adverse impact on the socioeconomic resources of the Town of Ticonderoga, as the existing water transmission main would continue failing without permanent repairs and the 4,000-5,000 people served by the water main would have limited or no access to drinking water. The residents and businesses would require an alternate means of obtaining water, such as purchasing bottled water or having water transported in from neighboring communities, which is not a long-term feasible option for the community.

Alternative I

Short-term positive impact to socioeconomic resources would be anticipated as a result of construction jobs and activity in the area that may support shopping/restaurants/gasoline/hardware & supplies/other retail. The long-term impact would restore safe and reliable drinking water to the residents and businesses in Ticonderoga. The Town would also save district funds on temporary and repetitive repairs to the water line.

Alternative II

Short-term positive impact to socioeconomic resources would be anticipated as a result of construction jobs and activity in the area that may support shopping/restaurants/gasoline/hardware & supplies/other retail. The long-term impact would restore safe and reliable drinking water to the residents and businesses in Ticonderoga.

5.12 Environmental Justice

EO 12898, entitled “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” guides Federal agencies to “make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations” (EPA 1994).

5.12.1 Existing Conditions

According to 2010 census data and the American Community Survey, the population of the Town of Ticonderoga is predominantly Caucasian (estimated 97%). About 19% of Town of Ticonderoga residents and 12.4% of Essex County residents live below the poverty level. The project location is not delineated as an Environmental Justice community.

5.12.2 Potential Impacts and Proposed Mitigation

None of the project alternatives would have disproportionately high or adverse impacts on human health and human environment of minority or low-income populations. All residents would benefit as a result of the proposed action because safe and reliable water supply would be made available.

5.13 Air Quality

The Clean Air Act (CAA) of 1963 (amended 1970, 1977 and 1990) requires each state to attain and maintain specified air quality standards. National Ambient Air Quality Standards (NAAQS) have been promulgated by the Federal government and by NYS for carbon monoxide (CO),

nitrogen dioxide (NO₂), total suspended particulate (TSP), sulfur dioxide (SO₂) and lead (Pb). NYS standards are generally the same as the Federal standards for these pollutants. Primary air quality standards are set to protect human health and secondary standards are set to protect human welfare. The EPA implements 2008 ozone standards as required by the CAA and meets these standards to provide public and environmental health benefits.

5.13.1 Existing Conditions

As identified on the EPA EJ Mapper, the proposed project is not located in a non-attainment area for Ozone 8-Hour, Lead 2008 Standard, Particulate Matter (PM) 2.5 Annual, or PM 2.5 24-Hour Standard.

5.13.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact air quality.

Alternative I

For Alternative I, temporary impacts (approximately 4 months) to air quality would be anticipated during construction activities; no long-term impacts are expected. Construction activities on the project site may have a potential impact on the local air quality through the generation of fugitive dust or airborne dust. Fugitive dust is generated during ground breaking and excavation activities. Emissions from diesel construction vehicles are also a potential source of air pollution. The use of best management practices (BMPs) would help minimize dust and vehicle emissions. BMPs may include but would not be limited to application of water or stabilizers to control dust or reducing equipment idling time to prevent excessive emissions. It is FEMA's finding that the construction emissions would be below *de minimis* levels for ozone and other criteria pollutants. NYS DOT permits may require additional or alternate dust control methods.

Alternative II

The impacts for Alternative II are anticipated to be the same as described under Alternative I above.

5.14 Contaminated Materials

5.14.1 Existing Conditions

The project area is not believed to contain any hazardous materials. The town-owned property is predominantly forested with the 1931 reservoir and water lines that date to the 1890s. The town has owned the property and operated it for community water supply purposes since 1899. The NYS Route 74 ROW is primarily comprised of sand and gravel and is not believed to contain contaminated materials. The NYS DOT has owned the road system and ROW since the 1930s and this alignment of NYS Route 74 was vacant, undisturbed land prior to the roadway construction.

5.14.2 Potential Impacts and Proposed Mitigation

None of the alternatives would impact or be impacted by contaminated materials as no part of the project area is believed to contain contaminated materials. No evidence of significant

contamination to site structures, soils, surface/groundwater from hazardous materials has been identified; however, during construction activities, hazardous materials may be present on-site. BMPs should be implemented in the event that petroleum or other hazardous material leaks occur during construction. These practices include requiring all contractors to keep materials on hand to control and contain a petroleum spill. Any spills are required to be reported to NYSDEC. Contractors are responsible for ensuring responsible action on the part of construction personnel. Occupational Safety and Health Administration (OSHA) standards would be adhered to during construction to avoid impacts to worker health and safety.

5.15 Noise

Sound pressure level (SPL) is used to measure the magnitude of sound and is expressed in decibels (dB or dBA), with the threshold of human hearing defined as 0 dBA. The SPL increases logarithmically, so that when the intensity of a sound is increased by a factor of 10, its SPL rises by 10 dB, while a 100-fold increase in the intensity of a sound increases the SPL by 20 dB.

Equivalent noise level (Leq) is the average of sound energy over time, so that one sound occurring for 2 minutes would have the same Leq of a sound twice as loud occurring for 1 minute. The day night noise level (Ldn) is based on the Leq, and is used to measure the average sound impacts for the purpose of guidance for compatible land use. It weights the impact of sound as it is perceived at night against the impact of the same sound heard during the day. This is done by adding 10 dBA to all noise levels measured between 10:00 pm and 7:00 am. For instance, the sound of a car on a rural highway may have an SPL of 50 dBA when measured from the front porch of a house. If the measurement were taken at night, a value of 60 dBA would be recorded and incorporated into the 24-hour Ldn.

Leq and Ldn are useful measures when they are used to determine levels of constant or regular sounds (such as road traffic or noise from a ventilation system). However, neither represents the sound level as it is perceived during a discrete event, such as a fire siren or other impulse noise. They are averages that express the equivalent SPL over a given period of time. Because the decibel scale is logarithmic, louder sounds (higher SPL) are weighted more heavily; however, loud infrequent noises (such as fire sirens) with short durations do not significantly increase Leq or Ldn over the course of a day.

The Noise Control Act of 1972 required the EPA to create a set of noise criteria. In response, the EPA published *Information On Levels Of Environmental Noise Requisite To Protect Public Health and Welfare With An Adequate Margin Of Safety* in 1974 which explains the impact of noise on humans. The EPA report found that keeping the maximum 24-hour Ldn value below 70 dBA will protect the majority of people from hearing loss. The EPA recommends an outdoor Ldn of 55 dBA. According to published lists of noise sources, sound levels and their effects, sound causes pain starting at approximately 120 to 125 dBA (depending on the individual) and can cause immediate irreparable damage at 140 dBA. OSHA has adopted a standard of 140 dBA for maximum impulse noise exposure.

5.15.1 Existing Conditions

The project site is located in a predominantly rural area in the Town of Ticonderoga, Essex County, New York, and contains a few homes and businesses. The ambient noise level in the

vicinity of the project site is typical for a rural area. Vehicle noise is also generated from the nearby NYS Route 74 roadway. Currently, there is no noise associated with the existing water main, except during times of maintenance work. The Ldn is typically about 45 dBA for rural agricultural areas, and 55 dBA for small-town and suburban residential areas. (References: NYSDEC program policy memorandum “Assessing and Mitigating Noise Impacts,” http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf and “Environmental Noise: The Invisible Pollutant,” <http://www.nonoise.org/library/envarticle/>).

5.15.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact ambient noise levels.

Alternative I

Temporary impact (4 months) to ambient noise levels would be anticipated during construction; no long-term impacts would be expected. Methods such as utilization of manufacturer specified noise reduction equipment should be used during construction to minimize impacts.

Alternative II

Temporary impact (4 months) to ambient noise levels is anticipated during construction; no long-term impacts are expected. Methods such as utilization of manufacturer specified noise reduction equipment should be used during construction to minimize impacts.

5.16 Traffic

5.16.1 Existing Conditions

NYS Route 74 presents high traffic volumes during peak commute hours of the day. Traffic increases in the summer months due to tourism and seasonal homeowners.

5.16.2 Potential Environmental Impacts

No Action Alternative

The No Action Alternative would not impact traffic volume.

Alternative I

Short-term impact (4 months) to traffic would be anticipated during construction; no long-term impacts are anticipated. The presence of construction and delivery vehicles is necessary during construction; however, this impact would be temporary and all site construction activities would comply with NYS DOT regulations and the highway work permit.

Alternative II

Short-term impact (4 months) to traffic would be anticipated during construction; no long-term impacts would be expected (see Alternative I above).

5.17 Infrastructure

5.17.1 Existing Conditions

The proposed project would construct the new water main serving around 4,000-5,000 people in the community. The current water transmission main is compromised by multiple breaks and leaks caused by Hurricane Irene. Temporary fixes were put into place to continue service; however, these repairs are not permanent. The new facility would be expected to be used immediately after construction is completed. The NYS Department of Health (NYS DOH) Bureau of Water Supply Protection regulates the operation, design, and quality of public drinking water supplies and assures water sources are adequately protected. In part of the NYS DOH drinking water protection program, all water supply systems must be designed and installed in accordance with Recommended Standards for Water Works (2012) also known as the “10 State Standards”. These standards have been adopted and implemented by NYS to ensure the highest quality of water is supplied to the communities it serves. The standards provide guidance for the design of public water supply systems and require that water sources are from a permitted water supplier and meet all minimum water quality levels. In addition, all systems must be designed and installed using proper materials and apparatus to ensure the proper service life of the water system.

5.17.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative could have a significant negative impact on infrastructure. Not completing permanent repairs will leave the water main vulnerable to future storm damages, which could result in many of the 4,000-5,000 customers with limited or no access to potable water, as was the case in Hurricane Irene.

Alternative I

This alternative would have a positive impact on infrastructure as it would provide a new water main to serve the community with safe and reliable potable water. The infrastructure would support the needs of the community by providing quality drinking water and adequate water pressure for fire suppression and other community needs. NYS DOH has been notified and provided plans to assure designs are in compliance with state codes and regulations, including the 10 State Standards.

Alternative II

This alternative would have a positive impact on infrastructure as it would provide a new water main to serve the community with safe and reliable potable water. The infrastructure would support the needs of the community by providing quality drinking water and adequate water pressure for fire suppression and other community needs.

5.18 Public Health and Safety

5.18.1 Existing Conditions

The Town of Ticonderoga’s public health and safety was negatively impacted by Hurricane Irene. The water main experienced extensive flood damage and the town was left without drinking water for 24 hours. Temporary repairs were made, but a permanent fix is required. The

current drinking water supply, via the transmission main, is a public health concern as surface water may infiltrate the broken water main (See *Appendix B*).

5.18.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would negatively impact public health and safety. If the existing facility was left to deteriorate, public safety may be at risk from harm by contamination due to inflow of surface water. Additionally, upon total failure of the water main, 4,000-5,000 people, including residences, businesses, industrial users, health care facilities, and others would not have access to potable water.

Alternative I

The impact on the overall public health and safety would be positive through the return of a safe and reliable drinking water supply. The completed water main will meet all state, local, and federal codes and regulations for public health and safety, and coordination with NYS DOH will assure compliance with drinking water standards.

Alternative II

The impact on the overall public health and safety would be positive through the return of a safe and reliable drinking water supply. The completed water main will meet all state, local, and federal codes and regulations for public health and safety, and coordination with NYS DOH will assure compliance with drinking water standards.

5.19 Climate Change

According to the EPA, climate change "...refers to any significant change in the measures of climate lasting for an extended period of time" (EPA, no date). This includes major variations in precipitation, sea surface temperatures and levels, atmospheric temperature, wind patterns, and other variables resulting over several decades or longer. However, the EPA identifies and regulates human actions that may affect climate change. This is dubbed "abrupt climate change," which occurs over decades and distinguishes it from natural variability that occurs gradually over centuries or millennia. Embodied energy measures sustainability to account for the energy used by structures or to create materials. Another measure of sustainability is life-cycle or cradle-to-grave analysis that accounts for the extraction, manufacture, distribution, use, and disposal of materials. While resources exist to quantify embodied energy and life cycle analysis, the calculations were not prepared by the Subgrantee for the options presented in this EA.

5.19.1 Existing Conditions

Climate change could potentially increase temperatures in the northeast United States, could potentially cause more severe weather incidents to occur, and could potentially cause sea levels to rise.

5.19.2 Potential Impacts and Proposed Mitigation

None of the alternatives would impact or be significantly or uniquely impacted by climate change. The Subgrantee's proposed action incorporates hazard risk reduction through replacement of the infrastructure line in a new relocated alignment. The Subgrantee would

consider opportunities to recycle and use locally available materials as sustainable practices for construction implementation.

5.20 Cumulative Impacts

Cumulative effects are defined by the Council of Environmental Quality (CEQ) as the impact on the environment resulting from the incremental impacts of the evaluated actions when combined with other past, present, and reasonably foreseeable future actions, regardless of the source, such as Federal or non-Federal. Cumulative impacts can result from individually minor but collectively significant actions taken over time. No other projects in the past, in the present, or in the reasonably foreseeable future are anticipated in the project area that would cumulatively exacerbate impacts on the human environment in combination with the proposed action. (Table 1, Section 5.0 summarized the potential impacts of the No Action and Alternatives I and II).

6.0 Permits and Project Conditions

The Subgrantee is responsible to obtain all applicable Federal, state, and local permits for project implementation prior to construction, and to adhere to all permit conditions. The Subgrantee has already completed a New York State Environmental Quality Review Act (SEQRA) documentation process which includes the forms provided in *Appendix C*. Any substantive change to the approved scope of work will require re-evaluation by FEMA for compliance with NEPA and other laws and executive orders. The Subgrantee must also adhere to the following conditions during project implementation and consider identified conservation recommendations:

1. The Subgrantee shall be responsible to complete the SEQR process and local land-use reviews in accordance with state and local regulations.
2. Excavated soil and waste materials will be managed and disposed of in accordance with applicable Federal, state, and local regulations.
3. The Subgrantee shall be responsible to comply with the NYSDEC State Pollutant Discharge Elimination System (SPDES) permit for stormwater discharge from construction activity or other applicable SPDES permit, in accordance with NYSECL. If the NYSDEC General Permit for Stormwater Discharges is determined to cover the proposed action, the Subgrantee shall provide NYSDHSES/FEMA a copy of the Stormwater Pollution Prevention Plan (SWPPP) and a copy of the Notice of Intent Form at grant project close-out or other time identified by NYSDHSES/FEMA per grant administrative documentation guidance requirements. If an individual SPDES permit is determined to be required, the Subgrantee shall provide a copy of the obtained permit, as well as supporting SWPPP to NYSDHSES/FEMA at grant project close-out or other times identified by NYSDHSES/FEMA per grant administrative documentation guidance requirements. For more information regarding SPDES, visit the following website: <http://www.dec.ny.gov/chemical/43133.html>. It is expected that the Subgrantee and its construction contractor(s) will conduct construction utilizing best management practices to limit noise, dust and sedimentation, and erosion during construction.
4. Construction plans must be coordinated with the NYS Department of Health and should follow the “10 States Standards” for public water supply (2012). Subgrantee is responsible for obtaining any applicable permits.

5. The United States Army Corps of Engineers (USACE) may require a permit for the subject work that would involve stream and wetland disturbance. The work may be authorized by a nationwide permit 12. The project will likely require an Article 15 permit from NYSDEC for stream disturbance, excavation and fill in navigable waters, and freshwater wetlands. A Joint Permit Application has been submitted to both agencies. In addition, a general permit may be required from the NYS Adirondack Park Agency (APA) for regulated activities in freshwater wetlands. The Subgrantee is responsible for obtaining all necessary permits and complying with all conditions of the permits including but not limited to notification and signature requirements to ensure validation of permits.
6. In the event that unmarked graves, burials, human remains, or archaeological deposits are uncovered, the Subgrantee and its contractors will immediately halt construction activities in the vicinity of the discovery, secure the site, and take reasonable measures to avoid or minimize harm to the finds. The Subgrantee will inform the NYSDHSES, SHPO and FEMA immediately. The Subgrantee must secure all archaeological findings and shall restrict access to the area. Work in sensitive areas may not resume until consultations are completed or until an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards determines the extent and historical significance of the discovery. Work may not resume at or around the delineated archaeological deposit until the Subgrantee is notified by NYSDHSES.
7. Occupational Safety and Health Administration (OSHA) standards shall be followed during construction to avoid adverse impacts to worker health and safety.
8. Tree removal can only be conducted between November 1 and March 31 to avoid the roosting period of the Indiana bat and the Northern long-eared bat. In addition, the removal of standing trees (live or dead) greater than or equal to 4 inches DBH with loose bark should be avoided as much as possible and bright colored flagging or fencing should designate the trees to be removed prior to construction activities to differentiate them from protected trees. NYSDEC also suggests limiting tree clearing and any disturbance of rocky outcrops and talus piles with solar exposure to the period between late October and mid-March in order to minimize potential impacts to the Eastern small-footed bat.
9. It is recommended that the Subgrantee restore disturbed construction areas of the site with native seed and/or plant species to minimize soil erosion and sedimentation, as well as enhance environmental habitat quality of project area. It is recommended that disturbed soil areas be planted with native plant material as soon as practicable after exposure to avoid or minimize growth of undesired and potentially invasive plant species that can potentially take hold without competition of native plant materials. Local landscape plant nurseries and soil conservation offices can assist with identification of suitable native plants for site location type. The following websites may also be useful to identification of native plant material for the proposed project site:
 - <http://plants.usda.gov/java/>
 - www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/plants/
 - www.fs.fed.us/wildflowers/nativeplantmaterials/rightmaterials.shtml
10. Subgrantee shall not initiate construction activities until fifteen (15) days after the date that the Finding of No Significant Impact (FONSI) has been signed as "APPROVED."

7.0 Public Involvement

In accordance with NEPA, the EA report will be released for a 30-day public review and comment period. Availability of the document for comment was advertised via public notices in the *Times of Ti* newspaper. A hard copy of the EA will be made available for review at the Town of Ticonderoga, Community Center Building, Office of Sue Huestis, Water/Sewer Clerk at 132 Montcalm Street, Ticonderoga, New York 12883. An electronic copy of the EA will be made available for download from the FEMA website at <http://www.fema.gov/resource-document-library>.

This EA reflects the evaluation and assessment of the Federal government, the decision-maker for the Federal action; however, FEMA takes into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. The public is invited to submit written comments by mail to FEMA, Office of Environmental Planning & Historic Preservation, Leo O'Brien Federal Building, 11A Clinton Avenue, Suite 742, Albany, New York 12207, or E-mail to: FEMA4020-4031Comment@fema.dhs.gov.

Copies of the EA will be sent to:

NYSDHSES
1220 Washington Avenue, Suite 101, Building 22
Albany, NY 12226-2251

NYSDEC Region 5
Office of Environmental Permits
P.O. Box 296
Ray Brook, NY 12977

The following will receive notice of the Environmental Assessment's availability:

Mr. John Bonafide
New York State Office of Parks, Recreation and Historic Preservation
Peebles Island, PO Box 189 Waterford, NY 12188-0189

Mr. Kevin Bruce
US Army Corps of Engineers CENAN-OP-RU
1 Buffington Street, Building 10, 3rd Floor
N. Watervliet, NY 12189-4000

Mr. Arnold Printup
Tribal Historic Preservation Officer
St. Regis Mohawk Tribe
412 State Route 37
Akwesasne, NY 13655

Ms. Nancy Heath
NYS Adirondack Park Agency
P.O. Box 99
Ray Brook, NY 12977

The EA evaluation resulted in the identification of no significant impacts to the human environment. Obtaining and implementing permit requirements along with appropriate best management practices would avoid or minimize potential adverse effects associated with the three alternatives considered in this EA to below the level of a significant impact. If no substantive comments are received as a result of the public review and comment period, FEMA will adopt the EA as Final and issue the Finding of No Significant Impact (FONSI). If substantive comments are received, FEMA will evaluate and address comments as part of the FONSI or prepare a Final Environmental Assessment to document comments and responses and any changes to the proposed action in response to input from the public.

8.0 Conclusion

FEMA through NEPA, and the Subgrantee through the State Environmental Quality Review Act (SEQRA), have found that the Proposed Action to construct the Chilson Water Transmission Main along a new route that follows NYS Route 74, which is the Subgrantee's preferred Alternative I, is a practicable solution that would not significantly adversely impact the human environment. During the construction period, short-term impacts to soils, vegetation, traffic, air quality, and noise are anticipated. These short-term impacts would be mitigated through permitting by the regulatory agencies and utilizing best management practices such as silt fences, site restoration, proper equipment maintenance, and appropriate signage. The long-term environmental impacts to soils, topography, and vegetation as a result of the water transmission main construction are outweighed by the positive impacts to public health, infrastructure, and socioeconomic resources that the new water transmission main will have in providing a reliable and safe water supply to the Town of Ticonderoga.

9.0 List of Preparers

The Office of Essex County Community Resources. Planning Department 7533 Court Street, P.O. Box 217, Elizabethtown, New York 12932

Architectural, Engineering and Land Surveying Northeast PLLC, 10-12 City Hall Place, Plattsburgh, New York 12901

FEMA Region II, 26 Federal Plaza, New York, New York 10278

10.0 References

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