Programmatic Environmental Assessment
NYS Early Warning Weather Detection System

State of New York
DR-4085-NY

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U.S. Department of Homeland Security
Federal Emergency Management Agency Region II
26 Federal Plaza, NY, NY 10278

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APPENDICES

LIST OF ACRONYMS

AE – Adverse Effect

APA – Adirondack Park Agency

APE – Area of Potential Effect

ASOS – Automated Surface Observing System

BCC – Birds of Conservation Concern

BGEPA – Bald and Golden Eagle Protection Act

BMP – Best Management Practice

C&D – Construction and Demolition

CAA – Clean Air Act

CBRS – Coastal Barrier Resources System

CEHA – Coastal Erosion Hazard Area

CEQ – Council of Environmental Quality

CFR – Code of Federal Regulations

CH_4 – Methane

CO – Carbon Monoxide

CO_2 – Carbon Dioxide

CWA – Clean Water Act

dBA – Decibels on the A-weighted scale

DNL – Day-night Average Sound Level

ECL – Environmental Conservation Law

EIS – Environmental Impact Statement

EJ – Environmental Justice

EMS – Emergency Medical Services

EO – Executive Order

ESA – Endangered Species Act

FAA – Federal Aviation Administration

FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map

FONSI – Finding of No Significant Impact

FPPA – Farmland Protection Policy Act

HMGP – Hazard Mitigation Grant Program

LWRP – Local Waterfront Revitalization Program

MBTA – Migratory Bird Treaty Act

MOA – Memorandum of Agreement

N_2O – nitrous oxide

NAAQS – National Ambient Air Quality Standards

NEPA – National Environmental Policy Act

NFMA – National Forest Management Act

NHPA – National Historic Preservation Act

nm – nanometer

NO_2 – nitrogen dioxide

NOAA – National Oceanic and Atmospheric Administration

NO_x – nitrogen oxides

NPDES – National Pollution Discharge Elimination System

NPL – National Park Land

NPS – National Park Service

NRCS – Natural Resources Conservation Service

NRHP – National Register of Historic Places

NWS – National Weather Service

NYCRR – New York Codes, Rules and Regulations

NYNHP – New York Natural Heritage Program

NYPD – New York City Police Department

NYS – New York State

NYSDEC – New York State Department of Environmental Conservation

NYSDHSES – New York State Division of Homeland Security and Emergency Services

NYSDOS – New York State Department of State

NYSDOT – New York State Department of Transportation

NYSHPO – New York State Historic Preservation Office

NYSOA – New York State Ornithological Association

O_3 – Ozone

OPRHP – Office of Parks, Recreation and Historic Preservation

OSCP – Open Space Conservation Plan

OSHA – Occupational Safety and Health Administration

Pb – Lead

PBL – Planetary Boundary Layer

PEA – Programmatic Environmental Assessment

P.L. – Public Law

PM – Particulate Matter

PM_{10} – particulate matter equal to or less than 10 micrometers in diameter

$PM_{2.5}$ – Particulate Matter equal to or less than 2.5 micrometers in diameter

REC – Record of Environmental Consideration

SASS – Scenic Areas of Statewide Significance

SEA – Site-Specific Environmental Assessment

SO_2 – Sulfur dioxide

SPDES – State Pollution Discharge Elimination System

SUNY – State University of New York

SUNY-RF – Research Foundation of the State University of New York

SWPPP – Stormwater Pollution Prevention Plan

TMDL – Total Maximum Daily Load

U.S. – United States

USACE – United States Army Corps of Engineers

USC – United States Code

USCB – United States Census Bureau

USDA – United States Department of Agriculture

USDOI – United States Department of the Interior

USEPA – United States Environmental Protection Agency

USFS – United States Forest Service

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

VOC – Volatile Organic Compound

1.0 Introduction

On October 29, 2012, Hurricane Sandy caused storm damage to several areas across the state of New York. President Barack Obama declared Hurricane Sandy a major disaster on October 30, 2012. The declaration authorized the Federal Emergency Management Agency (FEMA) to provide assistance to the state per federal disaster declaration DR-4085-NY and in accordance with Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 United States Code [USC] 5170c), as amended; the Sandy Recovery Improvement Act of 2013; and the accompanying Disaster Relief Appropriations Act of 2013. The Research Foundation of the State University of New York (SUNY-RF), the subgrantee, has applied to FEMA's Hazard Mitigation Grant Program (HMGP) for financial assistance to develop an early warning weather detection system across New York State (NYS). SUNY-RF proposes to construct 125 surface weather stations across NYS to improve weather monitoring and prediction capabilities and to help reduce risks due to weather-related events. NYS Division of Homeland Security and Emergency Services (NYSDHSES) is the grantee partner for the proposed action.

This Programmatic Environmental Assessment (PEA) is prepared in accordance with Section 102 of the National Environmental Policy Act (NEPA) of 1969, as amended and the Regulations for Implementation of NEPA (Title 40 of the Code of Federal Regulations [CFR] Parts 1500 to 1508). In accordance with the above-referenced regulations and FEMA's regulations for NEPA compliance found at 44 CFR Part 10, FEMA is required to evaluate and consider the environmental consequences of federal actions. The purpose of an environmental assessment is to analyze the potential environmental impacts of the proposed project and alternatives, including a no action alternative, and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

Regulations 40 CFR Parts 1500.4(i), 1502.4 and 1502.20 encourage the development of program-level NEPA environmental documents and the use of tiering to eliminate repetitive discussions and to focus on issues specific to the subsequent action. For a project to qualify under a PEA, the scope of the project and the nature of impacts must be evaluated. This analysis is programmatic in nature and identifies insignificant issues as well as potential significant environmental issues deserving of further study. It does not address individual site-specific impacts. To address this, each individual site will be documented in a Record of Environmental of Consideration (REC) (Appendix A, Document A) that will be tiered off of this PEA. The REC will reference this PEA in its analysis and address specific conditions unique to each site.

The 125 surface weather stations sites are approximate locations (Appendix B, Figure A) and have not been finalized. The subgrantee plans to place towers in previously developed and disturbed areas but recognizes that this may not be possible in every instance. This PEA is written to account for possible location types of tower sites throughout NYS. It covers what

environmental and cultural resource impacts, as well as level of impacts, are anticipated; what conditions, best management practices (BMP), and/or mitigation measures would be required; and the permitting needed to ensure Federal, State, and local Laws, Executive Orders and Regulations are adhered to properly.

If a project is consistent with the scope, impacts, conditions, and mitigation described in this PEA, then only a Record of Environmental Consideration (REC) (Document A, Appendix A) is required. If the project is expected to create impacts not described; create impacts greater in magnitude, extent, or duration than those described; or required BMP or mitigation measures cannot minimize impacts below significant levels, then a tiered Site-Specific Environmental Assessment (SEA) and corresponding FONSI, would be prepared to address the specific action. Appendix C, Table F addresses the thresholds for what would trigger an SEA. The SEA would be tiered from this PEA, in accordance with 40 CFR Part 1508.28.

2.0 Purpose and Need

Section 404 of the Robert T. Stafford Relief and Emergency Assistance Act of 1974 (42 USC 5170c), as amended authorizes FEMA to provide funding to eligible grant applicants for activities that have the purpose of reducing or eliminating risks to life and property from hazards and their effects. The purpose of this project is to mitigate the impact of future weather events in NYS and increase the state's resiliency by improving weather detection capabilities. The need is to provide the spatial and temporal resolution to adequately monitor severe weather and its evolution across the state and the repeated damages resulting from the lack of accurate and timely early warnings. The current Automated Surface Observing System (ASOS) used by the National Weather Service (NWS) does not provide the high-resolution, real-time data needed to support monitoring and predictive modeling of events responsible for weather-related risks statewide. Emergency managers are often unable to correctly assess the level of risk to life and property from this data and to prepare and respond appropriately. The proposed weather detection system will address these concerns and reduce risks to communities by improving the state's ability to provide better weather-related warnings.

3.0 Project Location and Background

In recent years, NYS has experienced an increase in the frequency of extreme weather events including several presidentially declared disasters such as Hurricane Irene (DR-4020) in 2011, remnants of Tropical Storm Lee (DR-4031) also in 2011, and Hurricane Sandy in 2012. Governor Andrew Cuomo formed the NYS 2100 Commission in response to unprecedented, severe weather events experienced by NYS and surrounding regions. In January 2014, he announced a series of innovative hazard mitigation projects including the proposed NYS Early Warning Weather Detection System. SUNY-RF has been collaborating with NWS since 2000 to

study and predict high-impact and extreme weather events in the northeastern United States (US) (SUNY 2013). SUNY-RF is the subgrantee for the project.

SUNY-RF's application to FEMA states that the current ASOS system used for weather monitoring in NYS is inadequate for three reasons. First, there are significant gaps in coverage throughout the state, including regions such as the Adirondacks and Catskills which have higher susceptibility to wet weather compared to other regions. Second, the ASOS system provides hourly updates instead of updates in real time that could miss rapidly evolving weather systems. Third, there are marked limitations in the number and frequency of meteorological observations within and above the Planetary Boundary Layer (PBL). PBL observations are important for predicting mesoscale, localized weather, pollutant concentrations, fog formation and persistence, and smoke dispersion.

The proposed Mesonet system, which is a network measuring mesoscale meteorological phenomena, would consist of an estimated 125 surface weather stations to detect weather across the state of New York. Seventeen of these stations are proposed with additional instrumentation to remotely gather above-ground meteorological data using profiling technology. SUNY-RF proposed approximate site locations throughout the state (Figure A, Appendix B) based on the weather detection goals of the system. SUNY-RF prefers to locate sites on publicly owned land to reduce private land acquisition and environmental impacts. SUNY-RF's site selection would be refined by practical considerations of things such as land ownership, road access, avoidance of floodplains, wetlands, species habitat, archaeological resources, and ensuring that counties and their populations are appropriately served. Publicly owned land includes the 64 SUNY campuses, affiliated community colleges, public schools, and municipal lands, as well as lands under the ownership or administrative jurisdiction of other agencies such as the NYS Canal Corporation and the Departments of Transportation (DOT), Office of Parks, Recreation an Historic Preservation (OPRHP), and Environmental Conservation (DEC).

The proposed system would complement existing resources such as the NWS 27-station ASOS network, the NYS Canal Corporation Upstate Flood Warning System, and the Northeast River Forecast Center. It would measure key variables including surface pressure, rainfall, snow, wind speed and direction, temperature, humidity, radiation, and soil moisture. Measurements would feed into data analyses and numerical weather predictions by SUNY-RF and NWS, which would then communicate data to NYSDHSES and other key stakeholders. The improved analyses and predictions enabled by this data would better inform and prepare state agencies and local jurisdictions to address weather-related hazards including hurricane, climate change, flood, high winds, earthquakes, and erosion. The system would also monitor dispersion and help mitigate impacts from hazardous plumes such as pollutant releases and smoke from large fires.

4.0 Alternatives

NEPA guidance requires that federal agencies explore and objectively evaluate all reasonable alternatives for a proposed action and, for alternatives which were eliminated from detailed study, briefly discuss the reasons for their elimination (40 CFR 1502.14). Additionally, the evaluation of a No Action Alternative, also known as the "Future without Federal Project Condition" is required. This section discusses the No Action Alternative and the action alternative that would meet the project purpose and need. Three alternatives were eliminated from further analysis and are also discussed.

4.1 Alternatives Considered

4.1.1 Alternative 1: No Action

The No Action Alternative is defined as maintaining the status quo with no federal agency involvement. Under the No Action Alternative, FEMA would not provide funding to increase NYS resiliency to extreme weather and the state would continue to rely on the existing ASOS network to monitor the state's weather. The No Action Alternative would not provide NYS with a modern, high-resolution system that could capture critical weather observations at both the surface level and in the lower atmosphere. The gaps in real-time weather detection would not be filled and the time allocated for adequate storm preparation would remain minimal. The No Action Alternative would not meet the purpose and need, but FEMA has carried it throughout this analysis to provide a basis for evaluating impacts.

4.1.2 Alternative 2: Construct NYS Early Warning Weather Detection System (Proposed Action)

The proposed action involves the construction of a real time weather detection system consisting of 125 new weather stations that provide coverage across the entire state of New York. The state-wide grid-like system will be spaced to provide coverage for NYS and will be designed to measure the environment at the size and duration of mesoscale weather events, 24 hours per day year-round. At each weather station site, the environment would be measured by a set of instruments located on or near a tower.

SUNY-RF will construct two different types of individual weather stations - 108 standard 33-foot Mesonet towers and 17 enhanced Profiler sites with 98-foot towers. All sites will measure relative humidity, air temperature, barometric pressure, solar radiation, soil moisture, wind speed and direction, and precipitation. All sites will have two grounding rods extending 8 feet into the ground. Each of the proposed tower sites will require a 6.25-foot by 6.25-foot concrete foundation that extends no more than 4 feet deep. With the exception of the 8-foot long grounding rods noted above, ground disturbance at each site would not exceed 4 feet below the

surface. Site selection will allow for individual adjustments based on individual site characteristics. Figure B, Appendix B shows the proposed design for each type of station.

Standard Sites. The standard (33-ft tower) sites will use a self-supporting "fold-over" design that requires no guy wires. SUNY-RF will site the equipment and instruments within a fenced area up to 10x10m (33x33ft) in size. Each of the 108 standard sites will be powered solely by solar power panels housed within the site.

Enhanced Sites. The Profiler (98-foot) towers will be equipped with additional instrumentation, including infrared pulsed laser devices for vertical atmospheric measurements, and will measure additional variables including wind speed and direction up to 2 kilometers and temperature and humidity up to 10 kilometers above ground. The 98-foot towers will include guy wires attached to concrete anchor blocks that will not be more than 4 feet below the surface. SUNY-RF will site the equipment and instruments for the 98-foot Profiler towers within a fenced area no more than 30x30m (100x100ft) in size. The Profiler tower sites also require an 8-foot by 8-foot shed to house associated utilities and small concrete pads, less than 2 inches above grade, as required. The Enhanced sites (for the 98-foot tall Profiler towers) will require a hookup to the local electric grid and will have underground electric lines. The sites will require wires extending beyond the site in non-building locations and through the buildings for those situated on roof tops. For areas that require greater security, some enhanced stations would be split among two locations, with the site plot area measuring 15x15m (49x49ft) and the enhanced sensors housed on a rooftop nearby (less than 1 km away). Some sites would be fenced in by a 6-foot tall chain link fence, with ground disturbance less than 4 feet below the surface.

Access Roads. For both tower types, SUNY-RF prefers to use existing farm field access roads to carry instruments, pads, and materials to the site. In the event that the towers would require new or improved access roads, the roads would be built or improved by using geotextile fabric placed on grade with gravel overlay, requiring minimal ground disturbance. SUNY-RF will not place new access roads in the 100-year floodplain.

Staging Areas. For both tower types, areas to stage equipment will be 40 feet by 40 feet in size and will be located adjacent to the tower site. When possible, the staging areas will be placed on concrete or asphalt surfaces. In the instances where asphalt or concrete surfaces are not available, the subgrantee will work with property owners to place equipment in non-sensitive areas. No modifications will be needed in the staging areas other than unintended wear and tear during work. The primary equipment to conduct the work include a mini-excavator and small front end loader and is expected to create minimal impacts. A concrete truck with a 20-foot chute will be used, giving the subgrantee flexibility in staging locations to minimize or eliminate any ground disturbance.

4.2 Alternatives Considered and Dismissed

4.2.1 Amateur Weather Stations

SUNY-RF considered using existing amateur weather stations in NYS for the observation data needed to improve weather detection capabilities. SUNY-RF dismissed this option because amateur stations lack instrumentation quality, uniformity, and reliability, and the quality of the data produced is below the desired standard. Therefore, SUNY-RF dismissed this alternative from further consideration because it would not fulfill the purpose and need to provide the state with improved weather detection capabilities to mitigate the impact of future weather events.

4.2.2 High-Resolution Numerical Weather Prediction Model

SUNY-RF considered creating and implementing an improved high-resolution numerical weather prediction model using the data collected by the current ASOS network. While SUNY-RF would expect this to provide some improvement over the existing predictions, the data gaps and quality of the available data would continue to severely limit the quality of the analysis and forecasts. Therefore, SUNY-RF dismissed this alternative from further consideration because it would not fulfill the purpose and need to provide New York State with improved weather monitoring and prediction capabilities to mitigate the impact of future weather events.

4.2.3 Co-location

The co-location of weather stations onto existing communication towers or other structures would enable the Mesonet system to operate without the need for new tower construction. While this alternative would reduce the impact on environmental resources due to limiting new construction, there are barriers in implementing co-location. Limitations to implementing co-location of sites includes:

- Height of the existing towers would interfere with the 10 m wind measurements.
- Each site needs a complete 360 degree unobstructed view that would be compromised by existing equipment.
- Ready and open access to the towers is also preferred for rapid maintenance response.

Therefore, SUNY-RF dismissed this alternative from further consideration because it would not fulfill the purpose and need to provide New York State with improved weather detection capabilities to mitigate the impact of future weather events.

4.3 Summary of Alternatives

SUNY-RF initially considered five alternatives to provide NYS with improved weather monitoring and prediction capabilities to mitigate the impact of future weather events. SUNY-RF

dismissed three alternatives – Amateur Weather Stations, High Resolution Numerical Weather Prediction Model, and Co-location – from further review in this PEA. The alternatives remaining for consideration are: (1) No Action and (2) Construct NYS Early Warning Weather Detection System (Proposed Action). The following section discusses potential environmental, social and cultural impacts, along with proposed mitigation measures.

5.0 Affected Environment and Potential Impacts

5.1 Geology, Topography, and Soils

Geologic and topographic characteristics such as shallow bedrock, steep slopes, or excessive soil erodibility could affect the design and method of construction of a project. The regulatory implications of geology and soils for a project are generally established through structural codes specified in local building and zoning regulations.

5.1.1 Existing Conditions

5.1.1.1 Topography and Geology

Approximately 75 percent of New York State is underlain by sedimentary rocks, which are rocks that were formed through the deposition and solidification of sediment by wind, water, or glaciers. Long Island, which makes up about 2.5 percent of the land area of the state, is underlain by metamorphic rock, but is overlaid by a thick wedge of cretaceous sediments such as sands, clays and gravels (Garvies Point Museum & Preserve 2014). The remaining 22.5 percent of the state is underlain by igneous and metamorphic rocks (New York State Museum 2014a).

5.1.1.2 Soils

Soil is the unconsolidated loose covering of broken rock particles and decaying organic matter overlying the bedrock or parent material. Soil characteristics within an area depend on the surficial parent material located in that area. Soil characteristics vary greatly across NYS. Soils are described by soil series based on their similar origins, chemical and physical properties, and slope by the USDA (USDA 2013). Surface water runoff rates vary, depending on the soil types, with sandy soils having higher infiltration rates and lower runoff rates compared to clay soils. Soil infiltration rates and surface water runoff rates are dependent on soil type and slope, and may vary greatly at each project location. The classification of prime farmland soils is discussed in Section 5.1.1.

5.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

There would be no ground disturbance under the No Action Alternative and therefore no effect on geology, topography, or soils.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

Under Alternative 2, work would involve minor clearing of ground cover and low growing vegetation and limited soil disturbance from grading of up to 10,000 square feet (0.23 acre) for each proposed station site to establish a level surface for placement of the tower and monitoring equipment. BMPs would be implemented to prevent landslide or mudslide activity, structural instability, and erosion by using local building codes and construction standards. Potential adverse effects from soil disturbance include water quality impacts from construction stormwater runoff (see Section 5.4.5) and impacts to vegetation (see Section 5.3.6). No ground disturbance is expected at staging areas unless the area is wet in which case any tracks will be restored. Disturbed ground surfaces would be stabilized and either repaved or vegetated with native vegetation to match the surrounding area. No bedrock disturbance is expected with the possible exception of the 8-foot grounding rods, and those will only rest on top of bedrock and will not be placed in through drilling. Considering the BMPs that will be implemented to minimize impacts, SUNY doesn't anticipate any significant impacts to geology, topography, or soils.

5.2 Land Use and Planning

Land use is characterized by the arrangements, activities, and inputs people undertake in a certain land cover type to produce, change, or maintain it (Food and Agriculture Organization of the United Nations 2014). Typically the state or federal land management agency or the local jurisdiction makes land use designations through management plans, policies, ordinances, and regulations. For the proposed project, potential site locations would fall within five general land use areas: developed areas, agricultural land, open space, natural areas, and coastal areas. This section examines potential impacts to land use and planning by discussing these land use types.

Developed Areas

For the purpose of this PEA, "developed area" refers to urban or rural parcels containing built structures with public utilities and services available to them, as well as lawns, landscaped areas, or paved surfaces. Developed areas include college campuses and residential, commercial, and industrial developments. In general, developed areas are characterized by natural vegetation that has been modified or removed, soils that have been disturbed, and facilities that have been constructed in these areas. An urban area, as defined by United States Census Bureau (USCB), includes areas with at least 50,000 people and clusters with 2,500-50,000 people while rural

populations include areas with less than 50,000 people with clusters under 2,500 people. Rural areas encompasses all population, housing, and territory not included within an urban area.

Agricultural Land

For this PEA, "agricultural land" refers to parcels used as cultivated farmland, orchards, nurseries, fallow fields, or pastures. There is relatively little or no structural development or pavement in agricultural lands. The United States Department of Agriculture (USDA) designates prime and unique farmlands and farmlands of state and local importance which are protected under the Farmland Protection Policy Act (FPPA) of 1981 (7 USC § 4201 *et seq.*). Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses (USDA 2014a). Unique farmland is land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but can be used for the production of specific high-value food and fiber crops such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. The FPPA minimizes the loss of Prime and Unique Farmlands as a result of federal actions that would convert these lands to non-agricultural uses. It ensures that federal actions are compatible with state and local government plans and policies and with private programs to protect farmland. Farmland subject to FPPA requirements extends beyond active cropland to forests and pastures; however, this classification excludes water and urban built-up land.

In 1992, NYS adopted the Agricultural Protection Act, which helps counties and municipalities develop plans for the future of agriculture in their communities, and fund programs to implement those plans to keep agriculture productive and farmland in production.

Open Space

For this PEA, "open space" refers to undeveloped or under-developed pieces of land that humans have modified for recreational or environmental activities. It includes sports fields, golf courses, public and private parks, and open areas used for stormwater management. Alienation occurs when parkland is taken out of active park or recreational use, and conversion occurs when parkland that received Land and Water Conservation Fund (LWCF) grants from the National Park Service (NPS) is converted out of active park or recreational use. The NYS Office of Parks, Recreation and Historic Preservation (OPRHP) has prepared and published the *Handbook on the Alienation and Conversion of Municipal Parkland* that provides guidelines for the evaluation of park alienation activities and defines the alienation process (OPRHP 2012).

Municipal governments must coordinate with OPRHP on projects involving alienation. While OPRHP undertakings are exempt from the alienation process, many OPRHP facilities received LWCF grants and could require approval of the NPS. It's important to note that SUNY-RF has no plans to place stations in local municipal parkland, and any discussions with OPRHP or DEC would focus on identifying locations that would avoid impacts to the facility's recreational utility

or its scenic, aesthetic or historic features and character. As with state, county, and local planning and zoning, site selection for all Mesonet towers are required to comply with NYS open space regulations and review processes, including those triggered by alienation or conversion determinations.

Natural Areas

For this PEA, "natural areas" refer to areas that have no or minimal human modification. This mainly includes forests and wetlands. The National Forest Management Act (NFMA) of 1976 guides future management and provides for multiple use and sustained yield mandates for forest resources inclusive of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness values. Development within the Adirondack Park must comply with the Adirondack Park Agency (APA) permit (NYS Adirondack Park Agency 2003). There are a number of Natural Resources Conservation Service (NRCS) Conservation Resource Protection easement programs related to natural areas including Wetlands Reserve Program, Healthy Forest Reserve Program, Open Space Conservation Project, and Grassland Reserve program (USDA Personal Communication 2014b). This PEA addresses potential impacts to wetlands in Section 5.3.

Coastal Areas

For this PEA, "coastal areas" refer to coastal zones which are the coastal waters and the adjacent shorelands strongly influenced by each other and in proximity to the shorelines of coastal states (16 USC §1453). States with shorelines in coastal zones administer the Coastal Zone Management Act of 1972. Projects receiving federal assistance must follow the procedures outlined in 15 CFR 930.90 - 930.101 for federal coastal zone consistency determinations. The New York Department of State (NYSDOS) and NYS Department of Environmental Conservation (NYSDEC) have adopted substantive policies as part of the NYS Coastal Management Program. The Coastal Erosion Hazard Area (CEHA) Permit Program manages regulated activities or land disturbance on properties within coastal erosion hazard areas; however, SUNY-RF does not anticipate siting weather station in a CEHA. The Waterfront Revitalization and Coastal Resources Act (Article 42 of Environmental Conservation Law [ECL], 19 New York Codes, Rules and Regulations [NYCRR], and Part 600) allows communities to develop a Local Waterfront Revitalization Program (LWRP) and the local building/zoning departments regulate activities within the coastal zones, scenic areas (Section 5.6), and waterfront revitalization areas in communities with an approved LWRP.

Some coastal areas in New York State are also regulated by the Coastal Barrier Resources Act of 1982 and the Coastal Barrier Improvement Act of 1990, which were implemented as part of a United States Department of the Interior (USDOI) initiative to preserve the ecological integrity of areas that buffer the U.S. mainland from storms and provide important habitats for fish and wildlife. SUNY-RF would not site any weather stations within Coastal Barrier Resource Systems (CBRS) units or Otherwise Protected Areas. Federal regulations prohibit funding projects within

CBRS units and therefore this PEA will not discuss them further and no further documentation is needed to comply with this law.

Lastly, NYSDOS administers Scenic Areas of Statewide Significance (SASS), which are coastal landscapes with aesthetic significance designated under their scenic assessment program.

5.2.1 Existing Conditions

Table 5.1.1 depicts all major uses of land in the State of New York (USDA 2007). "Forest-Use Land" includes both grazed and non-grazed forests but excludes an estimate of forest land in parks, wildlife areas, and similar special-purpose uses from the U.S. Forest Service's (USFS) inventory of total forest land.

Table 5.1.1: Major Uses of Land in New York State (acres)

Cropland	Greenland Pasture and Range	Forest-Use Land	Special-Use Areas	Urban Areas	Miscellaneous	**Total Land Area**
4,140,000	2,414,000	16,168,000	4,046,000	2,517,000	878,000	**30,163,000**

Developed Areas

Each federal, state, and local jurisdiction has its own land use categories and definitions. According to USDA, approximately 2.6 million acres of urban area and 4 million acres of special uses are located within NYS (USDA 2007). "Urban Areas" exclude portions of extended cities that are rural in character and lands in rural residential uses.

Agricultural Land

In 1992, the state adopted the Agricultural Protection Act, which helps counties and municipalities develop plans for the future of agriculture in their communities, and fund programs to implement those plans to keep agriculture strong and farmland in production. Currently, the state of New York has approximately 7.2 million acres of farmland and 35,537 farms (USDA 2012). Table 5.1.2 provides the acreage of farmland classes by soil survey area in the State of New York. USDA recognizes three farmland classes in NYS, and considers each as Prime Farmland: Prime Farmland, Prime Farmland if Drained, and Farmland of Statewide Importance.

Table 5.1.2: Farmland Class Acres by Soil Survey Area / State of New York

Prime Farmland	Prime Farmland if Drained	Farmland of Statewide Importance
4,605,595	2,280,309	7,721,074

There are no soil map units designated as Unique Farmland in the State of New York. Agricultural land is also included in NYS's Open Space Conservation Program; see the Open Space section below.

Open Space

In NYS, the NYS Open Space Conservation Project manages open space development. Managed by NYSDEC and NYSOPRHP, the program produces an Open Space Conservation Plan (OSCP) that provides goals for open space in the state. Under the 2009 plan (NYSDEC 2009a), open space, which include agricultural and natural lands in NYS's definition, has four objectives which are promoting outdoor recreation, addressing climate change, ensuring clean water, air and land, and protecting our natural resources and cultural heritage.

Any activities on National Park Land (NPL) would have to comply with the National Park System General Authorities Act of 1970. There are no National Parks in NYS, but there are 34 national park units including monuments, battlefields, historic sites, and trails where this would apply. SUNY-RF currently has no plans to place stations on NPL.

Natural Areas

SUNY-RF may consider forested areas managed for the production of timber and other forest products as potential weather station sites. The NYSDEC manages about 4 million acres of state owned land and nearly 910,000 acres of conservation easement land in NYS. This includes the Adirondack and Catskill Forest Preserves, State Forests, Unique Areas, and the State Nature and Historical Preserve. NYS is 63 percent forested and forests cover 18.9 million acres of 30 million total acres. Private entities own and manage much of this land for wood or pulp. However, the state of New York owns most of the forested land. As with agricultural land and open space, NYSDEC also manages natural areas under the OSCP.

Coastal Areas

The inland New York coastal zone boundary is variable, but generally resides within 1,000 feet from the shoreline in non-urbanized areas. In urbanized areas and other developed locations along the coastline, the inland boundary is usually 500 feet or less from the shoreline, with the boundary may extend inland up to 10,000 feet to encompass significant coastal resources (NOAA 2014). The NYS Coastal Boundary Mapper shows coastal zones, scenic areas, and waterfront revitalization areas (NYSDOS 2014a). CEHA maps also delineate the boundaries of erosion hazard areas and are available at regional NYSDEC offices and at local building departments of certified communities. Document B (Appendix A) lists the coastal waterbodies and designated inland waterways of NYS. Figure C (Appendix B) shows the limits of NYS's coastal waters.

5.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, existing land uses are not expected to change due to a lack of real time weather reporting.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

The proposed weather stations would be located in a variety of local environments and land use classifications would vary depending upon location. Publically owned land is the preferred site location for each weather station due to ease of access. Other land use sites may be necessary for the Mesonet grid system to provide optimal coverage. SUNY-RF is subject to local zoning regulations and building codes and would be required to comply with federal and local requirements, plans, and policies and to obtain all necessary permits.

SUNY-RF anticipates that siting of proposed weather station sites within developed areas would be compatible with existing land use plans and zoning regulations. Alternate weather station sites may be required if a preferred location would conflict with or disrupt sensitive land uses in accordance with state, county, and local land use and zoning requirements. During site-selection, SUNY-RF would avoid areas with land uses that are incompatible with a proposed weather station.

If any construction is proposed on, or extends into, more than 2 acres of Prime Farmland or Farmland of Statewide Importance, SUNY-RF will coordinate with the NRCS to determine the overall impact of the conversion. Results of the FPPA finding will be documented using the Farmland Impact Conversion Rating Form AD-1006 (7 CFR 658). Individual weather station sites would comply with all applicable federal, state, and local requirements related to agricultural land including the FPPA. Staging areas will be placed outside of farmland. If land disturbance in Prime Farmland or Farmland of Statewide Importance is greater than 2 acres or scores greater than 160 on the Farmland Impact Conversion Rating Form, SUNY-RF will consult with NRCS. SUNY-RF anticipates that land disturbance from the proposed action will be less than 10,000 square feet (0.23 acres) and therefore will likely not require consultation with NRCS as it will not exceed the required 2-acre threshold for consultation; therefore, the potential for impacts to farmland is negligible.

Construction of weather stations within protected open spaces, including state and municipal parkland, would require coordination with OPRHP and possibly approval of the NPS. SUNY-RF intends to discuss possible siting in State Parks but would focus on approaches that avoid impacts to the facility’s recreational utility or its scenic, aesthetic or historic and cultural features or character.

Proposed actions on USFS-managed lands would need to conform to the Multiple-Use Sustained-Yield Act of 1960, the NFMA of 1976, and each national forest's comprehensive land management plan.

If SUNY-RF constructs weather stations within or extend onto USFS lands, they would need to acquire an easement from USFS. SUNY-RF would need to determine if sensitive land use areas exist within or surrounding the proposed project area and implement measures to avoid or minimize impacts to these areas. If easement is obtained by USFS and project is complaint with all requirements within easement agreement, a REC would suffice and an SEA would not be required. In addition, proposed construction of weather stations within the Adirondack Park would require an APA permit.

The site-selection process will avoid sensitive coastal habitats, coastal erosion hazard areas, coastal scenic areas, waterfront revitalization areas, and areas that would impact public coastal access. SUNY-RF will not place any weather stations in natural wooded or beach areas or other conservation zones such as designated coastal zones. Site selection would include review of the NYS Coastal Boundary Mapper, CEHA maps, and coastal program policies to help determine coastal zoning and planning requirements.

5.3 Biological Resources

This section addresses project-related impacts to vegetation and wildlife including invasive species, migratory birds, threatened and endangered species, designated critical habitats, and bald and golden eagles. The section below discusses federal laws concerning biological resources that are relevant to the proposed project.

5.3.1 Vegetation, Wildlife Habitat, and Invasive Species

Vegetation provides a variety of habitats as well as soil stabilization to prevent erosion. Executive Order (EO) 13112, *Invasive Species*, requires federal agencies to prevent the introduction of invasive plant and animal species and provide for their control to minimize the economic, ecological, and human health impacts that invasive species cause. While not all non-native species are detrimental, invasive species are those that can cause harm to the environment or to human health. Invasive species prefer disturbed habitats and generally possess high dispersal abilities, enabling them to out-compete native species. In addition to EO 13112, NYS recently passed Title 6 of the NYCRR Part 575 (effective March 10, 2015), which prohibits and regulates invasive species at the state level.

5.3.2 Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (MBTA) of 1918 provides a program for the conservation of migratory birds that fly through lands of the United States. Birds protected under the act include

all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others. The lead federal regulatory agency for implementing the MBTA is the United States Fish and Wildlife Service (USFWS). The law makes it illegal for anyone to "take," possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or their parts, feathers, nests, or eggs. "Take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." The MBTA, according to rulemaking effective March 31, 2010, protects 1,026 species in the 50 states and five U.S. territories (USFWS 2014a). In NYS, the Atlantic Flyway Council, consisting of states bordering the Atlantic Ocean and Canadian provincial agencies, is responsible for managing waterfowl and other migratory species (USGS 2006).

5.3.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 provides a program for the conservation of threatened and endangered plants and animals and their habitats. The lead federal regulatory agency for implementing the ESA for terrestrial animal and plant species is the USFWS. 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. Per Section 3(18) of the ESA, "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (USFWS 2013a).

In addition, NYS designates state-listed species that receive protection as authorized by the ECL of New York, Section 11-0535 and as specified in Section 182.2 of 6 NYCRR Part 182. The NYNHP tracks the status of threatened and endangered species in the state and maintains a database of rare plant and animal observations (NYSDEC 2014a).

5.3.4 Bald and Golden Eagles

The USFWS federally delisted the bald eagle (*Haliaeetus leucocephalus*) from the Endangered Species Act in 2007 but now the Bald and Golden Eagle Protection Act (BGEPA) of 1940 still affords protection to the species. The BGEPA (16 USC 668-668c) prohibits anyone without an issued permit from "taking" both bald and golden eagles (*Aquila chyrsaetos*) including their parts, nests, and eggs and from causing stress or altering nests. NYSDEC and USFWS have legal jurisdiction over issues relating to eagle protection.

5.3.5 Existing Conditions

5.3.5.1 Vegetation, Wildlife Habitat, and Invasive Species

The distribution of plant species in NYS closely corresponds with ecoregion boundaries, which are areas of ecological homogeneity with similarities in soil, physiography, climate, hydrology, geology and vegetation. NYS is divided into seven ecoregions (Figure D, Appendix B). Document C, Appendix A provides detailed descriptions of vegetation located within each of these ecoregions based on The Nature Conservancy classifications and United States Environmental Protection Agency (USEPA) Level III classifications of ecoregions of New York (NYSDEC 2014b; Bryce *et al.* 2010). The NYNHP and New York's Comprehensive Wildlife Conservation Strategy, the state's guiding document for managing and conserving wildlife and vegetation, use the ecoregions classification.

The presence or absence of wildlife within or adjacent to project areas is largely determined by the presence of suitable habitat, which is primarily a product of soils, hydrology, vegetation, and the extent of human disturbance. NYSDEC documented the presence of 92 mammal, 480 bird, 39 reptile, 32 amphibian, and 165 freshwater fish species in NYS (NYSDEC 2009). NYSDEC Nature Explorer provides habitat conditions and known species throughout NYS (NYSDEC 2009). NYSDEC often attributes declines in wildlife and fish populations within NYS to habitat degradation (NYSDEC 2014c).

As with invasive plant species discussed in Section 5.3. 1 above, invasive animal species are non-native to the ecosystem being considered, whose introduction causes or is likely to cause economic or environmental harm or harm to human health. In addition to EO 13112, NYS recently passed 6 NYCRR Part 575 (effective March 10, 2015), which prohibits and regulates invasive species at the state level. Document D (Appendix A) provides the complete list of state prohibited and regulated invasive plants. Of particular concern are invasive insects, including the Asian longhorn beetle (*Anoplophora glabripennis*) and emerald ash borer (*Agrilus planipennis).*

5.3.5.2 Migratory Birds

The NYS Ornithological Association (NYSOA) has documented 480 species representing 22 orders and 64 families of birds (NYSOA 2014), of which 248 are known to breed in the state. The increased number of communication towers within the U.S. has a growing impact on migratory birds currently protected under the MBTA. Avian mortality associated with communication towers increases with height and the presence of guy wires; most has been associated with the take-off and landing of migrating birds. A number of studies estimate annual avian mortality in the U.S. from collisions with tall (greater than 1,000 feet above ground level) communication towers at 4 to 50 million (Banks 1979, Manville 2005, and Manville 2009). Avian fatalities are 54 to 86 percent lower for medium height (380 feet to 479 feet) towers compared to towers above 479 feet (Manville 2000). Topography may also play a role, as

placement of communication towers along ridge lines results in higher bird mortality than at other locations (Longcore *et al.* 2008). The risk of tower collision increases with the height of the tower, with the addition of guy wire supports, and with the amount and type of lighting (Longcore *et al.* 2008; Manville 2000).

The Birds of Conservation Concern (BCC) 2008 published by the USFWS is a report which identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the ESA. Document E (Appendix A) provides the USFWS Information, Planning, and Conservation list of BCC in the project area. BCC data for known avian habitat areas and will be utilized prior to final site approval.

5.3.5.3 Threatened and Endangered Species

In NYS, there are 26 animal and 10 plant species listed by the ESA as federally threatened or endangered. Of the 26 federally listed animal species, 18 are listed as endangered, seven are listed as threatened, one is candidate for listing, and one, the northern long eared bat, was recently listed as threatened in April 2015. The piping plover (*Charadrius melodus*) is listed twice – the Great Lakes population is endangered and the Atlantic Coast population is threatened. Thirteen listed animal species are marine species and not expected to be impacted by the proposed project. USFWS manages the remaining 13 listed terrestrial and freshwater animal species and 10 plant species. Of the 10 federally listed plant species, two are listed as endangered, and eight are listed as threatened. Only one species, the piping plover (Great Lakes population) has critical habitat designated within the state. This critical habitat is located in Jefferson and Oswego Counties (Figure E, Appendix B). Document F (Appendix A) provides a complete list of federally listed species in NYS. In addition to federally species listed for NYS, NYSDEC has identified 88 species that are state-listed as threatened or endangered. Of these, 22 species are also federally listed; therefore, 66 additional species are protected by a state-listed designation (NYSDEC 2014d). The NYNHP reviews locations of proposed projects for any records of rare species or significant natural communities which may be impacted by a project or action (NYNHP 2014).

5.3.5.4 Bald and Golden Eagles

Bald eagles breed throughout NYS, usually in areas with large bodies of water that support large fish populations. They typically use the same nest every year, adding to it and maintaining it each breeding season. Eggs generally hatch in late April or May, and the young fledge by mid to late summer. The largest breeding populations are located in the Hudson Valley, and along the St. Lawrence River and Upper Delaware River (Albino 2005). Eagles are extremely sensitive to human disturbance, often experiencing reproductive failure with increased human activity near nests. If eagle nests or concentration areas are located within 200 meters (660 feet) of proposed activities, USFWS and NYSDEC shall be consulted and protection measures outlined in the

2007 USFWS Bald Eagle Protection Guidelines shall be implemented.

Although delisted federally, NYS has listed the bald eagle as state threatened (NYSDEC 2014e). The bald eagle population in NYS increases in the winter due to an influx of individual migrating birds. Wintering areas are concentrated in four main areas: the Upper Delaware River, the Saint Lawrence River, the Lower Hudson River, and the Sacandaga River (NYSDEC 2014e). The NYSDEC Bald Eagle Program webpage provides the distribution of bald eagles within NYS (NYSDEC 2014e; Document G, Appendix A).

Golden eagle sightings occur every year due largely to a small population that migrates through the state in the spring and fall. Established migration corridors include Franklin Mountain in Otsego County and Derby Hill in Oswego County. In addition to the migrant population, there are two areas where golden eagles consistently winter. A small winter resident population has consistently occupied a site in Dutchess County since the early 1970s. In addition, there is another area in Otsego County where golden eagles have consistently wintered. Golden eagles in New York typically arrive in October and remain through March; however, no breeding pairs have been identified since the 1970s (NYNHP 2013). NYS lists Golden eagles as a state endangered species. Document G (Appendix A) provides their distribution.

5.3.6 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not change the status quo for existing flora and fauna, including migratory birds, bald and golden eagles, and threatened and endangered species.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

SUNY-RF intends to locate the weather stations on mostly developed land, within degraded habitats and agricultural fields; therefore they anticipate minimal removal of vegetation. Any impacts to vegetation in these previously disturbed areas would largely be limited to removal of weedy, early-successional species. If SUNY-RF sites a proposed weather station in natural areas, direct removal, mainly from brush clearing would affect undisturbed areas and vegetation. SUNY-RF does not anticipate the removal of any trees for site access, staging, construction, or maintenance of the weather stations. However, per USFWS, if tree removal is required, it would be done between October 31 and March 31 to avoid impacts to listed bat species and migratory birds (Appendix D, Correspondence A).

Construction of the proposed weather stations is unlikely to have an adverse effect on commonly found wildlife due to the limited size of the project footprint and because work would be limited to areas with poor or marginal wildlife habitat. SUNY-RF anticipates that construction-generated dust and noise would be minor for the installation of the weather stations but may have the

potential to temporarily alter wildlife behavior. However, most wildlife species are highly mobile and would likely relocate to suitable adjacent areas during construction and return to the general area after construction activities are complete. SUNY-RF would restore areas disturbed by construction through seeding and planting with native species as appropriate to the area. SUNY-RF would implement any wildlife protection measures, tailored for those species determined to be present, as needed. If in consultation with USFWS, the proposed action is determined to have an adverse effect on protected species or their critical habitats then an SEA will be required. The thresholds for significant impact include population composition, loss of critical habitat that would affect the long-term viability of protected species, and other factors that would have significant and permanent, short-term declines in population numbers.

Previously disturbed areas are more likely to contain tolerant, adaptable species and established invasive species due to ongoing human activities, poor soil conditions, accumulation of pollutants from stormwater runoff, and direct sunlight as these areas lack tree canopy. SUNY-RF shall, in accordance with applicable USDA and state agency guidelines, implement appropriate BMPs to prevent the introduction, establishment, and spread of invasive species. This includes careful management of invasive insects in woody debris, particularly the Asian longhorn beetle and emerald ash borer. Restoration of vegetation would be through seeding and mulching and in accordance with EO 13112 to prevent introduction and establishment of invasive species.

Unlighted towers shorter than 60 meters (approximately 200 feet) have a negligible contribution to overall annual bird mortality (Longcore *et al*. 2012). Lighted towers have the potential to "take" birds; guy wires increase the likelihood for avian mortality as birds are more likely to collide with the guy wires than with the tower itself (Longcore *et al.* 2008). The potential for the 33-foot towers to result in bird collisions is considered negligible and adverse impacts on migratory birds are not anticipated. Guy wires are not expected on the 33-foot towers, however, if conditions require them they will follow the USFWS issued guidelines for communication tower design to minimize avian collisions, including guy wires, in 2000 and revised them in 2013 (Document H, Appendix A).

The taller, 98-foot Profiler towers are also below the maximum 199-foot height recommended by USFWS, but these towers are more likely to include guy wires which could increase avian mortality. USFWS issued guidelines will be followed as well (Document H, Appendix A). The laser equipment on the 98-foot Profiler towers is not expected to contribute to adverse impacts to birds as birds typically avoid pulsed light sources (Blackwell 2002). In addition, the proposed laser equipment will pulse at 1,540 nm which is beyond the 320-700 nm spectral range that avian retina are adapted towards. The only other potential light source would be red or blinking lights on 98-foot towers for towers located near or within airport facilities. If lighting is required on towers, Federal Aviation Administration (FAA) approved lighting will be used to minimize bird mortality, see Appendix A - Document H for details. If a project cannot be constructed within

USFWS guidelines, consultation with USFWS will be required and an SEA may need to be conducted if an adverse effects determination is made.

If listed threatened or endangered species or their suitable habitats are present at a proposed location, coordination with wildlife agencies would be required. Regulatory agencies may require implementation of distance, seasonal, or activity restrictions to protect listed species or eagles that may be present. For the proposed project, FEMA conducted an initial ESA consultation with USFWS (Correspondence A, Appendix D). USFWS responded with a letter dated October 16, 2014, which documents the potential impacts for specific proposed weather station projects on migratory birds and federally protected species and mitigation measures that SUNY-RF should implement (Correspondence B, Appendix D). Along with the above-stated migratory bird recommendations USFWS, along with FEMA's determinations, provided recommendations for the bog turtle (*Clemmys muhlenbergii*), Indiana bat (*Myotis sodalis*), and the northern long-eared bat (*Myotis septentronalis*) (Correspondence A and B, Appendix D). If any listed species are observed during construction, activities that could potentially disturb or harm threatened or endangered species should stop immediately and the appropriate regulatory agency should be notified and consulted. Projects that may result in the take of listed species or migratory birds may also require the issuance of "take" permits from USFWS or National Oceanic and Atmospheric Administration (NOAA) and would require an SEA.

USFWS provides national guidelines for the protection of bald eagles; they are included as Best Management Practices (BMP) as part of the requirements for this project (USFWS 2013c). Active raptor nests, especially those of bald and golden eagles, should be noted, including known or suspected distances from proposed tower sites to nest locations. Nest site locations for Bald and Golden Eagles may vary between years, and unoccupied, inactive nests and nest sites may be re-occupied over multiple years. SUNY-RF is responsible for complying with the appropriate regulations for the protection of birds when planning and developing each individual project.

5.4 Water Resources

5.4.1 Water Quality

The Clean Water Act (CWA), enacted in 1977, regulates discharge of pollutants into water with sections falling under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the USEPA. 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 1899 Rivers and Harbors Act authorized the USACE to regulate activities within navigable waters. Under the National Pollution Discharge Elimination System (NPDES), the USEPA regulates both point and non-point pollutant sources, including stormwater and stormwater runoff. The USEPA has authorized NYSDEC to administer the NPDES program, referred to as the State Pollution Discharge Elimination System (SPDES). Activities that disturb one acre or

more of ground require an SPDES permit. The SPDES permit requires that a Stormwater Pollution Prevention Plan (SWPPP) be prepared. NYSDEC monitors the water quality of surface waters per the CWA, ensures compliance with existing water quality standards, and produces an inventory of impaired waters, which is a list of surface waters that do not meet the assigned surface water quality standards.

5.4.2 Wetlands

Wetlands are areas which are inundated or saturated by surface or groundwater with a frequency and duration sufficient to support, or under normal hydrological conditions would support a prevalence of vegetation or aquatic life typically adapted for those soil conditions. Actions that would impact wetlands would require review under several regulatory programs. Federal regulations EO 11990 and Section 404 of the CWA (33 USC 1344) are designed to protect wetlands. EO 11990 requires that all federally funded, permitted, or sponsored projects affecting wetlands demonstrate that there are no practicable alternatives, and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. FEMA implements EO 11990 (44 CFR Part 9) concurrently with EO 11988, and uses the eight-step decision making process to evaluate potential effects on, and mitigate impacts to, wetlands and floodplains. NYSDEC administers and regulates wetlands in NYS under the Freshwater Wetlands Act (Article 24 of ECL) and the Tidal Wetlands Act (Article 25 of ECL – 6 NYCRR Part 661), and both acts are administered by NYSDEC.

5.4.3 Floodplain

A floodplain is defined as an area subject to inundation from a flood that has a one percent chance of being equaled or exceeded in any given year; it is referred to as the 100-year flood or base flood. FEMA uses Flood Insurance Rate Maps (FIRM) to identify projects in the floodplain. 44 CFR Part 9 implements EO 11988 and EO 11990; FEMA is required, before undertaking an action within the floodplain or an activity that would affect the floodplain, to use the eight-step decision-making process referenced in Section 5.4.2. This requires evaluating and selecting a practicable alternative that minimizes potential adverse impacts to floodplains. If no practicable alternatives exist to constructing within or affecting the floodplain, FEMA is required to minimize the adverse impacts.

5.4.4 Existing Conditions

NYS's water resources consist of more than 87,000 miles of river and streams, about 7,900 lakes and ponds, over 400 linear miles of Great Lakes coastline, about 120 linear miles of Atlantic Ocean coastline, and more than 1,530 square miles of estuaries (NYSDEC 2014f). NYSDEC geographically organized NYS's hydrologic resources into 17 major drainage basins, also known as watersheds (NYSDEC 2014g). Sole Source Aquifers are designated by the U.S.

Environmental Protection Agency as the sole or main source of drinking water for a community, under provisions of the Federal Safe Drinking Water Act (USEPA 2012).

NYS has experienced substantial wetland losses starting during the initial European settlement in the 1600s. As of 1980, NYS had lost approximately 60 percent of their wetlands with an estimated 1,025,000 acres present compared to the estimated 2,522,000 acres in 1780s (Dahl 1990). NYS experienced an overall net gain of 15,500 acres (0.6 percent) of freshwater wetlands, primarily forested and open water cover types in the Lake Plain region, between the mid-1980s and mid-1990s. NYSDEC mainly attributes the wetland gain to agricultural reversion and modified hydrology such as increased runoff (NYSDEC 2000a). The majority of the state's wetlands, approximately 74 percent, are located in the Lake Plains and the Adirondacks regions.

FEMA uses the USFWS National Wetlands Inventory, NYSDEC's Environmental Resource Mapper, and on-site surveys to identify wetlands (USFWS 2014b; NYSDEC 2014j).

FEMA produces floodplain maps, referred to as the Flood Insurance Rate Maps (FIRM), which are used to determine if an action is located in the floodplain. FIRMs depict calculated locations of the one percent (100-yr) and the 0.2 percent (500-yr) floodplains, coastal high hazard areas, and base flood elevation levels. FEMA also produces Advisory Base Flood Elevation maps as an interim product to assist flood damaged communities in their rebuilding efforts while the Agency completes the new FIRMs. Advisory maps which are based on the best available information constitute available data under 44 CFR 60.3(b)(4) and show how high structures should be elevated to minimize damage from future flood events. The maps show that portions of communities are in new flood zones, which may impact insurance rates and building practices. The guidance on requirements on the use of best available data are in 44 CFR 9.7(c).

5.4.5 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

There would be no ground disturbance under the No Action Alternative and therefore no effect on water quality, wetlands, floodplains, or aquifers.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

Locating the proposed weather stations in developed land is unlikely to result in water quality impacts from construction stormwater runoff. The anticipated ground disturbance for the construction of the stations on developed land would be less than 10,000 square feet; therefore, each station would not require a SPDES Construction General Permit from NYSDEC for stormwater discharges (GP-02-01). If the weather station would be located on undeveloped land and involve additional site preparation, SPDES permits may be required. Any impact would be further minimized by implementing BMPs such as erosion and sedimentation controls specified

in the New York Standards and Specifications for Erosion and Sediment Controls (NYSDEC 2014k). No impacts to Sole Source Aquifers are expected as there is minimal ground disturbance associated with the project and negligible land conversion.

Ground disturbance would be limited for the construction of each proposed weather station and would consist of minor clearing of ground cover and low growing vegetation, and grading of up to 10,000 square feet to establish a level surface. The proposed work would result in a negligible increase in impervious area from the 6.25-foot by 6.25-foot square tower base, the 8-foot by 8-foot utility shed for the Profiler towers and small concrete pads, as required. Access roads may be created or improved by placement of gravel over geotextile fabric. No heavy equipment will be operated in wetlands. No staging areas, roads or equipment will be constructed in wetlands, with the possible exception of installing sensing devices to monitor ground saturation or stream data.

Locating a proposed weather station on developed land is unlikely to affect wetlands. If a proposed action would occur near a wetland and has a potential to effect it, then an 8-step decision making process would be required. Site-specific wetland impacts, permit requirements, and mitigation measures would be determined through that process. If 8-step process shows no adverse effects to wetlands a REC will suffice, however, if adverse effects are discovered an SEA will be required.

The SUNY-RF plans to avoid locating weather stations in floodplains. Staging areas, roads, or weather station equipment will not be constructed or located in the base (100-year) floodplain. With the exception of instruments, like ground moisture sensors intended to be wet as they function, any instruments that could be damaged by water would be elevated above the 100-year floodplain plus 2 feet or the 500-year floodplain, whichever is greater. SUNY-RF anticipates that the elevation for the weather station instrumentation and control panels would provide considerations for climate change and future sea level rise (see Section 5.13). If this elevation is not possible, the facility will be flood-proofed. If a proposed location is located within a floodplain, FEMA would conduct the 8-step process for the site.

5.5 Cultural Resources

As defined in Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended and implemented by 36 CFR Part 800, FEMA, as a federal agency, must take into account the potential effects of any of its funded actions on historic properties (i.e., undertakings) prior to engaging in any undertaking and provide the Advisory Council of Historic Preservation a reasonable opportunity to comment. The NHPA defines a historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register,” which includes all properties that meet the National Register of Historic Places (NRHP) listing criteria specified in the USDOI regulations Title 36, Part 60.4 and NRHP

Bulletin 15. To be considered eligible for inclusion in the NRHP, a historic property must meet one or more of the eligibility criteria established by the National Park Service (NPS) found in 36 CFR Part 60. Historic resources not yet evaluated may be considered potentially eligible for inclusion in the NRHP and, as such, are afforded the same regulatory consideration as nominated and/or listed properties.

36 CFR 800.4(a)(1) defines- the Area of Potential Effects (APE) is defined in 36 CFR 800.4(a)(1) as the geographic area(s) within which the undertaking may directly or indirectly affect historic properties and their settings. The requirements for review include the identification of historic properties within the APE which the undertaking may impact. Within the APE, impacts to historic properties are evaluated prior to the undertaking for both architectural resources (above ground standing structures resources) and archaeological sites (below ground resources). The NYS Historic Preservation Officer (NYSHPO) maintains a regularly updated list of historic properties listed or eligible for listing in the NYS and NRHP. It also reviews previously unevaluated properties within the APE to assess historic significance and potential project effects.

During review, consideration is given to cultural resources that may be impacted by the undertaking. Cultural resources are prehistoric and historic sites, structures, districts, buildings, objects, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. A special and unique legal relationship exists between the federal government and federally-recognized Indian tribes (tribes). As part of the NHPA Section 106 review and NEPA processes, FEMA will undertake consultation with tribes regarding possible effects of federal actions on cultural properties of historic or traditional significance, referred to as traditional cultural properties. The goal of consultation is to identify cultural resources potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties.

5.5.1 Existing Conditions

As of November 2014, the NRHP lists over 90,000 historic buildings, structures, sites, objects and districts for NYS (NPS 2014). The Mesonet system could potentially be placed in or adjacent to structures or districts, or archeological sites. However, SUNY-RF is committed to avoiding impacts to the maximum extent practicable and will employ all applicable BMPs to do so. As part of this, analyzes are begin conducted to assess the potential visual and physical impacts on historic architectural resources (i.e., standing structures). Research for known historic standing structures will be conducted within the APE using the NYSHPO Cultural Resources Information System (CRIS) to determine if any buildings in the APE are listed in or determined eligible for listing in the State and NRHP individually or within historic districts.

Archaeological sites within the state date back as far as 12,000 years and are located in a wide variety of settings, from forests and flood plains to waterways and mountain tops. Most archaeological sites are found in relatively shallow deposits, within one to two feet of the surface. Under Section 106 of the NHPA and Section 14.09 of the NYS Historic Preservation Act, the NYSHPO strives to ensure that effects or impacts on eligible or listed properties, including archeological sites, are considered and that the project planning process develops avoidance, minimization, or mitigation measures (OPRHP 2015). NYS current information on NRHP-eligible and listed properties can be found in the NYS Cultural Resource Information System CRIS.

Consultation with the NYSHPO and applicable Tribes to assess the visual and physical effects on architectural and archaeological resources began in October 2014 and is currently ongoing.

5.5.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

This alternative would have no effect on historic properties as it does not involve ground disturbance and would not alter structures or their viewsheds.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

Under this alternative, SUNY-RF would prefer to site proposed weather stations in developed areas. FEMA would seek to identify historic properties that may be affected by the undertaking. For each of the initially proposed sites, FEMA began Section 106 consultations with the SHPO in August 2014. These consultations will be attached to the individual RECs for each site.

Each station type has slightly varying APEs. Profiler stations will impact an area measuring 30 x 30 m (100 x 100 ft) covering an area of 900 m2 (10,000 ft2) or 0.09 ha (0.22 ac). Standard stations have an APE of 10 x 10 m (33 x 33 ft) covering an area of 100 m2 (1076 ft2) or 0.01 ha (0.02 ac). The APE for visual effects for this undertaking has been determined to be a one-half mile radius from the proposed towers as each tower is 200 feet or less in overall height. The APE for archaeological resources is limited to the areas of proposed ground disturbance within the identified compound areas. This determination was established in the October 20, 2014 consultation with NYSHPO.

As agreed upon during that consultation process and as part of the site verification process, a SUNY-RF archaeologist will conduct Phase I archaeological surveys at proposed project sites where the ground has not been previously disturbed and/or previously surveyed. An archaeological scope of work prepared by SUNY and submitted to NYSHPO on October 2, 2014, states that the Phase I survey is designed to collect information on the general sensitivity

of a proposed station location for containing cultural resources, and then field test those areas to determine if archaeological sites are present.

The actual ground disturbance within the fenced area is very limited as most of the instruments are attached to the tower. Ground-disturbing activities at sites that have low probability for the presence of archaeological deposits or that have been surveyed and found not to have archaeological deposits are expected to have no effect or no adverse effect on historic properties. Ground-disturbing activities at proposed sites that have moderate to high probability for the presence of archaeological deposits may have no effect, no adverse effects, or adverse effects on historic properties. If archaeological sites are located during the Phase I archaeological testing, additional Phase II archaeological testing to determine the site boundaries and assess the National Register eligibility of the site may be warranted if such sites cannot be avoided.

The construction of weather stations within the viewshed of historic properties may have adverse effects on above-ground historic resources due to the diminishment of the viewsheds to and from the historic properties. Physical changes within project areas could also affect the unique cultural values or existing religious or sacred uses of a site or area and may, therefore, have an adverse effect on cultural resources. The consultations mentioned earlier will address these concerns for each individual site.

Based on the results of the archaeological survey as well as assessment of visual impacts on historic properties within the APE, if any undertaking results or would result in an adverse effect (AE), FEMA will follow a process to resolve the effects defined in FEMA's Statewide Programmatic Agreement for New York among the NYSHPO, DHSES, the Delaware Nation, the Delaware Tribe of Indians, the Stockbridge-Munsee Community Band Of Mohicans, the St. Regis Mohawk Tribe, the Cayuga Nation, and Other Participating Tribes, the New York City Landmarks Preservation Commission (LPC), and the Advisory Council of Historic Preservation (ACHP) (FEMA's Statewide Programmatic Agreement).

In the event of an unexpected discovery that affects a previously unidentified historic property, human remains, or a known historic property in an unanticipated manner, SUNY-RF would stop construction activities in the vicinity of the discovery and immediately notify the consulting parties, per FEMA's state-wide Programmatic Agreement with NYSHPO. An SEA will need to be conducted if and adverse effects determination cannot be resolved, as outlined in the statewide programmatic agreement.

5.6 Aesthetic Resources

A viewshed is an area of particular scenic or historic value that is visible to the human eye from a fixed vantage point. Viewsheds are readily visible from public areas and thoroughfares, which include public roadways, public parks, or high-rise buildings. Section 5.5 discusses viewsheds

that affect historic properties; this section discusses viewsheds in other scenic areas that include National Wild, Scenic, and Recreational Rivers, and public lands.

Under the Wild and Scenic Rivers Act of 1968, the National Wild and Scenic Rivers System (Public Law [P.L.] 90-542; 16 USC 1271 *et seq*.) preserves rivers with outstanding natural, cultural, and recreational value in a free-flowing condition. The NPS is the administering federal agency for this system, while NYSDEC protects the free-flowing condition of those rivers that possess outstanding scenic, ecological, recreational, historic, and scientific values (Article 15, Title 27 of the ECL). The regulations (6 NYCRR Part 666) manage, protect, and control land use and development on all designated river areas in the state, excluding those on private lands within the Adirondack Park. The designated rivers within the Adirondack Park are subject to separate provisions (9 NYCRR Part 577) (NYSDEC 2014l).

5.6.1 Existing Conditions

The 73.4 miles of the Upper Delaware River between Hancock and Port Jervis is the only Designated National Wild and Scenic River segment in NYS (Figure F, Appendix B). The Nationwide Rivers Inventory list, developed and administered by NPS, consists of some 2,400 miles of Inventory Rivers in NYS that are potentially eligible for future federal designation. On the state level, the NYS System of Wild, Scenic or Recreational Rivers presently consists of 107 sections, including approximately 1,300 miles of rivers or river segments categorized as Wild, Scenic or Recreational (NYSDEC 2014m). Of these, nearly 1,000 miles are in the Adirondack Park.

NYS has three National Scenic Byways: Great Lakes Seaway Trail, Lakes to Locks Passage, and Mohawk Towpath Byway. In addition, there are 26 corridors that fall under the NYS Scenic Byways Program. NYSDOT provides a complete list of Scenic Byways in NYS online (NYSDOT 2014a). NYS also has six SASS areas in Columbia, Greene, Dutchess, and Ulster counties designated in 1993 as the Hudson River Valley SASS as well as nine areas totaling more than 25,000 acres on Long Island’s East End that were designated as the East Hampton SASS in 2010 (NYSDOS 2014b).

5.6.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

There would be no impact on aesthetics and visual resources under the No Action Alternative, as current conditions would not change.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

Construction of individual weather stations at locations that are mostly hidden from view would have little negative visual impact. However, if they are located in an area of moderate to high landscape sensitivity, there may be moderate to high negative visual impacts. Given the preference that weather stations be located on public lands, there is potential for some sites to be located in visually sensitive sites.

The proposed weather stations may affect view sheds of National Wild and Scenic Rivers, NYS Wild, Scenic or Recreational Rivers, National Scenic Byways, and NYS Scenic Byways; Scenic Areas of Statewide Significance (SASS) thus having a negative visual impact on visually sensitive environments. Intrusions could include the actual visibility of weather stations or glare reflected off any equipment. Where there may be negative visual effects, impact minimization measures would be developed and implemented discussed in the NYSDEC Division of Environmental Permits Program Policy "Assessing and Mitigating Visual Impacts" (NYSDEC 2000b).

Visual impacts during construction might include vegetation removal and the temporary presence of construction equipment. However, such impacts would be minor and temporary in nature. The construction of 125 weather stations across the state is not expected to have a cumulative visual impact, as each weather station is relatively small in dimension and would not be placed close to each other.

5.7 Public Services, Utilities and Transportation

This section evaluates the potential impacts of the proposed project on public services and facilities; public utilities such as sewer, water, gas, oil, electricity, and telephone; and transportation systems such as roadways and air travel routes.

5.7.1 Existing Conditions

Public facilities, utility lines, and transportation routes exist across the state and are likely to occur in the vicinity of some project sites, particularly in developed areas. The locations of public facilities and utilities would be determined at each project site in order to assess individual and cumulative impacts.

NYS's transportation network consists of highways, local roads, rail lines, public transit systems, pedestrian and bicycle facilities, airports, ports, waterways, and intermodal terminals. NYS has about 114,592 miles of highways, roads, and streets, and 15 primary commercial airports (NYSDOT 2011). Highway mileage reports, public roadway inventories, and local inventory reports of county and local roads/streets are available on NYS Department of Transportation's (NYSDOT) website (NYSDOT 2014b).

5.7.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative does not have the potential to directly impact public services and utilities. However it has the potential to indirectly affect public services and utilities because a lack of proper weather forecasting could cause delays or interruptions. The No Action Alternative also has the potential to disrupt future local and regional transportation routes since severe weather conditions would continue to damage transportation infrastructure throughout NYS. Therefore, impacts to public services, utilities, and transportation would have the potential to adversely impact the surrounding communities.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

Alternative 2 may result in delays or interruptions to public services, utilities, and transportation due to construction activity, but these are expected to be short term and negligible in nature. SUNY-RF would minimize potential impacts by planning and coordinating with service providers and construction managers prior to construction, as appropriate. Any new utility connections would be performed in accordance with the requirements of the public service companies and applicable codes and standards to minimize disruptions related to construction. Long-term impacts are not expected.

Under Alternative 2, the proposed project would not impact the roadway network, alter traffic patterns, or cause any road closures because no new roadways would need to be constructed. Potential trip generation would include short-term construction activities and intermittent maintenance. SUNY-RF shall utilize appropriate construction practices and BMPs for site access, protection, and traffic routing to minimize impacts. Due to improved weather forecasting, this alternative would lessen the likelihood and severity of future disaster-related travel disruptions and transportation system damages.

5.8 Public Health and Safety

5.8.1 Existing Condition

Across New York State, there are 3,573 fire stations, 446 municipal fire departments, 810 Fire Districts, and 530 incorporated fire departments (NYSDHSES 2013). In addition, there are 514 State and local law enforcement agencies with 95,105 full-time employees (U.S. Department of Justice 2011). Emergency response time standards frequently exist in contractual obligations between communities and emergency service organizations. As a result, there are typically considerable variations in emergency response time standards amongst communities.

Local police departments would provide law enforcement and emergency services in each project site and surrounding area. There were 341 full-time sworn personnel per 100,000 residents in the State of New York (U.S. Department of Justice 2011). The State of New York is the second largest state law enforcement agency in the country with 4,847 full-time sworn offices. During 2008 the New York City Police Department (NYPD), with 36,023 full-time officers, remained the largest local police department in the United States.

5.8.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no impacts are expected with respect to public health and safety. However, there would be adverse impacts to emergency services as they would continue to be challenged by lack of early warning for extreme weather conditions.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

Under Alternative 2, construction design plans would be reviewed and approved by the local fire department prior to project implementation to ensure proper emergency access throughout the project site. There is also potential for the demand for emergency services to decrease due to improved weather projections, which would allow more time for communities to prepare and plan for severe weather conditions.

5.9 Hazardous Materials and Solid Waste

NYSDEC defines hazardous substances as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health and the environment (NYSDEC 2014n). Hazardous materials and wastes are regulated under a variety of federal and state laws, including 40 CFR Part 260, the Resource Conservation and Recovery Act of 1976 (42 USC § 6901 *et seq.*), Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC § 9601 *et seq.*), Solid Waste Act, the Toxic Substances Control Act, and the Clean Air Act (CAA) of 1970 (42 USC § 7401 *et seq.*). Occupational Safety and Health Administration (OSHA) standards under the Occupational Safety and Health Act seek to minimize adverse impacts to worker health and safety (United States Department of Labor 2014). Evaluations of hazardous substances and wastes must consider whether any hazardous material would be generated by the proposed activity and/or already exists at or in the general vicinity of the site (40 CFR 312.10). If hazardous materials are discovered, they must be handled by properly permitted entities. The New York Department of Labor permits entities for asbestos waste abatement and NYSDEC issues permits for transportation and disposal of hazardous waste.

In NYS, there are several different types of landfills and disposal facilities to manage waste, including municipal solid waste, land clearing debris, and construction and demolition (C&D) debris (NYSDEC 2014o). As of November 2013, there were 113 registered land clearing debris landfills and 12 regulated C&D debris landfills in the State of New York.

5.9.1 Existing Condition

The NYSDEC website provides access to databases with records of chemical and petroleum spills; State Superfund, Brownfield Cleanup, Environmental Restoration, Voluntary Cleanup and Inactive Hazardous Waste Disposal Sites; and bulk storage facilities across the state (NYSDEC 2014p). Such sites allow the general public and other entities to look up locations where hazardous materials are or are more likely to be present.

5.8.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no impacts are expected with respect to hazardous materials and solid waste.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

For each weather station site, the presence of hazardous materials would be determined through appropriate background research and an onsite inspection with a Phase 1 Environmental Site Assessments. If hazardous materials are discovered at a proposed site, then SUNY-RF would be required to conduct an environmental site assessment. If contaminations exceeding reporting levels are present, further hazardous waste mitigation must occur and an SEA will be conducted.

Alternative 2 is expected to generate minimal amounts of solid waste. SUNY-RF would direct its contractors to use approved local landfills that accept construction waste and have sufficient permitted capacity to accommodate the project's solid waste disposal needs. Construction equipment will also be maintained so as to not have any oil or lubricant leaks during construction. If leaks do occur, the oil and lubricant waste will be disposed of in accordance to NYSDEC hazardous regulations and subgrantee will use NYSDEC permitted haulers and facilities.

SUNY-RF shall handle and dispose of any hazardous materials exposed, generated, or used during construction in accordance with all applicable local, state, and federal regulations.

5.10 Noise

Noise is unwanted sound that interferes with normal human activities or wildlife behavior, or may otherwise diminish environmental quality. In response to the Noise Control Act of 1972,

USEPA 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 USEPA report found that keeping the maximum 24-hour Day-Night Average Sound Level (DNL) below 70 decibels on the A-weighted scale (dBA) would protect the majority of people from hearing loss and recommends an outdoor DNL of 55 dBA. The Occupational Safety and Health Administration (OSHA) has adopted a standard of 140 dBA for maximum impulse noise exposure.

5.10.1 Existing Conditions

Existing noise levels would vary by proposed project site and depend on the sound level and the observer's distance from the source. Sources of noise near proposed project sites could include automobiles, trains, helicopters and airplanes; industrial equipment and machinery; water channels; humans; and animals.

5.10.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no impacts are expected with respect to noise.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

This alternative would result in relatively small temporary increases in noise due to construction activities. BMPs would minimize noise levels by ensuring that construction equipment uses the manufacturer's standard noise control devices. Noise impacts on nearby residences and other sensitive receptors would also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours. The project's effect on noise is expected to be short term and minor. Once the weather stations are constructed, vehicular traffic on access roads is expected to be infrequent for maintenance activities; therefore, long-term impacts are expected to be negligible. If noise levels exceed typical levels on a permanent or prolonged basis, outreach to USEPA and OSHA be required to assess noise.

5.11 Air Quality

USEPA has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the CAA. Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define levels of air quality necessary to protect public welfare from any known or anticipated adverse impacts of a pollutant. Federal NAAQS are currently established for the following seven criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate matter (PM) equal to or less than 10 micrometers in aerodynamic diameter

(PM_{10}), and PM equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Table A (Appendix C) provides the NAAQS currently applicable to NYS (USEPA 2014a).

5.11.1 Existing Conditions

There are 30 counties in the state of New York with areas in nonattainment where a criteria pollutant level exceeds the applicable NAAQS for O_3 (8-hr) and one county, New York, in nonattainment for PM_{10}. Table B (Appendix C) provides the list of counties with nonattainment areas.

5.11.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no impacts are expected with respect to air pollutants.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

Construction activities are limited to using a mini excavator, a small front end loader, and a concrete truck. Portable diesel generators may provide temporary electric power. Emissions from construction vehicles and equipment could temporarily increase the localized levels of some of the criteria pollutants, including CO, NO_2, O_3, PM10, and non-criteria pollutants such as volatile organic compounds (VOCs) (USEPA 2003), but these emissions would be minimal due to the small construction area and time. $PM_{2.5}$ and PM_{10} levels could increase during soil-disturbing activities such as excavation, but BMPs will minimize fugitive dust through activities such as spraying the site with water, covering spoil piles, and covering the haul vehicle loads that contains fill or cut materials. Due to the small-scale of construction, the project would have a negligible, if any, impact on air quality. During the operation of the towers, power generation is likely to be solar or local utility. There is currently no anticipated need for backup generators; however the temporary use of these generators, if needed, would likely cause a negligible impact on air quality.

5.12 Socioeconomics and Environmental Justice

EO 12898, *Environmental Justice (EJ) for Low Income and Minority Populations*, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects that its activities may have on minority or low-income populations. The Council of Environmental Quality (CEQ) defines the term “minority” as persons from any of the following groups: Black, Asian or Pacific Islander, American Indian or Alaskan Native, and Hispanic (CEQ 1997). Low-income or poverty areas are defined using the statistical poverty threshold from the USCB, which is based on income and family size. USCB defines a poverty area as a census tract in which 20% or more of its residents are below the poverty threshold, and

an extreme poverty area as one in which 40% or more are below the poverty level. The 2013 poverty threshold for a family of four with two children under the age of 18 was $23,624 (USCB 2013a). Per USEPA Region 2's Guidelines for Conducting Environmental Justice Analyses, for NYS, a community would be considered an EJ community if the minority population is 51.51% or higher or if 23.59% or more of the population is below the poverty line.

5.12.1 Existing Conditions

According to the U.S. Census, the population of NYS in 2000 was 18,976,457, which increased to 19,378,102 in 2010, and is estimated at 19,651,127 for 2013 (USCB 2013a). The five largest counties in NYS at the time of the 2010 Census were: Kings County with 2,504,700 residents, Queens County with 2,230,722, New York County with 1,585,873, Suffolk County with 1,493,350, and Bronx County with 1,385,108. New York City, which includes Kings, Queens, New York, and Bronx Counties, along with Richmond County, is the largest city with 8,405,837 residents.

Within NYS, the majority of Census respondents (97%) identified themselves as being of one race. Of those respondents, 66% identified themselves as White, and 15.9% as Black or African American. The remaining respondents identified themselves as Asian (7.3%), American Indian or Alaska Native (0.6%), Native Hawaiian and Other Pacific Islander (0.0%), and other (7.4%). Table C provides minority populations by county for the State of New York (Appendix C) (USCB 2013b). Bronx, Queens, Kings, and New York Counties are the only counties in the state that have a minority population of 51.51% or higher.

Recent reports indicate that the poverty rate in NYS is 15.1% and the median income is $57,683 (NYS Community Action Association 2013; USCB 2012). Table D (Appendix C) provides poverty levels, unemployment rates, and median income by county for the state of New York. According to 2008-2012 American Community Survey 5-Year Estimates, the median income within New York State is $57,683 annually, which is 8% more than the $53,046 national average. Many NYS counties have percentages of low-income populations that are higher than the national average.

There are eight federally recognized American Indian tribes in NYS: Cayuga Nation of New York, Oneida Nation of New York, Onondaga Nation of New York, Saint Regis Mohawk Tribe (formerly the St. Regis Band of Mohawk Indians of New York), Seneca Nation of New York, Shinnecock Indian Nation, Tonawanda Band of Seneca Indians of New York, and Tuscarora Nation of New York (National Conference of State Legislatures 2014). These tribes are located in the following counties: Oneida, Seneca, Onondaga, Chautauqua, Franklin, Genesee, Erie, Suffolk, and Niagara.

5.12.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, SUNY-RF would not implement the NYS Early Warning Weather Detection System, therefore no disproportionately high and adverse human health or environmental effects upon minority or low-income populations would be created.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

NYS Early Warning Weather Detection System sites would take advantage of publicly owned land such as state campuses, affiliated community colleges, public schools, and municipal land, and would use existing access roads where they exist. There may also be adverse short-term impacts to populations in the area during construction as discussed elsewhere in this PEA, but these construction-related impacts are expected to be minor, and would not disproportionately affect EJ populations.

Construction of weather stations would not result in the displacement of existing homes, businesses, farms, or transportation corridors. Alternative 2 would have a beneficial long-term effect on all people living and working in the vicinity of the project areas, including EJ communities, as it would reduce the risk of damage and disruption from severe weather conditions. Overall, the project would have a positive impact on all communities in the long term, as the project would reduce severe weather risk to individuals and personal property.

5.13 Climate Change

Climate change refers to any substantial change in measures of climate lasting for an extended period of time. Climate change may result from natural factors and processes or from human activities. Observed trends include higher temperatures, changing rain and snow patterns, more droughts, warmer oceans, rising sea level, stronger storms, increased ocean acidity, shrinking sea ice, and thawing permafrost (USEPA 2014d).

The President signed EO 13653, *Preparing the United States for the Impacts of Climate Change*, in 2013. EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, was signed in 2007, and EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, was signed in 2009, expanding on the energy reduction and environmental performance requirements for federal agencies identified in EO 13423 (Federal Facilities Environmental Stewardship & Compliance Assistance Center 2014a and 2014b). Federal actions, under these EOs, are to consider climate change risks and vulnerabilities, energy efficiency, sustainability, and to implement climate change preparedness and adaptability in federally funded projects, when reasonable.

In 2009, a final action was signed under Section 202(a) of the CAA of 1970 (42 USC § 7401 *et seq*.) finding that six key well-mixed greenhouse gases constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to the climate change problem (USEPA 2014e). Greenhouse gases include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, and fluorinated gases. O_3 is a photochemical oxidant that forms in the atmosphere from VOCs and nitrogen oxides (NO_x). USEPA regulates greenhouse gases and other air pollutants under the CAA (Section 5.10).

5.13.1 Existing Conditions

New York State has experienced increased storm activity over recent years. These include a blizzard in December 2010, Tropical Storm Irene in August 2011, a Nor'easter in October 2011, Hurricane Sandy in October 2012, a Nor'easter in November 2012, and several winter storms and high wind events during 2012, 2013, and 2014.

Recent climate assessments have identified indicators and impacts of climate change in New York and the northeastern U.S., including rising annual average temperatures with state average temperatures rising by approximately 2.4º F and winter warming exceeding 4º F since 1970; decreasing winter snow cover; more intense summer heat waves; increased frequency of intense precipitation events; and rising sea levels along NYS's ocean coast measuring approximately a foot higher than in 1900. Scientists expect that climate change will persist and intensify; they project that temperatures and sea levels will continue to rise, rains and flooding to become more frequent and intense, and short-term droughts to increase in frequency (NYSDEC 2014q, USEPA 2014d).

5.13.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, NYS would continue to have inadequate weather detection capabilities. This leads to limited ability to correctly assess the level of risk to life and property, to provide timely and accurate weather-related warnings, and to prepare and respond appropriately. With weather events expected to become more intense and frequent in the future due to climate change, weather-related damages, losses, and other impacts are expected to increase.

Alternative 2: Proposed Action - Construct NYS Early Warning Weather Detection System

The effects on climate change from the project would be negligible due to minimum air emissions. As discussed in Section 5.11, construction vehicles and generators may produce very low levels of greenhouse gases and are the only sources of possible emissions. By implementing measures to reduce emissions from vehicles and equipment, any potential impacts on human

health and lives would become negligible and will be negated by an increase in the system's ability to relay information to correctly assess the level of risk to life and property, to provide timely and accurate weather-related warnings, and to prepare and respond appropriately. It is SUNY-RF's preference that the weather stations be located out of the base (100-year) floodplain, which are calculated with considerations for future sea level rise. If the weather stations cannot be located outside of the base floodplain they will be elevated or flood-proofed to base flood elevation levels plus 2 feet or the 500-year floodplain, whichever is greater, and would therefore not affect flood levels in site areas.

5.14 Cumulative Impacts

In accordance with NEPA (42 USC 4321 *et seq.*), this PEA considers the overall cumulative impact of the Proposed Action and other actions that are related in terms of time or proximity. According to CEQ regulations (40 CFR 1500-1508), cumulative impacts represent the "impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). In addition to NEPA, other statutes require federal agencies to consider cumulative impacts. These include the CWA Section 404(b)(1) guidelines, the regulations implementing the conformity provisions of the CAA, the regulations implementing Section 106 of the NHPA, and the regulations implementing Section 7 of the ESA. Based on the regulations described above, if the alternative does not have direct or indirect effects for a particular resource, there can be no cumulative effects resulting from the project because there would be no impacts added to past, present, or reasonably foreseeable actions.

On a programmatic level, FEMA broadly considers the potential for cumulative impacts based on the proposed action and experience with similar type projects. Consideration is given to the uncertainty associated with specific locations that would be finalized in the future. SUNY-RF would be responsible for consulting with relevant federal, state, and local planning and regulatory agencies, and determining other actions that are underway or proposed at or near each individual project site that, in combination with the proposed project, would cause significant cumulative effects. These could include building or roadway construction or expansion and utility installation or improvement. The combination of such projects may cause temporary and negligible cumulative effects during construction. In the long term, the addition of structures nearby may have an incremental cumulative impact on land use (Section 5.2), wildlife (Section 5.3), and aesthetics (Section 5.6). Mitigation measures (Sections 5.1 to 5.9) and project conditions (Section 6) would reduce impacts discussed in each affected environment section below the level of significance.

The proposed actions described in this PEA would have minimal impact on the affected environment; implementing the best management practices and related commitments offered by SUNY-RF and incorporated into this document are expected to limit individual and cumulative impacts. Mitigation measures to reduce impacts are addressed in each affected environment section and project conditions section. The REC would be used to define any individual or cumulative impacts requiring mitigation on a location-specific basis as sites are confirmed and reviewed by FEMA. As discussed in Section 1.1, an SEA and corresponding FONSI, would be prepared if the specific action for any locations is expected to create impacts not described; create impacts greater in magnitude, extent, or duration than those described; or required BMP or mitigation measures that cannot minimize impacts below significant individual or cumulative levels.

6.0 Permits and Project Conditions

SUNY-RF is responsible for obtaining and adhering to all applicable federal, state and local permits, permit conditions, regulatory compliances and authorizations for project implementation. Any substantive change to the approved scope of work will require re-evaluation by FEMA for compliance with NEPA and other environmental and historic preservation laws and EOs. SUNY-RF must also adhere to the following conditions during project implementation and consider the conservation recommendations outlined below. Failure to comply with grant conditions may jeopardize federal funds.

1) Floodplain Best Available Data shall be used to determine the 100-year floodplain elevation for final engineering design in accordance with 44 CFR Part 9. Any placement of fill in a designated floodway requires the preparation of a “no-rise certification” or equivalent.
2) Any proposed construction in the floodplain must be coordinated with the local floodplain administrator and must comply with Federal, state and local floodplain laws and regulations.
3) Projects within the coastal zone shall undergo a consistency review with NYSDOS, and comply with LWRP conditions, requirements imposed by NYSDOS.
4) Work within a half-mile of a designated Study River of the National Wild and Scenic River System or within NYS mapped Wild, Scenic, or Recreational Rivers shall comply with NPS or NYSDEC restrictions or conditions.
5) SUNY-RF shall install Bird Flight Diverters and other approved USFWS mitigation measures on guy wires as visual cues to prevent collisions by migratory birds.
6) Security lighting shall be motion or heat sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attractions and eliminate constant nighttime illumination but still be able to provide adequate safety lighting. Towers shall be unlighted if FAA regulations and lighting standards permit. If lighting on towers is

required, they will flash with existing flashing lights in accordance with USFWS Guidelines for Communication Tower Design.

7) SUNY-RF shall ensure, through qualified biologists using information databases or field surveys, whether the presence of protected species, suitable habitats, active migratory bird nests, or invasive species are present. If protected species are confirmed to be present, coordination with the appropriate wildlife protection agency is required. If eagle nests or concentration areas are located within 200 meters (660 feet) of proposed activities, USFWS and NYSDEC shall be consulted and protection measures outlined in the 2007 USFWS Bald Eagle Monitoring Guidelines shall be implemented. Proposed activities that could affect migratory birds shall be restricted to outside of the breeding season, or buffer zones shall be established around the nest if restricted work seasons are not viable.

8) Projects shall comply with any requirements and avoidance measures provided by USFWS pursuant to Section 7 of the ESA, including but not limited to the removal of any trees and/or snags between October 31and March 31 to avoid impacts to the endangered Indiana bat (*Myotis sodalis*) and the threatened northern long-eared bat (*Myotis septentrionalis*). If protected species are observed during construction, activities that could result in harm or disturbance shall stop immediately and the appropriate regulatory agency shall be consulted. Appropriate distance buffers and seasonal and activity restrictions shall be implemented as instructed.

9) BMPs that prevent the introduction, establishment, and spread of invasive plant species shall be implemented. Invasive species shall be removed when encountered, per USDA and state agency guidelines, and suppression or removal practices to prevent their introduction, establishment, and spread shall be implemented. Woody materials and debris shall be treated and stored to manage for invasive insects, particularly for sites in Asian longhorn beetle and emerald ash borer quarantine zones.

10) Projects that alter less than one (1) acre of land would not require a SPDES permit. Projects that alter one (1) acre or greater of land shall comply with NYSDEC SPDES permit for Stormwater Discharges from Construction Activities or other applicable SPDES permits, in accordance with state environmental conservation law. If NYSDEC General Permit for Stormwater Discharges is determined to cover the proposed action, SUNY-RF shall provide FEMA a copy of the SWPPP and a copy of the Notice of Intent Form at grant project closeout or other time identified by FEMA Grant Programs per grant administrative documentation guidance requirements. Projects that increase impervious area shall meet the state stormwater performance standards and comply with the standards for stormwater management practices as described in the 2010 Stormwater Management Design Manual.

11) BMPs shall be implemented during construction, including but not limited to sedimentation and erosion control measures, dust control, noise abatement, and work restrictions in sensitive areas. Stabilized construction entrances and exits using large

crushed rocks, stone pads, steel wash racks, hose down systems, and pads shall be established. Slope protection measures, if needed, shall be provided until vegetation is reestablished using bio or photodegradable erosion control blankets, bonded fiber matrices, and/or turf reinforcement mats. Temporary storm drain inlet protection shall be provided until project sites are stabilized. Where possible, disturbed areas shall be seeded or planted using native species as soon as construction activities are completed so that soils are minimally exposed.

12) Where possible, ground disturbance shall be restricted to within previously disturbed areas. Projects affecting designated Prime Farmland shall comply with conditions imposed by NRCS or FPPA. Topsoil shall be maintained and vegetation preserved to the maximum extent practicable. Vegetated buffers shall be maintained and BMPs implemented around water resources to protect water quality from sediment and discharges. Vegetation removal shall be minimized or mitigated through effective restoration and landscaping.
13) Excavated soil and waste materials, including hazardous waste, shall be managed and disposed of in accordance with applicable federal, state, and local regulations. Solid waste haulers shall be required to have an NYSDEC waste hauler permit and all waste shall be disposed of or processed at an NYSDEC permitted facility.
14) New electric utility connections shall be approved by the affected public service companies and be completed in accordance with their requirements and local building codes.
15) Adequate maintenance of equipment shall be ensured, including proper engine maintenance, adequate tire inflation, and proper maintenance of pollution control devices.
16) Noise abatement in residential areas shall limit construction activities, including operation of heavy machinery, to normal business hours (Monday to Friday, 7 am – 5 pm). Construction activities within 200 feet of noise-sensitive receptors, such as schools, hospitals, residential areas, and nursing homes, shall be avoided to the extent practicable.
17) A site-specific visual assessment shall be conducted to determine potential effects of the weather station on the surrounding visual landscape.
18) SUNY-RF shall submit copies of all obtained permits to NYSDHSES at or prior to final closeout of the Hazard Mitigation Grant.
19) Construction activities shall not be initiated until 15 days after the date that the FONSI has been signed as “APPROVED.”
20) If an undertaking results in an Adverse Effect to historic properties and treatment measures are approved to mitigate the loss of a cultural resource through the Abbreviated Consultation Process (per Section II.D.6.a. of FEMA’s state-wide Programmatic Agreement with NYSHPO) or by a site-specific memorandum of Agreement (in accordance with Section II.D.6.b), these treatment measures shall become conditions to the project.

21) In the event unexpected discoveries are uncovered including, unmarked graves, burials, human remains, and/or archaeological deposits, 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 Grantee, NYSHPO, and FEMA immediately. The subgrantee must secure all archaeological findings and shall restrict access to the area. Until an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards determines the extent and historical significance of the discovery, work in sensitive areas may not resume until consultations are completed. Work may not resume at or around the delineated archaeological deposit until the subgrantee is notified by the Grantee to proceed.

22) The subgrantee must obtain all site fill from a permitted commercial supplier or locally municipally owned soil/gravel borrow area permitted for mining/excavation as fill material. If the subgrantee plans to obtain soil or gravel from a non-commercial source or site that is not permitted, the details of the proposed source location must be submitted to FEMA for approval as a scope of work change prior to construction implementation. FEMA would need to conduct a federal agency environmental and historic preservation compliance review of non-permitted/non-commercial sources prior to construction.

23) OSHA standards shall be followed during construction to avoid adverse impacts to worker health and safety.

24) The subgrantee and its contractor are required to use best management practices for construction not limited to sedimentation and erosion control measures, dust control, noise abatement and restriction of work areas to limit vegetation removal and habitat impacts. NYSDEC's website provides useful tools for stormwater management during construction: http://www.dec.ny.gov/chemical/8468.html.

7.0 Agency Coordination and Public Involvement

This PEA will be made available for agency and public review and comment for a period of 15 days. The public information process will include a public notice with information about the proposed project in the following newspapers statewide: Times Union (Albany), Adirondack Daily Enterprise, Utica Observer-Dispatch, The Post-Standard (Syracuse), Democrat & Chronicle (Rochester), The Buffalo News, Watertown Daily Times, Poughkeepsie Journal, The Daily Freeman (Kingston), The Journal News (Westchester, Rockland and Putnam), The Press & Sun-Bulletin (Binghamton) and Newsday (Long Island and New York City). An Electronic version of the PEA will be published at the MESONET website, http://nysmesonet.org/news.

A hard copy of the PEA will be available for review at these locations:

State University of New York at Albany
1400 Washington Avenue

Albany, NY 12222
518-442-3300

State University of New York at Stony Brook
North County Road
Stony Brook, NY 11794
631-632-6000

State University of New York at Binghamton
4400 Vestal Parkway East
Binghamton, NY 13902
607-777-2000

State University of New York at Buffalo
12 Capen Hall
Buffalo, NY 14260-1660
716-645-2000

Interested parties may request an electronic copy of the PEA by emailing FEMA comment4085fema@fema.dhs.gov. This PEA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will take 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 emailing comment4085fema@fema.dhs.gov or via mail to:

FEMA NY Sandy Recovery Office
118-35 Queens Blvd.
Forest Hills, NY 11375
Attn: EHP - NYS Mesonet PEA Comments

If no substantive comments are received from the public and/or agency reviewers, the PEA will be adopted as final and a Finding of No Significant Impact will be issued by FEMA. If FEMA receives substantive comments, the Agency will evaluate and address comments as part of the FONSI record documentation or in a Final PEA.

FEMA will send copies of the PEA to:

Attn: Steven T. Papa
U.S. Fish and Wildlife Service
Long Island Field Office
340 Smith Road

Shirley, NY 11967

Attn: Tim Sullivan
U.S. Fish and Wildlife Service
3817 Luker Road
Cortland, NY 13045

New York State Division for Historic Preservation
New York State Office of Parks, Recreation & Historic Preservation
Peebles Island Resource Center
Delaware Avenue
Cohoes, NY 12047

8.0 List of Preparers

FEMA New York Sandy Recovery Office

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9.0 Summary Table

Section	Area of Evaluation	Alternative 1: No Action	Alternative 2: Construct NYS Early Warning Weather Detection System (Proposed Action)	Agency	Mitigation
5.1	**Geology, Topography, and Soils**	No effect	No effects to minor impacts on geology, topography and soils.	USDA	Disturbed ground surfaces would be stabilized to match the surrounding area. BMPs will be used, advised by local regulations, to reduce impacts to soils.
5.2	**Land Use and Planning**	No effect	Any impacts to land use would be negligible. They would be limited to relatively small changes that would be consistent with surrounding or planned land uses, existing land use plans, and zoning regulations.	USDA, NPS, OPRHP, APA, and NYSDEC	SUNY would avoid areas with land uses that are incompatible with a proposed weather station.
5.3	**Biological Resources**				
5.3.1	Vegetation, Wildlife Habitat, and Invasive Species	No effect	Minor impacts to vegetation would be localized and limited to the removal of weedy, early-successional species within degraded habitats. The proposed action will likely have no adverse effect on commonly found wildlife. Construction-related impacts would be temporary and localized. Any harassment will be minor and temporary from construction generated dust and noise.	NYSDEC	Any tree removal will occur between October 31 and March 31 to avoid impacts to listed species and migratory birds. SUNY-RF will follow USDA guidelines in managing invasive species found at project sites. BMPs will be used, advised by local regulations, to reduce impacts to habitats.
5.3.2	Migratory Birds	No effect	Per FEMA's consultation with USFWS (Correspondence A, Appendix D), the proposed action "may affect" migratory birds.	USFW and Atlantic Flyway Council	To mitigate the risk for collision, SUNY must install Bird Flight Diverters on guy wires. SUNY must follow the USFWS guidance regarding design and construction of communication towers. As an avoidance measure, SUNY will site weather stations away from preferred habitat for migratory birds, as practicable, as this may decrease the risk for collisions.
5.3.3	Threatened and Endangered Species	No effect	No long-term adverse impacts are anticipated and the proposed project is unlikely to jeopardize the continued existence of several federally listed species. Per FEMA's consultation with USFWS (Correspondence A, Appendix D), the proposed action "may affect but is not likely to adversely affect" several federally listed species.	USFW and NOAA	As mitigation, SUNY will remove any trees between October 31 and April 1. If any listed threatened or endangered species or their suitable habitats are present at a proposed location, coordination with wildlife agencies would be required. FEMA's consultation with USFWS letter (Correspondence A, Appendix D) documents the potential impacts on federally protected species and mitigation measures that SUNY must implement.
5.3.4	Bald and Golden Eagles	No effect	USFWS has determined that the proposed project will have no effect to bald eagles.	NYSDEC and USFW	Overall impacts are expected to be minimal as SUNY will follow USFWS' Bald Eagle Management Guidelines which are included as required BMP for the proposed project.
5.4	**Water Resources**				

Section	Area of Evaluation	Alternative 1: No Action	Alternative 2: Construct NYS Early Warning Weather Detection System (Proposed Action)	Agency	Mitigation
5.4.1	Water Quality	No effect	The proposed action would result in a localized and negligible increase in impervious surface area. Construction stormwater runoff would not impact water quality. No impacts to Sole Source Aquifers are expected.	USACE and NYSDEC	Any impact would be further minimized by implementing BMPs such as erosion and sedimentation controls specified in the New York Standards and Specifications for Erosion and Sediment Controls.
5.4.2	Wetlands	No effect	The proposed action is unlikely to affect wetlands. If any actions are taken near or within wetlands minor impacts to wetlands are anticipated.	USACE and NYSDEC	Any impacts would be minimized in accordance with FEMA's minimization standards in 44 CFR 9.11 and an 8-step process will be undertaken. For any jurisdictional wetlands SUNY will notify the USACE and obtain any required permits prior to the initiation of work
5.4.3	Floodplain	No effect	The proposed action is unlikely to affect the 100-year floodplain. If any actions are taken in or have the potential to impact the floodplain, effects would be minor.	FEMA	Any impacts to floodplains would be minimized in accordance with FEMA's minimization standards in 44 CFR 9.11 and an 8-step process will be undertaken.
5.5	**Cultural Resources**	No effect	Ground-disturbing activities at sites that have low probability for the presence of archaeological deposits or that have been surveyed and found not to have archaeological deposits are expected to have no effect or no adverse effect on historic properties. Ground-disturbing activities at proposed sites that have moderate to high probability for the presence of archaeological deposits may have no effect, no adverse effect, or adverse effects on historic properties. Constructing weather stations within the viewshed of historic properties may have no effect, no adverse effects, or adverse effects on above-ground historic properties.	NYSHPO	If any undertaking results or would result in an adverse effect, for archeological or historic viewsheds, FEMA has a process available for resolving the issue through state wide programmatic agreement.
5.6	**Aesthetic Resources**	No effect	There is potential for some sites to be located in visually sensitive sites. The proposed weather stations may have a negative visual impact on visually sensitive environments. Visual impacts during construction would be minor and temporary in nature. Cumulative visual impacts are not anticipated.	NYSDOT, NYSDOS, and NYSDEC	Where there may be negative visual effects, impact minimization measures would be developed and implemented per the NYSDEC Division of Environmental Permits Program Policy "Assessing and Mitigating Visual Impacts."
5.7	**Public Services, Utilities, and Transportation**	A lack of proper weather forecasting would cause delays or interruptions and could potentially	The proposed action may result in delays or interruptions to public services, utilities, and transportation due to construction activities, but these are expected to be short term and minor in nature. No long-term impacts are anticipated. The proposed action would not	NYSDOT and local municipalities	SUNY-RF would minimize potential impacts by planning and coordinating with service providers and construction managers prior to construction, as appropriate. Any new utility connections would be performed in accordance with the requirements of the public service companies and applicable codes and

Section	Area of Evaluation	Alternative 1: No Action	Alternative 2: Construct NYS Early Warning Weather Detection System (Proposed Action)	Agency	Mitigation
		affect public services, utilities, and transportation adversely affecting the surrounding communities.	impact the roadway network, alter traffic patterns, or cause any road closures because no new roadways would need to be constructed. Potential trip generation would include short-term construction activities and intermittent maintenance. No long-term impacts are anticipated		standards to minimize disruptions related to construction.
5.8	**Public Health and Safety**	Adverse impacts to emergency services due to a continued challenge from a lack of early warning for extreme weather conditions.	The proposed action has the potential for the demand for emergency services to decrease due to improved weather projections. Communities will have more time to prepare and plan for severe weather conditions. Proposed action will have a positive impact on communities.		Construction design plans would be reviewed and approved by the local fire department prior to project implementation to ensure proper emergency access throughout the project site.
5.9	**Hazardous Materials and Solid Waste**	No effect	No effect. Hazardous or toxic materials and/or wastes would be safely and adequately managed in accordance with all applicable regulations with limited exposures or risks.	NYSDEC	If hazardous materials are present at a proposed site, then SUNY would be required to conduct an environmental site assessment. Equipment will be maintained to prevent oil and lubricant leaks. Any leaks will be handled as hazardous waste.
5.10	**Noise**	No effect	Any long-term impacts from vehicular traffic on access roads are expected to be negligible. Noise levels would not exceed typical noise levels from construction equipment or generators. Noise generated from construction and operation of the proposed action would be short-term and minor.	USEPA and OSHA	Construction equipment will use the manufacturer's standard noise control devices. Construction activities will not be conducted during early morning or late evening hours.
5.11	**Air Quality**	No effect	The proposed action would have a negligible, if any, impact on air quality. Short-term impacts to air quality would occur during construction and could temporarily increase the localized levels of some of the criteria pollutants but these emissions would be minimal due to the small construction area and time.	NYSDEC and USEPA	Minimization of fugitive dust through spraying the site with water, covering spoil piles, and covering the haul vehicle loads that contains fill or cut materials. Any generators and construction equipment used will be properly tuned to avoid excess emissions.

Section	Area of Evaluation	Alternative 1: No Action	Alternative 2: Construct NYS Early Warning Weather Detection System (Proposed Action)	Agency	Mitigation
5.12	**Socioeconomics and Environmental Justice**	No effect	There may be adverse short-term impacts to populations in the area during construction are expected to be minor, and would not disproportionately affect EJ populations. The proposed action would have a net positive impact and reduce the risk of damage and disruption to EJ communities from severe weather conditions.	USEPA	
5.13	**Climate Change**	The limited ability to provide timely and accurate weather-related warnings, to correctly assess the level of risk to life and property, and to prepare and respond appropriately would continue. With more frequent and intense weather expected, weather-related damages, losses, and other impacts are expected to increase.	Any potential impacts would therefore be negligible.	USEPA	SUNY would implement measures to reduce gas emissions from vehicles and equipment as discussed in Air Quality (5.11). Towers will avoid base floodplain plus 2 feet to account for climate change as discussed in Water Quality, Floodplain section (5.4).

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