IPRenewal NPEmails

From: Kerrigan, James A [jkerrig@entergy.com]
Sent: Tuesday, June 09, 2015 7:18 AM
To: Coyle, Lawrence; Dacimo, Fred R. (CAE); dl - IPEC - LIC; Gray, Dara F; BUCKLEY, RICKY N; Wentzel, Michael; Hockmuth, Diane; Newman, Garrett; Stewart, Scott
Subject: Outgoing Letter NL-15-075 Reply to RAI Regarding the License Renewal Application Environmental Review
Attachments: NL-15-075.pdf

Attached

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Subject: Outgoing Letter NL-15-075 Reply to RAI Regarding the License Renewal Application Environmental Review
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Fred Dacimo
Vice President
Operations License Renewal

NL-15-075

June 8, 2015

U.S. Nuclear Regulatory Commission
Document Control Desk
11545 Rockville Pike, TWFN-2 F1
Rockville, MD 20852-2738

SUBJECT: Reply to Request for Additional Information Regarding the License Renewal Application Environmental Review (TAC Nos. MD5411 and MD5412)
Indian Point Nuclear Generating Unit Nos. 2 & 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

REFERENCE: NRC letter, "Request for Additional Information for the Review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, License Renewal Application Environmental Review (TAC Nos. MD5411 and MD5412)" dated April 22, 2015.

Dear Sir or Madam:

Entergy Nuclear Operations, Inc. is providing, in Attachment 1, the additional information requested in the referenced letter pertaining to NRC review of the License Renewal Application for Indian Point 2 and Indian Point 3.

There are no new commitments being made in this submittal. If you have any questions, or require additional information, please contact Mr. Robert Walpole, Regulatory Assurance Manager at (914) 254-6710.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 8, 2015.

Sincerely,

FRD/rl

Attachment 1: Reply to NRC Request for Additional Information Regarding the License Renewal Application Environmental Review

Enclosure 1: Algonquin Incremental Market (AIM) Project, Phase 2 Acoustic Survey for Indiana Bats (*Myotis sodalis*) and Northern Long-Eared Bats (*Myotis septentrionalis*), August 2014

cc: Mr. Daniel H. Dorman, Regional Administrator, NRC Region I
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel
Mr. Michael Wentzel, NRC Project Manager, Division of License Renewal
Mr. Douglas Pickett, NRR Senior Project Manager
Ms. Bridget Frymire, New York State Department of Public Service
Mr. John B. Rhodes, President and CEO NYSERDA
NRC Resident Inspector's Office

ATTACHMENT 1 TO NL-15-075

REPLY TO NRC REQUEST FOR ADDITIONAL INFORMATION

REGARDING THE

LICENSE RENEWAL APPLICATION

ENVIRONMENTAL REVIEW

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 AND 50-286

Reply to NRC Request for Additional Information
Regarding the License Renewal Application Environmental Review

On April 2, 2015, the U.S. Fish and Wildlife Service FWS) published a final rule (80 FR 17973) that lists the northern long-eared bat (Myotis septentrionalis) as threatened throughout its range. The northern long-eared bats' range includes Westchester County, New York, in which Indian Point Nuclear Generating Units 2 and 3 (IP2 and IP3) are located. Accordingly, the U.S. Nuclear Regulatory Commission (NRC) staff intends to address potential effects to this species as part of its IP2 and IP3 license renewal review. The NRC staff requests the following information to assist in its review:

1. *Provide any information that Entergy Nuclear, LLC (Entergy) has regarding the northern long-eared bat's use of the IP2 and IP3 site. Such information may include potential habitat (particularly summer roosting habitat) or other uses of the IP2 and IP3 site by the species, observations of the species on the site, and studies or monitoring performed to document potential presence of the species on the site. The FWS's final rule describes northern long-eared bat habitat in detail.*

   Entergy Response:

   A description of the terrestrial habitat on the Indian Point Units 2 and 3 (IP2 and IP3) site is contained in Section 2.2.6.1 (Description of Site Terrestrial Environment) of the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38, Regarding Indian Point Nuclear Generating Unit Numbers 2 and 3 (hereafter referred to as the "SEIS"). As discussed in Section 2.2.6.1 of the SEIS, the site is located in the northeastern coastal zone of the eastern temperate forest ecoregion. The canopy of this forest includes a mixture of hardwoods such as red oak (*Quercus rubra*), white oak (*Q. alba*), black oak (*Q. velutina*), chestnut oak (*Q. prinus*), shagbark hickory (*Carya ovata*), black cherry (*Prunus serotina*), tulip tree (*Liriodendron tulipifera*), river birch (*Betula nigra*), and maple (*Acer* spp.), as well as conifers such as eastern hemlock (*Tsuga canadensis*) and white pine (*Pinus strobus*).

   As discussed in the U.S. Fish and Wildlife Service's final rule (80 FR 17973), northern long-eared bats have been documented while roosting in many species of trees, including: black oak, northern red oak, silver maple, black locust, American beech, sugar maple, sourwood, and shortleaf pine. In addition as discussed in the final rule, the majority of northern long-eared bat telemetry studies found that roost trees for this species consist predominantly of hardwoods.

   Therefore, habitat for the northern long-eared bat could potentially exist on the IP2 and IP3 site. However, Entergy has not conducted onsite studies or monitoring to document the potential presence of this species. In addition, there are no current license-renewal-related plans to disturb areas within the IP2 and IP3 property.

As part of the Algonquin Incremental Market Project, Spectra Energy did conduct an Indiana bat and northern long-eared bat acoustics survey. This survey is included in Enclosure 1.

2. *Because the Indiana bat (Myotis sodalis), a Federally endangered species that was addressed in the NRC's final supplemental environmental impact statement for IP2 and IP3 license renewal, is similar in its habitat requirements to the northern long-eared bat, please provide updated information, if applicable, on the Indiana bat's potential use of the IP2 and IP3 site.*

   Entergy Response:

   The potential use of the site by the Indiana bat is discussed in Section 2.2.6.2 (Threatened and Endangered Terrestrial Species) of the SEIS. Entergy has not conducted onsite studies or monitoring to document the potential presence of this species. In addition, there are no current license-renewal-related plans to disturb areas within the IP2 and IP3 property. Therefore, Entergy believes that the information contained in Section 2.2.6.2 of the SEIS continues to remain valid. However as previously discussed above, an Indiana bat and northern long-eared bat acoustics survey was conducted in conjunction with the Spectra Energy Algonquin Incremental Market Project. This survey is included in Enclosure 1.

3. *Provide updated information, if applicable, regarding the effects that activities associated with IP2 and IP3 license renewal and refurbishment could have on the northern long-eared bat and Indiana bat. Such activities may include habitat loss, degradation, disturbance, or fragmentation, as well as temporary or permanent increases in noise, vibration, dust, chemical use, lighting, vehicle use, and general levels of human activity during the license renewal term that may result from refurbishment or other site activities.*

   Entergy Response:

   Entergy has not identified any additional license-renewal-related activities that could effect the northern long-eared bat or Indiana bat other than what is discussed in Sections 3.2.2 (Threatened or Endangered Species—Refurbishment Impacts) and 4.6.2 (Terrestrial Threatened or Endangered Species) of the SEIS. As previously stated above, there are no current license-renewal-related plans to disturb areas within the IP2 and IP3 property.

4. *Describe the procedures or protocols that Entergy maintains, if any, to ensure that effects to Federally-listed bats are appropriately considered prior to site activities, such as hazardous tree removal, landscape maintenance, or other operations activities that could directly or indirectly affect bats.*

   Entergy Response:

   Entergy has a fleet procedure (Environmental Reviews and Evaluation) in place to ensure that environmentally sensitive areas at the IP2 and IP3 site, if present, are adequately protected during site operations and project planning. These controls, which encompass nonradiological environmental resource areas such as land use, air quality, surface water and groundwater, terrestrial and aquatic ecology, historical and cultural resources, and waste management and pollution prevention consist of the following:

   - Appropriate local, state, and/or federal permits are obtained or modified as necessary.

- Best management practices (BMPs) are implemented to protect wetlands, natural heritage areas, and sensitive ecosystems.
- Appropriate agencies are consulted on matters involving federally and state-listed threatened, endangered, and protected species, and BMPs are implemented to minimize impacts to these species.
- Appropriate agencies are consulted on matters involving cultural resources and to ensure BMPs are implemented to minimize impact to this resource.

In summary, Entergy's administrative controls ensure that appropriate local, state, and/or federal permits are obtained or modified as necessary, that cultural resources and threatened and endangered species are protected if present, and that other regulatory issues are adequately addressed as necessary.

Hazardous tree removal is typically associated with transmission line right-of-ways. As discussed in Section 4.2.1 (Electromagnetic Fields—Acute Effects) of the SEIS, the two 345-kilovolt (kV) transmission lines that distribute power to the electric grid, and the two 138-kV lines that use the same transmission towers to supply offsite (standby) power, are contained within the IP2 and IP3 property boundary, except for where they cross Broadway (a public road) to connect to the Buchanan substation, which is owned by Consolidated Edison. Since these transmission lines are situated within the industrial area of the site, no hazardous tree removal activities occur.

Landscaping activities at the IP2 and IP3 site is limited to mowing, bush trimming and herbicide application for weed control. These type activities only occur in the industrial area of the site.

5. *Has Entergy observed any injured or dead bats (of any species) on the site, especially near the base of tall buildings and structures? If so, please describe these occurrences and include the date of observation, species (if known), condition of individual(s), and any follow-up actions that Entergy took as a result of the incident(s).*

Entergy Response:

Although Entergy does not have a specific program for monitoring bat or bird deaths on the site, when deaths such as this are discovered, they are typically documented in Entergy's condition reporting system. Based on review of Entergy's condition reporting system records over previous years (2010 – April 2015), no injured or dead bats (of any species) were observed within the industrial area of the IP2 and IP3 site.

6. *The Federal Energy Regulatory Commission's final environmental impact statement (FEIS) on the Algonquin Incremental Market (AIM) Project (available at https://www.ferc.gov/industries/gas/enviro/eis/2015/01-23-15-eis.asp) indicates that acoustic surveys for the northern long-eared bat and Indiana bat detected both species at locations in Westchester County, New York (see FEIS, p. 4-113 and 4-116). As indicated in Entergy's March 10, 2015, response to a request for additional information (ADAMS Accession No. ML15089A338), the Algonquin gas pipeline associated with this project would cross a portion of the IP2 and IP3 property. Is Entergy aware of whether the affected portions of the IP2 and IP3 site were surveyed for bats as part of the AIM project? Provide any available information obtained from those surveys concerning the presence or use of the IP2 and IP3 site by the northern long-eared bat.*

Entergy Response:

As previously discussed above, an Indiana bat and northern long-eared bat acoustics survey was conducted in conjunction with the Spectra Energy Algonquin Incremental Market Project. This survey is included in Enclosure 1.

ENCLOSURE 1 TO NL-15-075

ALGONQUIN INCREMENTAL MARKET (AIM) PROJECT

PHASE 2 ACOUSTIC SURVEY

for

Indiana Bats

(*Myotis sodalis*)

and

Northern Long-Eared Bats

(*Myotis septentrionalis*)

August 2014

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 AND 50-286

Algonquin Incremental Market (AIM) Project
New York, Connecticut, Rhode Island, and Massachusetts

Phase 2 Acoustic Survey for Indiana Bats (*Myotis sodalis*) and Northern Long-Eared Bats (*Myotis septentrionalis*)

August 2014

Barton & Loguidice

Algonquin Incremental Market (AIM) Project
New York, Connecticut, Rhode Island, and Massachusetts

Phase 2 Acoustic Survey for Indiana Bats (*Myotis sodalis*) and Northern Long-Eared Bats (*Myotis septentrionalis*)

August 2014

Algonquin Incremental Market (AIM) Project
New York, Connecticut, Rhode Island, and Massachusetts

Phase 2 Acoustic Survey for Indiana Bats (*Myotis sodalis*) and Northern Long-Eared Bats (*Myotis septentrionalis*)

August 2014

Prepared For:

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Table of Contents

1.0 Introduction

Algonquin Gas Transmission, LLC (Algonquin), an indirect, wholly-owned subsidiary of Spectra Energy Partners, LP (Spectra), is seeking authorization from the Federal Energy Regulatory Commission (FERC) pursuant to Section 7(c) of the Natural Gas Act to make certain upgrades and improvements to the Algonquin gas pipeline network in New York, Connecticut, Rhode Island, and Massachusetts, which is known as the Algonquin Incremental Market Project (AIM Project). The extent of the project is illustrated in Figure 1.

The proposed AIM Project includes approximately 37.6 miles of pipeline composed of varying diameters as outlined below and in Table 1:

- 20.1 miles of 42-inch diameter pipeline;
- 2.0 miles of 36-inch diameter pipeline;
- 0.9 miles of 24-inch diameter pipeline.
- 13.3 miles of 16-inch diameter pipeline; and
- 1.3 miles of 12-inch diameter pipeline.

The majority of the pipeline facilities (approximately 26.3 miles or 70 percent) will replace existing Algonquin pipelines, while the remainder of the pipeline facilities (approximately 11.3 miles or 30 percent) consist of new mainline pipeline, new loop pipeline and one new lateral pipeline. The proposed pipeline facilities will be constructed in New York, Connecticut, and Massachusetts. No AIM Project pipeline facilities will be located in Rhode Island. Proposed work in Rhode Island will be confined to above-ground facilities, as described below.

Approximately 79 percent of the proposed pipeline facilities involve take-up and relay and looping work that occurs within or adjacent to existing Algonquin pipeline ROWs. The take-up and relay work involves excavating a trench to remove the old pipe. Once the old pipe is removed the trench is re-excavated wider and deeper (as appropriate) to accommodate the new, larger diameter pipe. The replacement pipe would be installed at approximately the same location as the old pipe in the existing Algonquin ROW.

The loop pipeline installation involves constructing a new pipeline adjacent and parallel with other existing Algonquin pipelines. The pipeline loops will require new permanent ROW adjacent to the existing Algonquin ROW.

Given that the majority of the pipeline facilities involve take-up and relay and looping within or adjacent to existing Algonquin ROWs, minimal route planning was required for the majority of the Project pipelines. The two exceptions to this are the 42-inch diameter mainline crossing of the Hudson River in New York and the West Roxbury Lateral in Massachusetts. Algonquin's primary goal in routing these two pipeline sections was to utilize road or utility ROWs wherever feasible to minimize impacts to residents and property owners while also meeting the needs of the AIM Project.

Table 1
Summary of AIM Project Pipeline Facilities

State, Facility Name, Milepost ("MP") Range	Length of Proposed Facilities (miles)	Existing Pipe Removal (Diameter)	New/ Replacement Pipe (Diameter)	County, State, (Length in Miles)	Municipalities (Length in Miles)
NEW YORK					
Haverstraw to Stony Point Take-up & Relay MP 0.0 – MP 3.3	3.3	26-inch Mainline	42-inch Mainline	Rockland County, NY (3.3 Miles)	Town of Haverstraw (1.2 Miles) *- Includes 0.3 Miles in Village of Pomona* Town of Stony Point (2.1 Miles)
Stony Point to Yorktown Take-up & Relay *MP 0.0 – MP 12.3 a/*	12.3	26-inch Mainline	42-inch Mainline	Rockland County, NY (3.5 Miles) Westchester County, NY (8.8 Miles)	Town of Stony Point (3.5 Miles) *- Includes 1.8 miles in Hamlet of Tomkins Cove* Town of Cortlandt (7.3 Miles) *- Includes 0.7 miles in the Hamlet of Verplanck and 1.1 Miles in Village of Buchanan* City of Peekskill (0.2 Miles) Town of Yorktown (1.3 Miles)
Southeast to MLV-19 Take-up & Relay *MP 0.0 – MP 0.1*	0.1	26-inch Mainline	42-inch Mainline	Putnam County, NY (0.1 Mile)	Town of Southeast (0.1 Miles)
Subtotal NY:	**15.7**				
CONNECTICUT					
Southeast to MLV-19 Take-up & Relay *MP 0.1 – MP 4.5*	4.4	26-inch Mainline	42-inch Mainline	Fairfield County, CT (4.4 Miles)	City of Danbury (4.4 Miles)

Table 1
Summary of AIM Project Pipeline Facilities

State, Facility Name, Milepost ("MP") Range	Length of Proposed Facilities (miles)	Existing Pipe Removal (Diameter)	New/ Replacement Pipe (Diameter)	County, State, (Length in Miles)	Municipalities (Length in Miles)
Line-36A Loop Extension	2.0	N/A	36-inch	Middlesex County, CT (1.8 Miles) Hartford County, CT (0.2 Miles)	Town of Cromwell (1.8 Miles) Town of Rocky Hill (0.2 Miles)
E-1 System Lateral Take-up & Relay	9.1	6-inch E-1 Lateral	16-inch	New London County, CT (9.1 Miles)	Town of Lebanon (3.9 Miles) Town of Franklin (4.5 Miles) City of Norwich (0.7 Miles)
E-1 System Lateral Loop	1.3	N/A	12-inch	New London County, CT (1.3 Miles)	Town of Montville (1.3 Miles)
Subtotal CT:	**16.8**				
MASSACHUSETTS					
West Roxbury Lateral MP 0.0 – MP 4.2	4.2	N/A	16-inch	Norfolk County, MA (3.4 Miles) Suffolk County, MA (0.8 Miles)	Town of Westwood (0.5 Miles) Town of Dedham (2.9 Miles) City of Boston (West Roxbury) (0.8 Miles)
West Roxbury Lateral MP 4.2 – MP 5.1	0.9	N/A	24-inch	Suffolk County, MA (0.9 Miles)	City of Boston (West Roxbury) (0.9 Miles)
Subtotal MA:	**5.1**				
PROJECT TOTAL:	**37.6**				

a/ This total pipeline length for the Stony Point Take-up & Relay includes an approximately 2.9-mile section of new pipeline ROW associated with the crossing of the Hudson River located between MP 2.6 and MP 5.5 in the Town of Stony Point and Town of Cortlandt, NY.

The proposed AIM Project aboveground facilities will consist of modifications to 6 existing compressor stations, modifications to 24 existing metering and regulating (M&R) stations, construction of 3 new M&R stations, and the removal of 1 existing M&R station. The AIM Project also includes modifications at existing MLV and launcher receiver sites and the construction of new launcher and receiver sites within the pipeline permanent easement. A summary of the Project aboveground facilities is provided in the sections below and in Table 2.

Table 2
Summary of AIM Project Existing and Proposed Aboveground Facilities

Algonquin Facility Name	Milepost a/	Location (Municipality, County, State)
Modifications to Existing Compressor Stations		
Stony Point Compressor Station o Install 2 new compressor units o Restage 1 existing compressor unit o Install gas cooling for new units o Remove existing 26-inch launcher/receiver barrels and mainline valve assembly o Install new 42-inch mainline valve and new suction /discharge connections	N/A	Town of Stony Point, Rockland, NY
Southeast Compressor Station o Install 1 new compressor unit o Restage 1 existing compressor unit o Install gas cooler for new unit o Remove existing 26-inch launcher barrel and mainline valve o Install new 42-inch launcher barrel and new mainline valve and discharge connection	N/A	Town of Southeast, Putnam, NY
Oxford Compressor Station o Restage 1 existing compressor unit	N/A	Town of Oxford, New Haven, CT
Cromwell Compressor Station o Install 1 new compressor unit o Install gas cooling for new unit and 2 existing turbine compressors o	N/A	Town of Cromwell, Middlesex, CT
Chaplin Compressor Station o Install 1 new compressor unit o Restage 2 existing compressor units o Install gas cooling for new unit and 2 existing compressor units o Station piping modifications	N/A	Town of Chaplin, Windham, CT
Burrillville Compressor Station o Install 1 new compressor unit o Restage 2 existing compressor units o Install gas cooling for new unit o Repipe existing compressor unit	N/A	Town of Burrillville, Providence, RI

Table 2
Summary of AIM Project Existing and Proposed Aboveground Facilities

Algonquin Facility Name	Milepost a/	Location (Municipality, County, State)
New M&R Stations		
Oakland Heights M&R Station o New metering, regulating and heating facilities	N/A	City of Norwich, New London, CT
Assonet M&R Station o New metering, regulating and heating facilities	N/A	Town of Freetown, Bristol, MA
West Roxbury M&R Station o New metering, regulating and heating facilities	4.2	City of Boston (West Roxbury), Suffolk, MA
Existing M&R Station Modifications		
NEW YORK		
Stony Point M&R Station o Reconnect existing tap to new 42-inch pipeline	MP 3.0	Town of Stony Point, Rockland, NY
Peekskill M&R Station o Replace inlet piping o Install new heater o Install new regulation	MP 5.8	City of Peekskill, Westchester, NY
Cortlandt M&R Station o Replace inlet piping o Install new heater o Install new regulation and gas chromatograph	MP 10.3	Town of Cortlandt, Westchester, NY
CONNECTICUT		
West Danbury M&R Station o Uprate existing facilities and inlet piping for new 850 psig inlet pressure o Replace existing ultrasonic meter with new ultrasonic meters and a low flow meter	MP 1.2	City of Danbury, Fairfield, CT
Southbury M&R Station o Piping Modifications o Add low flow meter o Increase size of piping	N/A	Town of Southbury, New Haven, CT
Waterbury M&R Station o Replace existing meter with ultrasonic meters and a low flow meter o Upgrade regulation o Replace existing building	N/A	City of Waterbury, New Haven, CT
North Haven M&R Station o Replace existing meter with ultrasonic meters and a low flow meter	N/A	Town of North Haven, New Haven, CT
Guilford M&R Station o Rebuild entire station within existing property o Add filter separator	N/A	Town of Guilford, New Haven, CT

Table 2
Summary of AIM Project Existing and Proposed Aboveground Facilities

Algonquin Facility Name	Milepost a/	Location (Municipality, County, State)
Farmington M&R Station o Remove upstream pressure regulation o Add low flow meter o Upgrade downstream pressure regulation	N/A	Town of Farmington, Hartford, CT
Glastonbury M&R Station o Replace inlet piping and inlet header o Replace existing meters with ultrasonic meters and low flow meter	N/A	Town of Glastonbury, Hartford, CT
Middletown M&R Station o Add redundant turbine meter run	N/A	City of Middletown, Middlesex, CT
Salem Pike M&R Station o Minor modifications to aboveground station piping and regulation	N/A	City of Norwich, New London, CT
Montville M&R Station o Replace existing metering with ultrasonic meters and a low flow meter o Replace inlet piping from heater to metering	MP 0.0	Town of Montville, New London, CT
Willimantic M&R Station o Rebuild entire station on adjacent new parcel o Removal of existing M&R station except communications (after new station in-service)	N/A	Village of Willimantic, Town of Windham, Windham, CT
Pomfret M&R Station o Add redundant meter run	N/A	Town of Pomfret, Windham, CT
Putnam M&R Station o Add redundant meter run	N/A	Town of Putnam, Windham, CT
MASSACHUSETTS		
North Fall River M&R Station o Add low flow meter	N/A	Town of Freetown, Bristol, MA
New Bedford M&R Station o Replace existing metering with ultrasonic meters and a low flow meter. o Replace 2 existing heaters o Replace existing building	N/A	City of New Bedford, Bristol, MA
Middleborough M&R Station o Add redundant meter run and low flow meter	N/A	Town of Middleborough, Plymouth, MA
Brockton M&R Station o Replace existing meters with 2 ultrasonic meters and low flow meter o Replace existing building	N/A	City of Brockton, Plymouth, MA
Norwood M&R Station o Replace inlet piping and add new actuator o Upgrade metering capacity with new meter runs	N/A	Town of Norwood, Norfolk, MA
Needham M&R Station o Add redundant meter run	N/A	Town of Needham, Norfolk, MA

Table 2 Summary of AIM Project Existing and Proposed Aboveground Facilities		
Algonquin Facility Name	**Milepost a/**	**Location (Municipality, County, State)**
Wellesley M&R Station ○ Replace low flow meter with ultrasonic low flow meter	N/A	Town of Wellesley, Norfolk, MA
Mystic M&R Station ○ Add redundant meter run and a low flow meter ○ Replace existing building	N/A	City of Medford, Middlesex, MA

Construction of the AIM Project will require clearing up to 160 acres of wooded habitat. Most of this clearing (86%) is required to establish temporary workspace to safely install the new pipeline and complete the proposed modifications of the above-ground facilities. Temporary workspaces cleared for this project will be allowed to naturally revegetate following construction.

Portions of the proposed AIM Project fall within the range of the state and federal-listed endangered species, Indiana bat (*Myotis sodalis*) (IBAT), and all of the proposed work falls within the range of the northern long-eared bat (*Myotis septentrionalis*) (NLEB), which is proposed for listing as a federally threatened species, and is currently listed as an endangered species in Massachusetts. Clearing of forested habitat can potentially have adverse effects on both of these species, so Algonquin retained the services of Barton & Loguidice, DPC (B&L) to conduct federal protocol acoustic surveys for both of these species. The acoustic surveys were intended to determine the potential presence of these species along the proposed pipeline ROWs and at the above-ground facilities, so a determination of potential adverse effects to IBATs and NLEBs could be made. B&L reviewed aerial photographs and mapping of the proposed pipeline route and above-ground facilities to determine whether potential habitat for these species occurred in the AIM Project action area. Once it was determined that the proposed project would require clearing of potential IBAT and NLEB habitat, Algonquin submitted an acoustic study plan to the USFWS New England and New York Field Offices for USFWS review in June 2014, per the federal protocol outlined in the *2014 Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS 2014) (*Guidelines*). Reference is made to the proposed study plan in Appendix A. B&L conducted the survey in June 2014, per the study plan. This report outlines the findings of that study, and recommendations for conservation measures to avoid take of IBATs and NLEBs by activities associated with the AIM Project.

2.0 Agency Consultation and Coordination

TRC first contacted B&L on 21 March 2014 to inquire about conducting presence/probable absence surveys for IBATs and NLEBs for the AIM Project. The project was outlined in a conference call on 27 March 2014, in which we proposed mist netting sites proposed for construction in 2015, and acoustic surveys for sites proposed for construction in 2016, as winter clearing could be planned in advance for those sites. B&L initially prepared a draft study plan that outlined this course of action. While preliminary discussions with U.S. Fish & Wildlife Service personnel supported this approach, subsequent inquiries for state wildlife capture permits revealed that the CT Department of Energy and Environmental Protection (CTDEEP) did not allow mist netting for environmental review projects. We therefore revised our proposed study plan to include only acoustic surveys across the project segments. The draft study plan was submitted to the USFWS by TRC in June 2014. On 08 July 2014, USFWS provided minor comments on the study plan, and edits were made to the plan in response to those comments, yielding the final study plan in Appendix A.

3.0 Habitat Assessment

Due to the scale of the project, ground-based habitat determinations were deemed impractical, so B&L reviewed aerial photographs of the proposed pipeline ROW and above ground features, and assumed that areas that appeared to be wooded contained potential habitat for IBATs and NLEBs. This was considered to be a conservative approach to habitat determination, erring on the side of overestimating potential habitat by considering wooded areas that might not possess trees of sufficient size, condition, or arrangement to provide roost and foraging resources for bats. In general, forested areas across the project action area were northern successional hardwood or successional mixed evergreen and hardwood forests. Dominant canopy tree species were generally maples and oaks, but stands also included hickory, yellow poplar (tulip tree), ash, black locust, poplar (eastern cottonwood predominantly), birch, eastern hemlock, white pine, and sassafras. Photos of habitat at sampling sites are provided in Appendix B.

4.0 Acoustic Survey

B&L conducted the acoustic survey for Indiana bats and northern long-eared bats along the AIM Project ROW and at above-ground facilities between 28 May and 19 June 2014, per methods outlined in the study plan submitted to USFWS (Appendix A). The only deviations from the plan included minor changes to sampling site locations, which were adjusted in the field to suit field conditions, and the use of National Weather Service weather data to document site weather conditions, following failure of several data loggers. Weather conditions (Appendix C) met federal protocol requirements, with temperatures consistently above 50 degrees F for at least the first 5 hours of each survey, calm to light wind, and no prolonged or intermittent precipitation. If such conditions occurred during any night of the survey, that survey night was repeated until acceptable weather conditions prevailed. Recorded bat calls were distributed throughout the survey period on each night of sampling, so we considered the survey valid.

4.1 Equipment and Set Up

One (1) SM3BAT+ bat detector with SMU1 ultrasonic microphone, fitted with a unidirectional horn (Wildlife Acoustics, Maynard, MA, USA) or Binary Acoustic Technology's iFR-IV integrated field recorder with EXT unidirectional microphone (Binary Acoustic Technology, Tucson, AZ, USA) was deployed on each 1 km segment of the AIM Project ROW for 2 nights, yielding the required minimum recording effort of 2 detector nights per km of habitat for linear sites, over at least 2 nights of sampling. Since above ground features, such as compressor stations and M&R stations were located along the pipeline ROW, and were generally less than 1 km wide, sampling of such sites was included as part of the linear ROW corridor, as outlined in the study plan in Appendix A, and agreed to by the USFWS. Microphones were deployed at least 200 meters apart, as required in the Guidelines. Microphones were all mounted at least 1.5 meters above the ground, at a 45 degree angle above the horizontal, and with at least 10 meters of clear, open area (no clutter) within their reception cone. Photos of the deployment sets are provided in Appendix B. Appendix D summarizes sampling location data and acoustic equipment set ups, and Figures 2.1 through 2.16 illustrate the location of each sampling site.

4.2 Call Analysis

Recorded calls were run through Sonobat version 3.1 (SonoBat, Arcata, CA.) to identify bat species by calls. Sonobat identified high frequency calls classified in the genus *Myotis*, so the calls were also analyzed with Kaleidoscope software, version 2.0.4 (Wildlife Acoustics, Maynard, MA). Both programs identified some calls as possibly those of IBAT or NLEB (these included calls of little brown bats (*Myotis lucifugus*), which are very similar to IBAT, as well as those that were inconclusively identified as little brown bat/IBAT), so all calls in those call sets were visually vetted using the Sonobat viewer to identify all calls to species by qualitative means. All suspect calls were reviewed by at least two people experienced in visual call interpretation: M. Fishman and K. O'Connor (see qualifications in Appendix F).

5.0 Results

The survey resulted in the recording of a total of 9,781 bat calls over the course of the survey, ranging from 0 to 778 calls per night, and from 0 to 1,356 calls per site. Species identifications by call, by site, and by night are contained in Appendix E. The summary distribution of calls by species is outlined in Table 3.

Table 3
Summary of Bat Detections for the AIM Project

Species*	EPFU	LANO	LABO	LACI	MYLE	MYLU	MYSE	MYSO	MYSO/MYLU	PESU
Number	5947	613	2590	353	35	50	5	9	170	9

*EPFU-*Eptesicus fuscus* (big brown bat); LANO-*Lasionycteris noctivagans* (silver haired bat); LABO-*Lasiurus borealis* (eastern red bat); LACI-*Lasiurus cinereus* (hoary bat); MYLE-*Myotis leibii* (eastern small-footed bat); MYLU-*Myotis lucifugus* (little brown bat); MYSE-*Myotis septentrionalis* (northern long-eared bat); MYSO-*Myotis sodalis* (Indiana bat); MYSO/MYLU-indeterminate – either MYLU or MYSO; PESU-*Perimyotis subflavus* (tricolored bat).

The survey detected all 9 bat species known from the Northeast. SonoBat indicated 273 possible high-frequency (>40 kHz), *Myotis* species bats (which include NLEBs and IBATS). Kaleidoscope analysis revealed similar results. Visual vetting of calls by two experienced bat biologists (see qualifications, Appendix F) revealed that of these calls, 5 appeared to be IBATs (1 at site HSP3, 4 at site SPY7), and 2 calls appeared to be NLEBs (1 at site SPY7; 1 at site SPY13). An additional 2 calls at site SPY18 were questionable, but we concluded that they were poor quality MYLU calls, based on call characteristics and clear acoustic signal of an acoustically confirmed MYLU on that site. All of the IBAT and NLEB calls were identified in New York. No IBATs were detected, and no NLEBs were visually confirmed in Connecticut, Rhode Island, or Massachusetts sites.

Habitat at sample site HSP-3 was at the junction of two ROWs (pipeline and power line) that were lined on both sides by mature successional deciduous hardwood forest. While forest corridors was narrow to the west and south, there were large blocks of contiguous mature forest to the north and northeast, which could provide suitable habitat for IBATs. Habitat at sample site SPY-7 was a dirt road through a corridor of mature hardwood forest that was about 100 meters wide at its narrowest point. There was a large pile of composted leaves along the road, which may have been an attractant to insects, which in turn attracted bats. More bat calls were recorded at this sample site (n=1,356) than at any other sample site on this project, and included detections of 7 species. Habitat at this site was potentially appropriate for both IBATs and NLEBs. Sample site SPY-13 was a mature red maple-hardwood deciduous swamp adjacent to a stretch of the ROW that was dominated by common reed (*Phragmites communis*). The forest community on either side of the ROW at this sample location stretched for hundreds of meters to the east and south, providing a large block of suitable forested habitat for NLEBs.

Per the *Northern Long-Eared Bat Interim Conference and Planning Guidance, USFWS Regions 2, 3, 4, 5, & 6* (USFWS January 2014), single acoustic detections of NLEBs should be assumed to have a potential home range extending in a 3 mile radius in all directions from the detection site. The Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects (USFWS,

Rev. 26 October 2011) calls for a 5 mile radius assumed home range for acoustic detections of Indiana bats. Figure 3 illustrates the home ranges of IBATs at sites HSP-3 and SPY-7, and of the NLEB at site SPY-13 (the home range of the NLEB detected at SPY-7 falls within the IBAT home range).

6.0 Recommended Conservation Measures

Take of endangered species, including killing, harming, or harassing of such species is prohibited under the Endangered Species Act. Therefore, when endangered species are encountered on sites proposed for land use changes, conservation measures should be implemented to avoid direct take (intended killing, harm, or harassment) or incidental take (take that occurs unintentionally as a result of an action not intended to cause take). Tree clearing associated with the AIM Project within 5 miles (estimated home range radius for IBATs) of sample sites HSP-3 and SPY-7, and within 3 miles (estimated home range radius of NLEBs) of SPY-13 (as depicted in Figure 3) could potentially adversely affect IBATs or NLEBs, resulting in incidental take. Seasonal restrictions on tree clearing, which includes confining clearing activities to the period between October 1 and March 31, when the bats are in hibernation, will avoid direct and incidental take of these species during the summer maternity season.

7.0 Conclusion

In determining whether a proposed action may jeopardize the survival of an endangered species, the USFWS considers whether activities associated with that action will result in take of that species. Take is determined first by whether an action may or may not affect a listed species, and if it may affect the species, whether it adversely affects the species. The goal in planning an action should be to have no effect on listed species. If an action is proposed on a site where a listed species is known to occur, it may be difficult to have no effect, but in such cases, project sponsors should avoid adverse effects to listed species, if possible

This federal protocol acoustic survey for Indiana bats and northern long-eared bats detected 5 IBAT calls and 2 NLEB calls along the AIM Project ROW. Sites at which they were detected included HSP-3, SPY-7, and SPY-13, all of which are in New York. No IBATs or NLEBs were identified in Connecticut, Rhode Island, or Massachusetts (New England) segments of the ROW or above-ground facilities. IBATs are not expected to be found in these states, as they have not been detected in these states for many years. While NLEBs were previously and recently known to occur in the New England states, their populations have decreased dramatically due to White Nose Syndrome, rendering them rare and difficult to detect on the landscape. Much of the AIM project in New England passes through suburban and urban areas with highly fragmented or minimal forest habitat. While NLEBs are known to use forest edge habitat, they have also been associated with larger forest blocks and forest interior habitat, so the habitat along the ROW in New England may not be preferred. Based on our results, we conclude that NLEB presence on the AIM Project ROW and above-ground facilities in New England was not likely.

Because the AIM project is proposed on sites that may be occupied by IBATs and NLEBs, and the project requires activities (tree clearing) that could result in the loss of bat habitat, the project may affect these species. The project sponsor will commit to seasonal restrictions on tree clearing to avoid direct or incidental take of IBATs or NLEBs during the maternity season. This will avoid direct take of either species. Clearing will be kept to a minimum necessary to install the proposed pipeline and station upgrades, which will minimize bat habitat loss. While this project will result in a minor loss of habitat along the ROW, ample forested habitat will remain at each of the sample sites at which IBATs or NLEBs were detected, and that habitat will remain contiguous with surrounding suitable habitat to allow for bats to move across the landscape. Therefore, while proposed clearing *may affect* IBATs and NLEBs, it is *not likely to adversely affect* either species.

Appendix A

Presence/Probable Absence Survey Study Plan

Algonquin Gas Transmission, LLC

ALGONQUIN INCREMENTAL MARKET PROJECT

Indiana Bat (*Myotis sodalis*) and Northern Long-Eared Bat (*Myotis septentrionalis*) Presence/Probable Absence Survey Study Plan

Revised July 2014 Based on USFWS Comments

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1.0 INTRODUCTION

Algonquin Gas Transmission, LLC ("Algonquin"), an indirect, wholly-owned subsidiary of Spectra Energy Partners, LP, is seeking authorization from the Federal Energy Regulatory Commission ("FERC" or "Commission") pursuant to Section 7(c) of the Natural Gas Act[1] ("NGA") to construct, install, own, operate, and maintain the Algonquin Incremental Market Project ("AIM Project" or "Project") which will involve expansion of its existing pipeline systems located in New York, Connecticut, Rhode Island and Massachusetts.

A discussion of the proposed Project pipelines and aboveground facilities follows.

1.1 Pipeline Facilities

The proposed AIM Project includes approximately 37.6 miles of pipeline composed of varying diameters as outlined below and in Table 1.1-1:

- 20.1 miles of 42-inch diameter pipeline;
- 2.0 miles of 36-inch diameter pipeline;
- 0.9 miles of 24-inch diameter pipeline.
- 13.3 miles of 16-inch diameter pipeline; and
- 1.3 miles of 12-inch diameter pipeline.

The majority of the pipeline facilities (approximately 26.3 miles or 70 percent) will replace existing Algonquin pipelines, while the remainder of the pipeline facilities (approximately 11.3 miles or 30 percent) consist of new mainline pipeline, new loop pipeline and one new lateral pipeline. The proposed pipeline facilities will be constructed in New York, Connecticut, and Massachusetts. No AIM Project pipeline facilities will be located in Rhode Island.

Approximately 79 percent of the proposed pipeline facilities involve take-up and relay and looping work that occurs within or adjacent to existing Algonquin pipeline ROWs. The take-up and relay work involves excavating a trench to remove the old pipe. Once the old pipe is removed the trench is re-excavated wider and deeper (as appropriate) to accommodate the new, larger diameter pipe. The replacement pipe would be installed at approximately the same location as the old pipe in the existing Algonquin ROW.

The loop pipeline installation involves constructing a new pipeline adjacent and parallel with other existing Algonquin pipelines. The pipeline loops will require new permanent ROW adjacent to the existing Algonquin ROW.

Given that the majority of the pipeline facilities involve take-up and relay and looping within or adjacent to existing Algonquin ROWs, minimal route planning was required for the majority of the Project pipelines. The two exceptions to this are the 42-inch diameter mainline crossing of the Hudson River in New York and the West Roxbury Lateral in Massachusetts. Algonquin's primary goal in routing these two pipeline sections was to utilize road or utility ROWs wherever feasible to minimize impacts to residents and property owners while also meeting the needs of the Project.

[1] 15 U.S.C. § 717f(c) (2006).

TABLE 1.1-1

Summary of AIM Project Pipeline Facilities

State, Facility Name, Milepost ("MP") Range	Length of Proposed Facilities (miles)	Existing Pipe Removal (Diameter)	New/ Replacement Pipe (Diameter)	County, State, (Length in Miles)	Municipalities (Length in Miles)
NEW YORK					
Haverstraw to Stony Point Take-up & Relay MP 0.0 – MP 3.3	3.3	26-inch Mainline	42-inch Mainline	Rockland County, NY (3.3 Miles)	Town of Haverstraw (1.2 Miles) *- Includes 0.3 Miles in Village of Pomona* Town of Stony Point (2.1 Miles)
Stony Point to Yorktown Take-up & Relay *MP 0.0 – MP 12.3 al*	12.3	26-inch Mainline	42-inch Mainline	Rockland County, NY (3.5 Miles) Westchester County, NY (8.8 Miles)	Town of Stony Point (3.5 Miles) *- Includes 1.8 miles in Hamlet of Tomkins Cove* Town of Cortlandt (7.3 Miles) *- Includes 0.7 miles in the Hamlet of Verplanck and 1.1 Miles in Village of Buchanan* City of Peekskill (0.2 Miles) Town of Yorktown (1.3 Miles)
Southeast to MLV-19 Take-up & Relay *MP 0.0 – MP 0.1*	0.1	26-inch Mainline	42-inch Mainline	Putnam County, NY (0.1 Mile)	Town of Southeast (0.1 Miles)
Subtotal NY:	**15.7**				
CONNECTICUT					
Southeast to MLV-19 Take-up & Relay MP 0.1 – MP 4.5	4.4	26-inch Mainline	42-inch Mainline	Fairfield County, CT (4.4 Miles)	City of Danbury (4.4 Miles)
Line-36A Loop Extension	2.0	N/A	36-inch	Middlesex County, CT (1.8 Miles) Hartford County, CT (0.2 Miles)	Town of Cromwell (1.8 Miles) Town of Rocky Hill (0.2 Miles)

TABLE 1.1-1

Summary of AIM Project Pipeline Facilities

State, Facility Name, Milepost ("MP") Range	Length of Proposed Facilities (miles)	Existing Pipe Removal (Diameter)	New/ Replacement Pipe (Diameter)	County, State, (Length in Miles)	Municipalities (Length in Miles)
E-1 System Lateral Take-up & Relay	9.1	6-inch E-1 Lateral	16-inch	New London County, CT (9.1 Miles)	Town of Lebanon (3.9 Miles) Town of Franklin (4.5 Miles) City of Norwich (0.7 Miles)
E-1 System Lateral Loop	1.3	N/A	12-inch	New London County, CT (1.3 Miles)	Town of Montville (1.3 Miles)
Subtotal CT:	**16.8**				
MASSACHUSETTS					
West Roxbury Lateral MP 0.0 – MP 4.2	4.2	N/A	16-inch	Norfolk County, MA (3.4 Miles)	Town of Westwood (0.5 Miles) Town of Dedham (2.9 Miles)
				Suffolk County, MA (0.8 Miles)	City of Boston (West Roxbury) (0.8 Miles)
West Roxbury Lateral MP 4.2 – MP 5.1	0.9	N/A	24-inch	Suffolk County, MA (0.9 Miles)	City of Boston (West Roxbury) (0.9 Miles)
Subtotal MA:	**5.1**				
PROJECT TOTAL:	**37.6**				

a/ This total pipeline length for the Stony Point Take-up & Relay includes an approximately 2.9-mile section of new pipeline ROW associated with the crossing of the Hudson River located between MP 2.6 and MP 5.5 in the Town of Stony Point and Town of Cortlandt, NY.

1.2 Aboveground Facilities

The proposed AIM Project aboveground facilities will consist of modifications to six existing compressor stations, modifications to 24 existing M&R stations, construction of three new M&R stations, and the removal of one existing M&R station. The AIM Project also includes modifications at existing MLV and launcher receiver sites and the construction of new launcher and receiver sites within the pipeline permanent easement. A summary of the Project aboveground facilities is provided in the sections below and in Table 1.1-2.

TABLE 1.1-2

Summary of AIM Project Existing and Proposed Aboveground Facilities

Algonquin Facility Name	Milepost a/	Location (Municipality, County, State)
Modifications to Existing Compressor Stations		
Stony Point Compressor Station o Install 2 new compressor units o Restage 1 existing compressor unit o Install gas cooling for new units o Remove existing 26-inch launcher/receiver barrels and mainline valve assembly o Install new 42-inch mainline valve and new suction /discharge connections	N/A	Town of Stony Point, Rockland, NY
Southeast Compressor Station o Install 1 new compressor unit o Restage 1 existing compressor unit o Install gas cooler for new unit o Remove existing 26-inch launcher barrel and mainline valve o Install new 42-inch launcher barrel and new mainline valve and discharge connection	N/A	Town of Southeast, Putnam, NY
Oxford Compressor Station o Restage 1 existing compressor unit	N/A	Town of Oxford, New Haven, CT
Cromwell Compressor Station o Install 1 new compressor unit o Install gas cooling for new unit and 2 existing turbine compressors o	N/A	Town of Cromwell, Middlesex, CT
Chaplin Compressor Station o Install 1 new compressor unit o Restage 2 existing compressor units o Install gas cooling for new unit and 2 existing compressor units o Station piping modifications	N/A	Town of Chaplin, Windham, CT
Burrillville Compressor Station o Install 1 new compressor unit o Restage 2 existing compressor units o Install gas cooling for new unit o Repipe existing compressor unit	N/A	Town of Burrillville, Providence, RI
New M&R Stations		
Oakland Heights M&R Station o New metering, regulating and heating facilities	N/A	City of Norwich, New London, CT
Assonet M&R Station o New metering, regulating and heating facilities	N/A	Town of Freetown, Bristol, MA
West Roxbury M&R Station o New metering, regulating and heating facilities	4.2	City of Boston (West Roxbury), Suffolk, MA
Existing M&R Station Modifications		
NEW YORK		
Stony Point M&R Station o Reconnect existing tap to new 42-inch pipeline	MP 3.0	Town of Stony Point, Rockland, NY
Peekskill M&R Station o Replace inlet piping o Install new heater o Install new regulation	MP 5.8	City of Peekskill, Westchester, NY

TABLE 1.1-2

Summary of AIM Project Existing and Proposed Aboveground Facilities

Algonquin Facility Name	Milepost a/	Location (Municipality, County, State)
Cortlandt M&R Station o Replace inlet piping o Install new heater o Install new regulation and gas chromatograph	MP 10.3	Town of Cortlandt, Westchester, NY
Connecticut		
West Danbury M&R Station o Uprate existing facilities and inlet piping for new 850 psig inlet pressure o Replace existing ultrasonic meter with new ultrasonic meters and a low flow meter	MP 1.2	City of Danbury, Fairfield, CT
Southbury M&R Station o Piping Modifications o Add low flow meter o Increase size of piping	N/A	Town of Southbury, New Haven, CT
Waterbury M&R Station o Replace existing meter with ultrasonic meters and a low flow meter o Upgrade regulation o Replace existing building	N/A	City of Waterbury, New Haven, CT
North Haven M&R Station o Replace existing meter with ultrasonic meters and a low flow meter	N/A	Town of North Haven, New Haven, CT
Guilford M&R Station o Rebuild entire station within existing property o Add filter separator	N/A	Town of Guilford, New Haven, CT
Farmington M&R Station o Remove upstream pressure regulation o Add low flow meter o Upgrade downstream pressure regulation	N/A	Town of Farmington, Hartford, CT
Glastonbury M&R Station o Replace inlet piping and inlet header o Replace existing meters with ultrasonic meters and low flow meter	N/A	Town of Glastonbury, Hartford, CT
Middletown M&R Station o Add redundant turbine meter run	N/A	City of Middletown, Middlesex, CT
Salem Pike M&R Station o Minor modifications to aboveground station piping and regulation	N/A	City of Norwich, New London, CT
Montville M&R Station o Replace existing metering with ultrasonic meters and a low flow meter o Replace inlet piping from heater to metering	MP 0.0	Town of Montville, New London, CT
Willimantic M&R Station o Rebuild entire station on adjacent new parcel o Removal of existing M&R station except communications (after new station in-service)	N/A	Village of Willimantic, Town of Windham, Windham, CT
Pomfret M&R Station o Add redundant meter run	N/A	Town of Pomfret, Windham, CT
Putnam M&R Station o Add redundant meter run	N/A	Town of Putnam, Windham, CT
MASSACHUSETTS		
North Fall River M&R Station o Add low flow meter	N/A	Town of Freetown, Bristol, MA

TABLE 1.1-2

Summary of AIM Project Existing and Proposed Aboveground Facilities

Algonquin Facility Name	Milepost a/	Location (Municipality, County, State)
New Bedford M&R Station o Replace existing metering with ultrasonic meters and a low flow meter. o Replace 2 existing heaters o Replace existing building	N/A	City of New Bedford, Bristol, MA
Middleborough M&R Station o Add redundant meter run and low flow meter	N/A	Town of Middleborough, Plymouth, MA
Brockton M&R Station o Replace existing meters with 2 ultrasonic meters and low flow meter o Replace existing building	N/A	City of Brockton, Plymouth, MA
Norwood M&R Station o Replace inlet piping and add new actuator o Upgrade metering capacity with new meter runs	N/A	Town of Norwood, Norfolk, MA
Needham M&R Station o Add redundant meter run	N/A	Town of Needham, Norfolk, MA
Wellesley M&R Station o Replace low flow meter with ultrasonic low flow meter	N/A	Town of Wellesley, Norfolk, MA
Mystic M&R Station o Add redundant meter run and a low flow meter o Replace existing building	N/A	City of Medford, Middlesex, MA

2.0 SCOPE OF THE BAT SURVEY EFFORT

Construction of the AIM Project facilities will result in approximately 160 acres of forest clearing. The majority (over 86%) of the clearing impacts will occur as a result of the need to establish temporary workspace to safely install the new pipeline and complete the modifications of the above-ground facilities. These areas will be allowed to revegetate with woody species following construction.

A portion of the work falls within the range of the federal and state-listed endangered Indiana Bat (*Myotis sodalis*), and all of the work falls within the range of the federally proposed endangered Northern Long-eared Bat (*Myotis septentrionalis*). Therefore, Algonquin has retained Barton & Loguidice, PLLC ("B&L") to determine whether either of these bat species may occur along the pipeline segments, compressor station modifications or existing and proposed meter and regulating ("M&R") stations. If these species are found to occur along the proposed AIM Project facilities, Algonquin will need to plan conservation measures to avoid or minimize potential incidental take of these species, in compliance with the Endangered Species Act.

The scope of the planned surveys is dependent on the areas where forest clearing impacts will occur. Table 2.1-1 outlines the locations where survey segments will be established to cover the areas where forest clearing is proposed.

TABLE 2.1-1

AIM Project – Planned Bat Survey Segments

Project Facilities	1 km Segments (Contiguous)	Lone Stations
New York		
Haverstraw – Stony Point Take up & Relay (including the Stony Point Compressor Station and Stony Point Meter Station)	11	N/A
Stony point – Yorktown Take up & Relay (including the Cortlandt Meter Station)	14	N/A
Connecticut		
Southeast, NY – MLV 19 Take up & Relay (including the Southeast Compressor Station and West Danbury M&R)	7	N/A
Line 36A Loop Extension (including the Cromwell Compressor Station)	3	N/A
E-1 System Lateral Loop (including the Montville M&R)	2	N/A
E-1 System Lateral Take-up & Relay	15	N/A
Willimantic M&R Station	N/A	1
Oakland Heights M&R Station a/	N/A	N/A
Chaplin Compressor Station	N/A	1
Rhode Island		
Burrillville Compressor Station	N/A	1
Massachusetts		
Assonet M&R Station	N/A	1
West Roxbury Lateral (including the West Roxbury M&R, Mothers Brook Crossing and Westwood M&R)	3	N/A
TOTAL:	**55**	**4**

a/ Algonquin committed to clearing the forested areas during the winter of 2015/2016 (between October and March)

3.0 STUDY METHODS

Current protocols for determining potential presence or likely absence of Indiana Bats and Northern Long-eared Bats are outlined in, *2014 Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS, 2014). While the title suggests that this protocol is only for Indiana Bats, the *Northern Long-eared Bat Interim Conference and Planning Guidance* (USFWS, 2014) also allows for the use of the Indiana Bat *Guidelines* for Northern Long-eared Bats.

3.1 USFWS SURVEY PROTOCOL

The survey protocol in the *Guidelines* is broken out into 4 Phases, each with multiple steps. Phases are conditional, so not all phases may need to be completed in order to complete a survey. The phases are summarized as follows:

3.1.1 Phase 1: Initial Project Screening

Step 1: Coordination with USFWS and States to determine if existing records of listed and/or proposed bats exist on subject site

- If recent (last 5 years) records exist of bat occurrence on site, no further survey work is needed; coordinate with USFWS for any other necessary actions.
- If no such records exist, proceed to Step 2

Step 2: Conduct Summer Habitat Assessment for Listed and/ or Proposed Bat Species

- If no potential summer habitat exists on proposed project site, no further summer survey work is needed; coordinate with USFWS for any other necessary actions.
- If potential summer habitat exists on proposed project site, proceed to Step to 3

Step 3: Assess Potential for Adverse Effects to Listed and/ or Proposed Bat Species

- If no adverse effects to listed bat species will result from the proposed action, or if such adverse effects can be avoided, no further surveys are needed; coordinate with USFWS for any other necessary actions.
- If adverse effects may result from the proposed action, then proceed to Phase 2.

3.1.2 Phase 2: Presence/Probable Absence Surveys (Project Sponsor may choose to do either Mist Netting [Step 4] or Acoustic Surveys [Step 5])

Step 4: Conduct Mist Netting Surveys

- 42 net-nights of effort per 123 acres of non-linear site, or 6 net nights per km of linear site (e.g., gas pipeline ROW). 1 net-night is 1 net set up for 1 night. A minimum of 2 calendar nights (need not be consecutive, but can be) of netting are required for non-linear sites; maximum of 3 consecutive nights at any one location.
    - If no listed and/ or proposed bat species is captured, no further summer survey is necessary; coordinate with USFWS for any other necessary actions.
    - If a listed and/ or proposed bat species is captured, proceed to Phase 4 (must have coordinated with USFWS previously to decide this).

Steps 5, 6, and 7: Conduct Acoustic Surveys & Additional Analysis of Calls

- Linear Projects: minimum 2 detector nights per km of linear corridor
- Non-Linear Projects: minimum 4 detector nights per ≤123 acres (1/2 sq. km of suitable habitat); minimum 2 calendar nights
    - If no high frequency calls (typical of listed bat species) are detected, no further summer survey is necessary; coordinate with USFWS for any other necessary actions.
    - If high frequency calls are detected, but two USFWS-candidate bat call identification software packages consider presence of species of interest unlikely, no further summer survey is necessary; coordinate with USFWS for any other necessary actions.
    - If high frequency calls are detected, AND two USFWS-candidate bat call identification software packages consider presence of species of interest likely , AND qualitative review of calls confirms this finding, ***assume presence of speices of interest***; coordinate with USFWS to either:
        - Proceed to Phase 3, mist net surveys, OR
        - Obtain recommendations for conservation measures and determine need for Endangered Species Act consultation.

3.1.3 Phase 3: Conduct Mist Net Surveys for Listed and/ or Proposed Bat Species

Netting may be performed under this phase if a positive detection of listed and/ or proposed bat species was obtained through acoustic sampling in Phase 2, and Project Sponsor wishes to capture listed and/ or proposed bat species and radio track them under Phase 4. This may be done to characterize habitat use, which may allow for less restrictive conservation measures, *depending on findings*. Since presence has already been determined, there is no minimum effort requirement. Project Sponsor must work with USFWS to determine level of effort necessary under this Phase.

- If no listed and/ or proposed bat species are captured, continue to assume presence of species of interest and assess project impacts based on the information available from Phase 2 surveys.
- If listed and/ or proposed bat species are captured, they must be radio-marked. Proceed to Phase 4.

3.1.4 Phase 4: Conduct Radio-Tracking and Emergence Surveys

All radio-tagged bats should be tracked to diurnal roost structures as required in permits. Generally, USFWS recommends tracking bats until the radio-transmitter fails, falls off, or cannot be located for at least 7 days. Trackers should conduct a minimum of 2 evening emergence counts at each identified roost. USFWS must be contacted if tracking is not continued for at least 7 days. Daily searches for roosts must proceed until the roost is located, or for a minimum of 4 hours of ground searching. Results of radio-tracking will be reported in Phase 2 or 3 report.

3.2 AIM PROJECT SURVEY METHODS

Since the majority of the AIM Project takes place along a linear pipeline corridor, all parts of the Project will be considered part of that linear corridor, including discrete compressor station or M&R station sites that will be addressed as part of this survey. Even discrete station sites are small areas (generally 2 acres or less), and are located along the pipeline corridor, so addressing them (and the pipeline segments) as part of a linear corridor makes sense. As such, methods and levels of effort from the *Guidelines* that address linear corridors will be employed for this Project, and a *sampling unit*, as addressed herein, will be a 1 km length of habitat within the pipeline corridor, or 1 station site containing potential habitat. B&L will conduct surveys to determine the presence/likely absence of Indiana and Northern Long-eared Bats as follows:

- Step 5 Conduct Acoustic Survey (Step 4 is for mist netting only)

Mist net surveys for listed bat species are discouraged by CT DEEP and some other agencies to avoid undue stress to bats. Therefore, B&L will conduct acoustic surveys for bats on the AIM Project sites. To meet the *Guidelines*' required level of effort of 2 detector nights per sampling unit, B&L will deploy 1 full spectrum bat detector (e.g., Binary Acoustics Technology IFR-IV, Wildlife Acoustics' SM2BAT, or similar) per km of pipeline or per station location for 2 nights each. Microphones for each detector will be placed at least 1.5 meters above the ground, and will be angled up at about a 45 degree angle. Microphones will be placed spatially so as to comply with the placement recommendations of Appendix C of the *Guidelines*. Locations of each detector will be determined/recorded with the use of a 12-channel handheld global positioning system ("GPS") unit. Each detector will be periodically tested for functioning by creating a calibration tone, or using finger rubbing or key jingling tests, as recommended in the *Guidelines*. Detectors will be automatically set to record from sunset to sunrise.

Each detector will be accompanied by a data logger that will record temperature and humidity to document weather conditions during recording. If dataloggers fail, weather will be documented from the nearest available NOAA National Weather Service Station. A night of acoustic sampling will be considered complete if the climatic conditions for the night (temperature and humidity/precipitation) meet the acceptable standards outlined in Appendix C of the *Guidelines*, and bat calls are successfully recorded.

All calls will be filtered for noise, and will be run through one of the USFWS-candidate autoclassifier programs (e.g., Sonobat, Kaleidoscope, Echoclass, etc.) to determine if any myotid or high-frequency calls were recorded. If no myotid or high frequency calls are detected, then probable absence of listed and/ or proposed bats will be concluded. If myotid or high-frequency calls are detected, then analysis will proceed to Step 6.

- Step 6: Conduct Additional Acoustic Analyses

If myotid or high-frequency calls are detected in Step 5, then all raw call files for the entire survey period will be run through a second, distinct USFWS-candidate autoclassifier program. If Indiana Bat or Northern Long-eared Bat presence is considered unlikely by all candidate programs, then probable absence of these species will be concluded. If both classifiers conclude probable presence of either of these species, then we will assume that they are present, and will coordinate with USFWS and other appropriate state agencies to determine whether further field surveys or analysis are necessary. If either (but not both) call classifier indicates the probable presence of Indiana or Northern Long-eared Bats, then analysis will proceed to Step 7.

- Step 7: Conduct Qualitative Analysis of Probable Indiana Bat/Northern Long-eared Bat Calls

If Indiana Bat or Northern Long-eared Bat presence is determined to be likely by either (but not both) of the autoclassifiers for any given site-night, then all of the calls for that site-night will be reviewed visually on a full spectrum call viewer and will be vetted qualitatively to determine whether it is likely to be a call from either an Indiana Bat or Northern Long-eared Bat. This will include comparing the same calls on both classifiers, to determine agreement between them, and qualitative analysis of all probable Indiana Bat or Northern Long-eared Bat call sequences to further assess whether the correct identification has been determined by the autoclassifer program. If visual vetting results in a probable identification of Indiana Bat or Northern Long-eared Bat calls, then presence will be assumed. If no visual confirmation results from this process, then probable absence will be assumed, and no further analysis will be conducted.

No mist netting is proposed as part of this study. Mist netting may be conducted if coordination with USFWS determines that it is necessary.

No radio-tracking or emergence surveys are proposed as part of this study. Radio-tracking and emergence counts may be conducted if coordination with USFWS determines that such further study effort is necessary.

4.0 SCHEDULE AND RESULTS REPORTING

The surveys will be initiated as soon as weather conditions are favorable, but no earlier than May 15, 2014. Algonquin anticipates that all surveys will be completed (weather dependent) by mid to late June, 2014.

B&L will document this study in a report that will outline methods used, field conditions (weather), deployment of detectors (angle, height above ground, surrounding clutter), locations of sampling sites, and results, including output from autoclassifiers for each site night.

Report will include all items listed in 2014 Indiana Bat Summer Survey Guidance on page 29 – including names of individuals and their qualifications for 1) detector deployment 2) call analysis.

Appendix B

Sample Site Photos

SP-Y-6 Acoustic Set Up

SP-Y-6 Reception Cone

SP-Y-7 Acoustic Set Up

SP-Y-7 Reception Cone

SP-Y-8 Acoustic Set-up and Reception Cone

Appendix C

Weather

Haverstraw, NY USA Archived weather for May 28 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Mostly Cloudy	62.0 F (16.7 C)	29.83	8.00	84		57.0 F (13.9 C)	East at 5.8 MPH (5 KT)	
01	Partly Cloudy	59.0 F (15.0 C)	29.82	8.00	87		55.0 F (12.8 C)	East at 6.9 MPH (6 KT)	
02	Fog/Mist	57.0 F (13.9 C)	29.83	5.00	93		55.0 F (12.8 C)	East at 5.8 MPH (5 KT)	
03	Fog/Mist	56.0 F (13.3 C)	29.83	0.75	97		55.0 F (12.8 C)	East at 8.1 MPH (7 KT)	
04	Fog	56.0 F (13.3 C)	29.84	0.50	97		55.0 F (12.8 C)	East at 5.8 MPH (5 KT)	
05	Fog	55.0 F (12.8 C)	29.84	0.50	100		55.0 F (12.8 C)	Southeast at 8.1 MPH (7 KT)	
06	Fog/Mist	55.0 F (12.8 C)	29.86	1.00	96		54.0 F (12.2 C)	East at 5.8 MPH (5 KT)	
07	Light Drizzle Fog/Mist	54.0 F (12.2 C)	29.88	1.25	93		52.0 F (11.1 C)	East at 8.1 MPH (7 KT)	
08	Light Drizzle Fog/Mist	53.0 F (11.7 C)	29.90	2.00	93		51.1 F (10.6 C)	East at 6.9 MPH (6 KT)	
09	Light Drizzle Fog/Mist	53.0 F (11.7 C)	29.92	1.50	89		50.0 F (10.0 C)	Northeast at 5.8 MPH (5 KT)	
10	Fog/Mist	52.0 F (11.1 C)	29.95	1.50	93		50.0 F (10.0 C)	Northeast at 5.8 MPH (5 KT)	
11	Light Rain Fog/Mist	52.0 F (11.1 C)	29.97	1.50	93		50.0 F (10.0 C)	Northeast at 5.8 MPH (5 KT)	
12	Overcast	53.0 F (11.7 C)	29.98	8.00	83		48.0 F (8.9 C)	Northeast at 8.1 MPH (7 KT)	
13	Overcast	54.0 F (12.2 C)	29.99	10.00	83		48.9 F (9.4 C)	Northeast at 5.8 MPH (5 KT)	
14	Overcast	57.0 F (13.9 C)	30.00	10.00	78		50.0 F (10.0 C)	Northeast at 6.9 MPH (6 KT)	
15	Overcast	56.0 F (13.3 C)	30.02	10.00	81		50.0 F (10.0 C)	North at 10.4 MPH (9 KT)	
16	Overcast	56.0 F (13.3 C)	30.03	10.00	77		48.9 F (9.4 C)	Northeast at 8.1 MPH (7 KT)	
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	Overcast	55.0 F (12.8 C)	30.07	10.00	77		48.0 F (8.9 C)	from the Northeast at 8.1 gusting to 17.3 MPH (7 gusting to 15 KT)	
19	Overcast	54.0 F (12.2 C)	30.09	10.00	77		46.9 F (8.3 C)	East at 10.4 MPH (9 KT)	
20	Overcast	53.0 F (11.7 C)	30.11	10.00	77		46.0 F (7.8 C)	Northeast at 6.9 MPH (6 KT)	
21	Overcast	53.0 F (11.7 C)	30.13	10.00	74		45.0 F (7.2 C)	East at 5.8 MPH (5 KT)	
22	Overcast	52.0 F (11.1 C)	30.17	10.00	75		44.1 F (6.7 C)	Northeast at 6.9 MPH (6 KT)	
23	Mostly Cloudy	51.0 F (10.6 C)	30.18	10.00	74		43.0 F (6.1 C)	Northeast at 6.9 MPH (6 KT)	

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Haverstraw, NY USA Archived weather for May 29 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Mostly Cloudy	50.0 F (10.0 C)	30.17	10.00	77		43.0 F (6.1 C)	Northeast at 5.8 MPH (5 KT)	
01	Partly Cloudy	48.0 F (8.9 C)	30.17	10.00	83		43.0 F (6.1 C)	East at 5.8 MPH (5 KT)	
02	Overcast	50.0 F (10.0 C)	30.19	10.00	77		43.0 F (6.1 C)	Calm	
03	Mostly Cloudy	50.0 F (10.0 C)	30.19	10.00	80		44.1 F (6.7 C)	Calm	
04	Mostly Cloudy	49.0 F (9.4 C)	30.19	10.00	77		42.1 F (5.6 C)	Northeast at 3.5 MPH (3 KT)	
05	Mostly Cloudy	47.0 F (8.3 C)	30.19	10.00	80		41.0 F (5.0 C)	Calm	
06	A Few Clouds	46.0 F (7.8 C)	30.20	10.00	83		41.0 F (5.0 C)	North at 3.5 MPH (3 KT)	
07	A Few Clouds	48.0 F (8.9 C)	30.20	10.00	74		39.9 F (4.4 C)	Northeast at 5.8 MPH (5 KT)	
08	A Few Clouds	50.0 F (10.0 C)	30.21	10.00	66		39.0 F (3.9 C)	East at 8.1 MPH (7 KT)	
09	A Few Clouds	53.0 F (11.7 C)	30.22	10.00	64		41.0 F (5.0 C)	Variable at 4.6 MPH (4 KT)	
10	Fair	54.0 F (12.2 C)	30.22	10.00	59		39.9 F (4.4 C)	Calm	
11	A Few Clouds	58.0 F (14.4 C)	30.22	10.00	60		44.1 F (6.7 C)	Southeast at 9.2 MPH (8 KT)	
12	A Few Clouds	60.0 F (15.6 C)	30.22	10.00	52		42.1 F (5.6 C)	East at 10.4 MPH (9 KT)	
13	A Few Clouds	61.0 F (16.1 C)	30.21	10.00	46		39.9 F (4.4 C)	East at 11.5 MPH (10 KT)	
14	A Few Clouds	62.0 F (16.7 C)	30.20	10.00	43		39.0 F (3.9 C)	from the Southeast at 8.1 gusting to 16.1 MPH (7 gusting to 14 KT)	
15	A Few Clouds	64.0 F (17.8 C)	30.18	10.00	46		43.0 F (6.1 C)	South at 8.1 MPH (7 KT)	
16	Partly Cloudy	62.0 F (16.7 C)	30.18	10.00	54		45.0 F (7.2 C)	South at 10.4 MPH (9 KT)	
17	Partly Cloudy	62.0 F (16.7 C)	30.17	10.00	56		46.0 F (7.8 C)	Southeast at 5.8 MPH (5 KT)	
18	Fair	60.0 F (15.6 C)	30.15	10.00	58		45.0 F (7.2 C)	Southeast at 9.2 MPH (8 KT)	
19	A Few Clouds	58.0 F (14.4 C)	30.16	10.00	60		44.1 F (6.7 C)	South at 8.1 MPH (7 KT)	
20	Fair	56.0 F (13.3 C)	30.16	10.00	60		42.1 F (5.6 C)	South at 5.8 MPH (5 KT)	
21	A Few Clouds	52.0 F (11.1 C)	30.15	10.00	69		42.1 F (5.6 C)	South at 3.5 MPH (3 KT)	
22	Mostly Cloudy	53.0 F (11.7 C)	30.17	10.00	69		43.0 F (6.1 C)	Calm	
23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Haverstraw, NY USA Archived weather for May 30 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Overcast	53.0 F (11.7 C)	30.16	10.00	69		43.0 F (6.1 C)	Calm	
01	Overcast	53.0 F (11.7 C)	30.14	10.00	72		44.1 F (6.7 C)	Calm	
02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
03	Overcast	52.0 F (11.1 C)	30.11	10.00	72		43.0 F (6.1 C)	Calm	
04	Mostly Cloudy	52.0 F (11.1 C)	30.11	10.00	77		45.0 F (7.2 C)	Calm	
05	Mostly Cloudy	52.0 F (11.1 C)	30.09	10.00	75		44.1 F (6.7 C)	Calm	
06	Mostly Cloudy	50.0 F (10.0 C)	30.09	10.00	80		44.1 F (6.7 C)	Calm	
07	Mostly Cloudy	52.0 F (11.1 C)	30.09	10.00	83		46.9 F (8.3 C)	Calm	
08	Mostly Cloudy	56.0 F (13.3 C)	30.10	10.00	62		43.0 F (6.1 C)	Calm	
09	Mostly Cloudy	60.0 F (15.6 C)	30.10	10.00	62		46.9 F (8.3 C)	Northwest at 3.5 MPH (3 KT)	
10	A Few Clouds	64.0 F (17.8 C)	30.08	10.00	58		48.9 F (9.4 C)	Calm	
11	Mostly Cloudy	68.0 F (20.0 C)	30.07	10.00	57		52.0 F (11.1 C)	North at 9.2 MPH (8 KT)	
12	Mostly Cloudy	68.0 F (20.0 C)	30.06	10.00	53		50.0 F (10.0 C)	Variable at 4.6 MPH (4 KT)	
13	Mostly Cloudy	70.0 F (21.1 C)	30.05	10.00	47		48.9 F (9.4 C)	Northwest at 8.1 MPH (7 KT)	
14	Mostly Cloudy	70.0 F (21.1 C)	30.04	10.00	44		46.9 F (8.3 C)	West at 6.9 MPH (6 KT)	
15	Mostly Cloudy	73.0 F (22.8 C)	30.03	10.00	43		48.9 F (9.4 C)	from the Northwest at 11.5 gusting to 16.1 MPH (10 gusting to 14 KT)	
16	Partly Cloudy	74.0 F (23.3 C)	30.01	10.00	37		46.0 F (7.8 C)	Variable at 6.9 MPH (6 KT)	
17	Partly Cloudy	73.0 F (22.8 C)	30.00	10.00	34		43.0 F (6.1 C)	Northwest at 6.9 MPH (6 KT)	
18	Mostly Cloudy	74.0 F (23.3 C)	29.98	10.00	37		46.0 F (7.8 C)	West at 6.9 MPH (6 KT)	
19	Light Rain	62.0 F (16.7 C)	30.02	6.00	73		53.1 F (11.7 C)	from the North at 10.4 gusting to 20.7 MPH (9 gusting to 18 KT)	
20	Overcast	62.0 F (16.7 C)	30.01	10.00	73		53.1 F (11.7 C)	from the North at 8.1 gusting to 17.3 MPH (7 gusting to 15 KT)	
21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22	Mostly Cloudy	60.0 F (15.6 C)	30.05	10.00	75		52.0 F (11.1 C)	North at 10.4 MPH (9 KT)	
23	Mostly Cloudy	58.0 F (14.4 C)	30.06	10.00	81		52.0 F (11.1 C)	Northwest at 5.8 MPH (5 KT)	

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Stony Point, NY USA Archived weather for June 02 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fair	59.0 F (15.0 C)	30.26	10.00	46		37.9 F (3.3 C)	Calm	
01	Fair	56.0 F (13.3 C)	30.26	10.00	55		39.9 F (4.4 C)	Calm	
02	Fair	60.0 F (15.6 C)	30.26	10.00	42		37.0 F (2.8 C)	West at 3.5 MPH (3 KT)	
03	Fair	58.0 F (14.4 C)	30.25	10.00	50		39.0 F (3.9 C)	West at 3.5 MPH (3 KT)	
04	Fair	57.0 F (13.9 C)	30.24	10.00	53		39.9 F (4.4 C)	West at 4.6 MPH (4 KT)	
05	Fair	54.0 F (12.2 C)	30.23	10.00	64		42.1 F (5.6 C)	Calm	
06	Fair	53.0 F (11.7 C)	30.23	10.00	72		44.1 F (6.7 C)	Calm	
07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08	Fair	63.0 F (17.2 C)	30.23	10.00	52		45.0 F (7.2 C)	Variable at 3.5 MPH (3 KT)	
09	Fair	68.0 F (20.0 C)	30.23	10.00	53		50.0 F (10.0 C)	Variable at 6.9 MPH (6 KT)	
10	Fair	69.0 F (20.6 C)	30.21	10.00	47		48.0 F (8.9 C)	West at 9.2 MPH (8 KT)	
11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Fair	77.0 F (25.0 C)	30.15	10.00	39		50.0 F (10.0 C)	Southwest at 8.1 MPH (7 KT)	
14	Fair	78.0 F (25.6 C)	30.12	10.00	37		50.0 F (10.0 C)	South at 10.4 MPH (9 KT)	
15	Fair	77.0 F (25.0 C)	30.10	10.00	39		50.0 F (10.0 C)	South at 10.4 MPH (9 KT)	
16	Fair	77.0 F (25.0 C)	30.08	10.00	39		50.0 F (10.0 C)	from the South at 10.4 gusting to 16.1 MPH (9 gusting to 14 KT)	
17	Fair	76.0 F (24.4 C)	30.07	10.00	42		51.1 F (10.6 C)	South at 11.5 MPH (10 KT)	
18	Fair	75.0 F (23.9 C)	30.05	10.00	43		51.1 F (10.6 C)	Southeast at 11.5 MPH (10 KT)	
19	Fair	72.0 F (22.2 C)	30.04	10.00	50		52.0 F (11.1 C)	Southeast at 6.9 MPH (6 KT)	
20	Fair	69.0 F (20.6 C)	30.03	10.00	55		52.0 F (11.1 C)	South at 5.8 MPH (5 KT)	
21	Fair	64.0 F (17.8 C)	30.03	10.00	68		53.1 F (11.7 C)	South at 3.5 MPH (3 KT)	
22	Fair	63.0 F (17.2 C)	30.03	10.00	76		55.0 F (12.8 C)	Calm	
23	Fair	62.0 F (16.7 C)	30.03	10.00	78		55.0 F (12.8 C)	Calm	

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Stony Point, NY USA Archived weather for June 03 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fair	62.0 F (16.7 C)	30.03	10.00	80		55.9 F (13.3 C)	Northwest at 3.5 MPH (3 KT)	
01	Fair	68.0 F (20.0 C)	30.02	10.00	61		54.0 F (12.2 C)	Variable at 3.5 MPH (3 KT)	
02	Fair	67.0 F (19.4 C)	30.01	10.00	63		54.0 F (12.2 C)	West at 3.5 MPH (3 KT)	
03	Fair	64.0 F (17.8 C)	30.00	10.00	75		55.9 F (13.3 C)	Calm	
04	Fair	61.0 F (16.1 C)	29.99	10.00	81		55.0 F (12.8 C)	Calm	
05	Fair	60.0 F (15.6 C)	29.98	10.00	84		55.0 F (12.8 C)	Calm	
06	Fair	61.0 F (16.1 C)	29.98	8.00	87		57.0 F (13.9 C)	Calm	
07	Fair	66.0 F (18.9 C)	29.98	10.00	70		55.9 F (13.3 C)	Calm	
08	Fair	69.0 F (20.6 C)	29.98	10.00	68		57.9 F (14.4 C)	West at 4.6 MPH (4 KT)	
09	Fair	74.0 F (23.3 C)	29.97	10.00	62		60.1 F (15.6 C)	Calm	
10	Fair	78.0 F (25.6 C)	29.96	10.00	58		62.1 F (16.7 C)	North at 3.5 MPH (3 KT)	
11	Fair	82.0 F (27.8 C)	29.95	10.00	53		63.0 F (17.2 C)	Calm	
12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Partly Cloudy	83.0 F (28.3 C)	29.92	10.00	53		64.0 F (17.8 C)	Southeast at 8.1 MPH (7 KT)	
14	Partly Cloudy	84.0 F (28.9 C)	29.89	10.00	51		64.0 F (17.8 C)	Southeast at 10.4 MPH (9 KT)	
15	A Few Clouds	83.0 F (28.3 C)	29.87	10.00	53		64.0 F (17.8 C)	Southeast at 10.4 MPH (9 KT)	
16	A Few Clouds	82.0 F (27.8 C)	29.84	10.00	55		64.0 F (17.8 C)	Southeast at 10.4 MPH (9 KT)	
17	Partly Cloudy	82.0 F (27.8 C)	29.83	10.00	53		63.0 F (17.2 C)	Southeast at 10.4 MPH (9 KT)	
18	Light Rain	78.0 F (25.6 C)	29.86	10.00	56		61.0 F (16.1 C)	Southwest at 3.5 MPH (3 KT)	
19	Light Rain Fog/Mist	71.0 F (21.7 C)	29.86	4.00	90		68.0 F (20.0 C)	East at 3.5 MPH (3 KT)	
20	Light Rain Fog/Mist	69.0 F (20.6 C)	29.84	4.00	93		66.9 F (19.4 C)	Southeast at 4.6 MPH (4 KT)	
21	Fog/Mist	68.0 F (20.0 C)	29.84	5.00	93		66.0 F (18.9 C)	East at 4.6 MPH (4 KT)	
22	Mostly Cloudy	65.0 F (18.3 C)	29.86	7.00	90		62.1 F (16.7 C)	Variable at 3.5 MPH (3 KT)	
23	Fog/Mist	63.0 F (17.2 C)	29.86	5.00	93		61.0 F (16.1 C)	East at 5.8 MPH (5 KT)	

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Verplanck, NY USA Archived weather for June 04 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fog/Mist	62.0 F (16.7 C)	29.85	5.00	93		60.1 F (15.6 C)	East at 3.5 MPH (3 KT)	
01	Fog/Mist	61.0 F (16.1 C)	29.87	5.00	93		59.0 F (15.0 C)	from the North at 15.0 gusting to 21.9 MPH (13 gusting to 19 KT)	
02	Fog/Mist	62.0 F (16.7 C)	29.81	5.00	93		60.1 F (15.6 C)	South at 3.5 MPH (3 KT)	
03	Fog/Mist	61.0 F (16.1 C)	29.80	4.00	93		59.0 F (15.0 C)	Calm	
04	Fog/Mist	61.0 F (16.1 C)	29.81	5.00	93		59.0 F (15.0 C)	North at 4.6 MPH (4 KT)	
05	Fog/Mist	60.0 F (15.6 C)	29.83	4.00	96		59.0 F (15.0 C)	North at 4.6 MPH (4 KT)	
06	Fog/Mist	60.0 F (15.6 C)	29.83	0.75	96		59.0 F (15.0 C)	North at 4.6 MPH (4 KT)	
07	Fog/Mist	61.0 F (16.1 C)	29.85	1.00	90		57.9 F (14.4 C)	North at 5.8 MPH (5 KT)	
08	Fog/Mist	63.0 F (17.2 C)	29.84	2.00	87		59.0 F (15.0 C)	North at 3.5 MPH (3 KT)	
09	Fog/Mist	68.0 F (20.0 C)	29.86	5.00	78		61.0 F (16.1 C)	North at 4.6 MPH (4 KT)	
10	A Few Clouds	71.0 F (21.7 C)	29.85	8.00	66		59.0 F (15.0 C)	North at 10.4 MPH (9 KT)	
11	Partly Cloudy	73.0 F (22.8 C)	29.84	10.00	62		59.0 F (15.0 C)	Variable at 4.6 MPH (4 KT)	
12	Partly Cloudy	75.0 F (23.9 C)	29.82	10.00	60		60.1 F (15.6 C)	East at 3.5 MPH (3 KT)	
13	Partly Cloudy	74.0 F (23.3 C)	29.82	10.00	67		62.1 F (16.7 C)	Southeast at 6.9 MPH (6 KT)	
14	Partly Cloudy	74.0 F (23.3 C)	29.80	10.00	67		62.1 F (16.7 C)	Southeast at 8.1 MPH (7 KT)	
15	Partly Cloudy	76.0 F (24.4 C)	29.78	10.00	62		62.1 F (16.7 C)	Southeast at 5.8 MPH (5 KT)	
16	Partly Cloudy	75.0 F (23.9 C)	29.76	10.00	64		62.1 F (16.7 C)	South at 5.8 MPH (5 KT)	
17	Mostly Cloudy	75.0 F (23.9 C)	29.76	10.00	64		62.1 F (16.7 C)	Southeast at 3.5 MPH (3 KT)	
18	Mostly Cloudy	73.0 F (22.8 C)	29.75	10.00	69		62.1 F (16.7 C)	Southeast at 4.6 MPH (4 KT)	
19	Mostly Cloudy	71.0 F (21.7 C)	29.76	10.00	73		62.1 F (16.7 C)	Southeast at 3.5 MPH (3 KT)	
20	Mostly Cloudy	68.0 F (20.0 C)	29.76	10.00	78		61.0 F (16.1 C)	Southeast at 3.5 MPH (3 KT)	
21	Mostly Cloudy	67.0 F (19.4 C)	29.77	10.00	81		61.0 F (16.1 C)	Southeast at 4.6 MPH (4 KT)	
22	Mostly Cloudy	65.0 F (18.3 C)	29.79	10.00	87		61.0 F (16.1 C)	Variable at 3.5 MPH (3 KT)	
23	Overcast	65.0 F (18.3 C)	29.78	9.00	87		61.0 F (16.1 C)	Calm	

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Verplanck, NY USA Archived weather for June 05 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Overcast	64.0 F (17.8 C)	29.78	8.00	90		61.0 F (16.1 C)	East at 3.5 MPH (3 KT)	
01	Fog/Mist	63.0 F (17.2 C)	29.74	5.00	93		61.0 F (16.1 C)	Calm	
02	Light Rain Fog/Mist	63.0 F (17.2 C)	29.75	3.00	93		61.0 F (16.1 C)	Southeast at 4.6 MPH (4 KT)	
03	Fog/Mist	62.0 F (16.7 C)	29.73	1.00	96		61.0 F (16.1 C)	East at 4.6 MPH (4 KT)	
04	Light Rain Fog/Mist	62.0 F (16.7 C)	29.71	1.00	96		61.0 F (16.1 C)	Variable at 4.6 MPH (4 KT)	
05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
06	Light Rain Fog/Mist	62.0 F (16.7 C)	29.71	1.50	90		59.0 F (15.0 C)	Southeast at 3.5 MPH (3 KT)	
07	Rain Fog/Mist	61.0 F (16.1 C)	29.70	1.00	93		59.0 F (15.0 C)	Northeast at 5.8 MPH (5 KT)	
08	Light Rain Fog/Mist	61.0 F (16.1 C)	29.68	1.50	93		59.0 F (15.0 C)	Northeast at 10.4 MPH (9 KT)	
09	Rain Fog/Mist	60.0 F (15.6 C)	29.69	1.50	93		57.9 F (14.4 C)	North at 9.2 MPH (8 KT)	
10	Light Rain Fog/Mist	60.0 F (15.6 C)	29.66	1.50	93		57.9 F (14.4 C)	North at 8.1 MPH (7 KT)	
11	Light Rain Fog/Mist	62.0 F (16.7 C)	29.67	2.50	90		59.0 F (15.0 C)	North at 9.2 MPH (8 KT)	
12	Fog/Mist	63.0 F (17.2 C)	29.65	2.50	90		60.1 F (15.6 C)	North at 6.9 MPH (6 KT)	
13	Mostly Cloudy with Haze	65.0 F (18.3 C)	29.66	5.00	81		59.0 F (15.0 C)	North at 13.8 MPH (12 KT)	
14	Mostly Cloudy	67.0 F (19.4 C)	29.66	10.00	79		60.1 F (15.6 C)	Northwest at 11.5 MPH (10 KT)	
15	Mostly Cloudy	70.0 F (21.1 C)	29.66	10.00	64		57.0 F (13.9 C)	North at 11.5 MPH (10 KT)	
16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Mostly Cloudy	73.0 F (22.8 C)	29.67	10.00	57		57.0 F (13.9 C)	Northwest at 10.4 MPH (9 KT)	
18	Mostly Cloudy	73.0 F (22.8 C)	29.68	10.00	55		55.9 F (13.3 C)	West at 8.1 MPH (7 KT)	
19	Partly Cloudy	72.0 F (22.2 C)	29.69	10.00	59		57.0 F (13.9 C)	Northwest at 4.6 MPH (4 KT)	
20	Partly Cloudy	70.0 F (21.1 C)	29.71	10.00	66		57.9 F (14.4 C)	West at 5.8 MPH (5 KT)	
21	Partly Cloudy	68.0 F (20.0 C)	29.73	10.00	55		51.1 F (10.6 C)	Northwest at 10.4 MPH (9 KT)	
22	A Few Clouds	65.0 F (18.3 C)	29.77	10.00	59		50.0 F (10.0 C)	Northwest at 10.4 MPH (9 KT)	
23	Fair	64.0 F (17.8 C)	29.79	10.00	58		48.9 F (9.4 C)	from the Northwest at 15.0 gusting to 24.2 MPH (13 gusting to 21 KT)	

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Cortlandt Manor, NY USA Archived weather for June 06 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Mostly Cloudy	62.0 F (16.7 C)	29.79	10.00	65		50.0 F (10.0 C)	Northwest at 8.1 MPH (7 KT)	
01	Partly Cloudy	62.0 F (16.7 C)	29.79	10.00	56		46.0 F (7.8 C)	Northwest at 9.2 MPH (8 KT)	
02	Mostly Cloudy	61.0 F (16.1 C)	29.78	10.00	58		46.0 F (7.8 C)	Northwest at 15.0 MPH (13 KT)	
03	Mostly Cloudy	59.0 F (15.0 C)	29.79	10.00	62		46.0 F (7.8 C)	Northwest at 11.5 MPH (10 KT)	
04	A Few Clouds	58.0 F (14.4 C)	29.80	10.00	65		46.0 F (7.8 C)	Northwest at 11.5 MPH (10 KT)	
05	Partly Cloudy	57.0 F (13.9 C)	29.80	10.00	69		46.9 F (8.3 C)	Northwest at 9.2 MPH (8 KT)	
06	A Few Clouds	57.0 F (13.9 C)	29.82	10.00	72		48.0 F (8.9 C)	Northwest at 11.5 MPH (10 KT)	
07	A Few Clouds	59.0 F (15.0 C)	29.84	10.00	69		48.9 F (9.4 C)	West at 5.8 MPH (5 KT)	
08	Fair	61.0 F (16.1 C)	29.85	10.00	65		48.9 F (9.4 C)	Northwest at 10.4 MPH (9 KT)	
09	Fair	63.0 F (17.2 C)	29.87	10.00	63		50.0 F (10.0 C)	from the Northwest at 16.1 gusting to 20.7 MPH (14 gusting to 18 KT)	
10	Fair	66.0 F (18.9 C)	29.86	10.00	59		51.1 F (10.6 C)	Northwest at 13.8 MPH (12 KT)	
11	Partly Cloudy	68.0 F (20.0 C)	29.86	10.00	53		50.0 F (10.0 C)	from the North at 11.5 gusting to 23.0 MPH (10 gusting to 20 KT)	
12	Overcast	66.0 F (18.9 C)	29.87	10.00	59		51.1 F (10.6 C)	Northwest at 10.4 MPH (9 KT)	
13	Mostly Cloudy	70.0 F (21.1 C)	29.87	10.00	53		52.0 F (11.1 C)	from the Northwest at 9.2 gusting to 19.6 MPH (8 gusting to 17 KT)	
14	Overcast	69.0 F (20.6 C)	29.87	10.00	49		48.9 F (9.4 C)	from the Northwest at 12.7 gusting to 18.4 MPH (11 gusting to 16 KT)	
15	Mostly Cloudy	73.0 F (22.8 C)	29.86	10.00	44		50.0 F (10.0 C)	West at 10.4 MPH (9 KT)	
16	Mostly Cloudy	73.0 F (22.8 C)	29.86	10.00	44		50.0 F (10.0 C)	Northwest at 8.1 MPH (7 KT)	
17	Mostly Cloudy	73.0 F (22.8 C)	29.86	10.00	44		50.0 F (10.0 C)	Northwest at 6.9 MPH (6 KT)	
18	Mostly Cloudy	74.0 F (23.3 C)	29.86	10.00	45		51.1 F (10.6 C)	Northwest at 10.4 MPH (9 KT)	
19	Mostly Cloudy	73.0 F (22.8 C)	29.88	10.00	46		51.1 F (10.6 C)	Northwest at 8.1 MPH (7 KT)	
20	Partly Cloudy	70.0 F (21.1 C)	29.90	10.00	49		50.0 F (10.0 C)	Northwest at 6.9 MPH (6 KT)	
21	A Few Clouds	67.0 F (19.4 C)	29.91	10.00	55		50.0 F (10.0 C)	Northwest at 8.1 MPH (7 KT)	
22	Fair	63.0 F (17.2 C)	29.92	10.00	63		50.0 F (10.0 C)	Northwest at 5.8 MPH (5 KT)	
23	Fair	61.0 F (16.1 C)	29.92	10.00	70		51.1 F (10.6 C)	Northwest at 8.1 MPH (7 KT)	

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Cortlandt Manor, NY USA Archived weather for June 09 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fair	66.0 F (18.9 C)	29.92	10.00	70		55.9 F (13.3 C)	Southeast at 3.5 MPH (3 KT)	
01	A Few Clouds	65.0 F (18.3 C)	29.91	10.00	78		57.9 F (14.4 C)	Calm	
02	A Few Clouds	66.0 F (18.9 C)	29.90	10.00	75		57.9 F (14.4 C)	Southeast at 4.6 MPH (4 KT)	
03	A Few Clouds	66.0 F (18.9 C)	29.91	10.00	70		55.9 F (13.3 C)	Calm	
04	Mostly Cloudy	66.0 F (18.9 C)	29.92	10.00	70		55.9 F (13.3 C)	Calm	
05	Light Rain Fog/Mist	63.0 F (17.2 C)	29.95	5.00	84		57.9 F (14.4 C)	Calm	
06	Light Rain Fog/Mist	62.0 F (16.7 C)	29.97	2.00	90		59.0 F (15.0 C)	West at 3.5 MPH (3 KT)	
07	Light Rain Fog/Mist	62.0 F (16.7 C)	29.97	4.00	90		59.0 F (15.0 C)	Calm	
08	Light Rain Fog/Mist	61.0 F (16.1 C)	29.95	6.00	97		60.1 F (15.6 C)	East at 4.6 MPH (4 KT)	
09	Fog/Mist	62.0 F (16.7 C)	29.95	6.00	93		60.1 F (15.6 C)	Southeast at 5.8 MPH (5 KT)	
10	Light Rain Fog/Mist	62.0 F (16.7 C)	29.96	2.50	90		59.0 F (15.0 C)	Calm	
11	Light Rain Fog/Mist	62.0 F (16.7 C)	29.96	4.00	90		59.0 F (15.0 C)	East at 4.6 MPH (4 KT)	
12	Light Rain Fog/Mist	62.0 F (16.7 C)	29.96	1.50	96		61.0 F (16.1 C)	East at 8.1 MPH (7 KT)	
13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Light Drizzle	63.0 F (17.2 C)	29.96	5.00	93		61.0 F (16.1 C)	Southeast at 4.6 MPH (4 KT)	
15	Light Drizzle Fog/Mist	63.0 F (17.2 C)	29.96	1.25	93		61.0 F (16.1 C)	East at 4.6 MPH (4 KT)	
16	Light Drizzle Fog/Mist	63.0 F (17.2 C)	29.96	1.25	97		62.1 F (16.7 C)	East at 6.9 MPH (6 KT)	
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	Light Drizzle Fog/Mist	63.0 F (17.2 C)	29.96	1.00	93		61.0 F (16.1 C)	East at 6.9 MPH (6 KT)	
19	Fog	62.0 F (16.7 C)	29.97	0.25	96		61.0 F (16.1 C)	East at 6.9 MPH (6 KT)	
20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
21	Fog	61.0 F (16.1 C)	29.97	0.25	97		60.1 F (15.6 C)	East at 6.9 MPH (6 KT)	
22	Fog	61.0 F (16.1 C)	29.97	0.50	97		60.1 F (15.6 C)	East at 4.6 MPH (4 KT)	
23	Fog	62.0 F (16.7 C)	29.97	0.50	93		60.1 F (15.6 C)	Calm	

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Cortlandt Manor, NY USA Archived weather for June 10 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fog/Mist	62.0 F (16.7 C)	29.97	3.00	93		60.1 F (15.6 C)	North at 3.5 MPH (3 KT)	
01	Fog/Mist	62.0 F (16.7 C)	29.95	1.00	93		60.1 F (15.6 C)	East at 4.6 MPH (4 KT)	
02	Fog	63.0 F (17.2 C)	29.94	0.50	93		61.0 F (16.1 C)	Calm	
03	Fog	63.0 F (17.2 C)	29.94	0.50	93		61.0 F (16.1 C)	Calm	
04	Fog	63.0 F (17.2 C)	29.94	0.50	97		62.1 F (16.7 C)	Calm	
05	Fog	63.0 F (17.2 C)	29.93	0.50	97		62.1 F (16.7 C)	Calm	
06	Fog/Mist	63.0 F (17.2 C)	29.94	1.25	97		62.1 F (16.7 C)	Calm	
07	Fog/Mist	64.0 F (17.8 C)	29.95	1.25	93		62.1 F (16.7 C)	Calm	
08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
09	Fog/Mist	66.0 F (18.9 C)	29.96	1.50	93		64.0 F (17.8 C)	South at 3.5 MPH (3 KT)	
10	Fog/Mist	67.0 F (19.4 C)	29.96	1.50	91		64.0 F (17.8 C)	Calm	
11	Fog/Mist	68.0 F (20.0 C)	29.95	4.00	90		64.9 F (18.3 C)	Northeast at 3.5 MPH (3 KT)	
12	Fog/Mist	70.0 F (21.1 C)	29.96	6.00	82		64.0 F (17.8 C)	Variable at 3.5 MPH (3 KT)	
13	Fog/Mist	71.0 F (21.7 C)	29.96	6.00	81		64.9 F (18.3 C)	Calm	
14	Fog/Mist	73.0 F (22.8 C)	29.95	6.00	79		66.0 F (18.9 C)	Variable at 4.6 MPH (4 KT)	
15	Fog/Mist	73.0 F (22.8 C)	29.95	6.00	81		66.9 F (19.4 C)	East at 4.6 MPH (4 KT)	
16	Overcast	75.0 F (23.9 C)	29.95	7.00	76		66.9 F (19.4 C)	Variable at 4.6 MPH (4 KT)	
17	Mostly Cloudy	75.0 F (23.9 C)	29.95	8.00	76		66.9 F (19.4 C)	East at 3.5 MPH (3 KT)	
18	Fog/Mist	72.0 F (22.2 C)	29.96	6.00	84		66.9 F (19.4 C)	Southeast at 8.1 MPH (7 KT)	
19	Mostly Cloudy	72.0 F (22.2 C)	29.96	8.00	82		66.0 F (18.9 C)	East at 4.6 MPH (4 KT)	
20	Mostly Cloudy	71.0 F (21.7 C)	29.97	8.00	84		66.0 F (18.9 C)	Calm	
21	A Few Clouds	70.0 F (21.1 C)	29.97	8.00	87		66.0 F (18.9 C)	Calm	
22	Fog/Mist	69.0 F (20.6 C)	29.99	6.00	90		66.0 F (18.9 C)	Calm	
23	Fog/Mist	68.0 F (20.0 C)	29.99	4.00	93		66.0 F (18.9 C)	East at 4.6 MPH (4 KT)	

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Cortlandt Manor, NY USA Archived weather for June 11 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
01	Fog/Mist	67.0 F (19.4 C)	30.02	0.75	97		66.0 F (18.9 C)	East at 5.8 MPH (5 KT)	
02	Fog/Mist	65.0 F (18.3 C)	30.02	1.00	93		63.0 F (17.2 C)	from the Southeast at 11.5 gusting to 17.3 MPH (10 gusting to 15 KT)	
03	Fog/Mist	64.0 F (17.8 C)	30.03	1.00	93		62.1 F (16.7 C)	from the East at 10.4 gusting to 17.3 MPH (9 gusting to 15 KT)	
04	Overcast	63.0 F (17.2 C)	30.03	8.00	90		60.1 F (15.6 C)	East at 9.2 MPH (8 KT)	
05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
06	Overcast	62.0 F (16.7 C)	30.06	7.00	84		57.0 F (13.9 C)	East at 6.9 MPH (6 KT)	
07	Overcast	61.0 F (16.1 C)	30.09	10.00	90		57.9 F (14.4 C)	East at 5.8 MPH (5 KT)	
08	Light Rain Fog/Mist	61.0 F (16.1 C)	30.10	4.00	90		57.9 F (14.4 C)	East at 4.6 MPH (4 KT)	
09	Light Rain Fog/Mist	60.0 F (15.6 C)	30.11	6.00	86		55.9 F (13.3 C)	East at 5.8 MPH (5 KT)	
10	Overcast	62.0 F (16.7 C)	30.11	10.00	80		55.9 F (13.3 C)	East at 8.1 MPH (7 KT)	
11	Light Rain Fog/Mist	60.0 F (15.6 C)	30.12	7.00	84		55.0 F (12.8 C)	Variable at 6.9 MPH (6 KT)	
12	Mostly Cloudy	61.0 F (16.1 C)	30.12	10.00	84		55.9 F (13.3 C)	East at 6.9 MPH (6 KT)	
13	Mostly Cloudy	61.0 F (16.1 C)	30.12	10.00	81		55.0 F (12.8 C)	East at 8.1 MPH (7 KT)	
14	Overcast	63.0 F (17.2 C)	30.12	10.00	78		55.9 F (13.3 C)	Variable at 6.9 MPH (6 KT)	
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Partly Cloudy	65.0 F (18.3 C)	30.09	10.00	73		55.9 F (13.3 C)	from the East at 10.4 gusting to 17.3 MPH (9 gusting to 15 KT)	
18	Partly Cloudy	65.0 F (18.3 C)	30.07	10.00	68		54.0 F (12.2 C)	from the East at 10.4 gusting to 19.6 MPH (9 gusting to 17 KT)	
19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	Mostly Cloudy	62.0 F (16.7 C)	30.09	10.00	75		54.0 F (12.2 C)	East at 9.2 MPH (8 KT)	
21	Mostly Cloudy	61.0 F (16.1 C)	30.08	10.00	78		54.0 F (12.2 C)	East at 6.9 MPH (6 KT)	
22	Mostly Cloudy	60.0 F (15.6 C)	30.10	10.00	80		54.0 F (12.2 C)	East at 6.9 MPH (6 KT)	
23	Overcast	60.0 F (15.6 C)	30.11	10.00	80		54.0 F (12.2 C)	East at 8.1 MPH (7 KT)	

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Cortlandt Manor, NY USA Archived weather for June 12 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Overcast	60.0 F (15.6 C)	30.11	9.00	84		55.0 F (12.8 C)	East at 5.8 MPH (5 KT)	
01	Overcast	59.0 F (15.0 C)	30.10	9.00	87		55.0 F (12.8 C)	East at 6.9 MPH (6 KT)	
02	Overcast	59.0 F (15.0 C)	30.09	8.00	87		55.0 F (12.8 C)	East at 4.6 MPH (4 KT)	
03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04	Fog/Mist	57.0 F (13.9 C)	30.06	6.00	96		55.9 F (13.3 C)	East at 6.9 MPH (6 KT)	
05	Fog	57.0 F (13.9 C)	30.05	0.50	96		55.9 F (13.3 C)	East at 5.8 MPH (5 KT)	
06	Fog	57.0 F (13.9 C)	30.05	0.50	96		55.9 F (13.3 C)	East at 5.8 MPH (5 KT)	
07	Fog	58.0 F (14.4 C)	30.05	0.25	97		57.0 F (13.9 C)	from the East at 9.2 gusting to 16.1 MPH (8 gusting to 14 KT)	
08	Fog	58.0 F (14.4 C)	30.07	0.25	97		57.0 F (13.9 C)	East at 8.1 MPH (7 KT)	
09	Fog	59.0 F (15.0 C)	30.07	0.50	96		57.9 F (14.4 C)	East at 6.9 MPH (6 KT)	
10	Fog/Mist	60.0 F (15.6 C)	30.07	0.75	93		57.9 F (14.4 C)	East at 9.2 MPH (8 KT)	
11	Fog	60.0 F (15.6 C)	30.08	0.50	96		59.0 F (15.0 C)	East at 5.8 MPH (5 KT)	
12	Fog	61.0 F (16.1 C)	30.07	0.50	93		59.0 F (15.0 C)	East at 6.9 MPH (6 KT)	
13	Fog/Mist	63.0 F (17.2 C)	30.05	0.75	93		61.0 F (16.1 C)	East at 4.6 MPH (4 KT)	
14	Fog/Mist	66.0 F (18.9 C)	30.04	2.50	87		62.1 F (16.7 C)	East at 5.8 MPH (5 KT)	
15	Fog/Mist	67.0 F (19.4 C)	30.03	2.50	87		63.0 F (17.2 C)	East at 8.1 MPH (7 KT)	
16	Fog/Mist	68.0 F (20.0 C)	30.02	4.00	84		63.0 F (17.2 C)	Southeast at 6.9 MPH (6 KT)	
17	Fog/Mist	68.0 F (20.0 C)	30.01	4.00	81		62.1 F (16.7 C)	East at 6.9 MPH (6 KT)	
18	Light Rain Fog/Mist	66.0 F (18.9 C)	29.98	2.50	90		63.0 F (17.2 C)	East at 4.6 MPH (4 KT)	
19	Light Rain Fog/Mist	66.0 F (18.9 C)	29.98	2.50	90		63.0 F (17.2 C)	East at 6.9 MPH (6 KT)	
20	Fog/Mist	66.0 F (18.9 C)	29.98	2.50	93		64.0 F (17.8 C)	East at 4.6 MPH (4 KT)	
21	Fog/Mist	65.0 F (18.3 C)	29.98	2.50	97		64.0 F (17.8 C)	East at 5.8 MPH (5 KT)	
22	Fog/Mist	65.0 F (18.3 C)	29.97	1.00	97		64.0 F (17.8 C)	East at 6.9 MPH (6 KT)	
23	Light Rain Fog/Mist	65.0 F (18.3 C)	29.96	1.00	97		64.0 F (17.8 C)	East at 6.9 MPH (6 KT)	

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Cortlandt Manor, NY USA Archived weather for June 13 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fog/Mist	65.0 F (18.3 C)	29.95	1.00	97		64.0 F (17.8 C)	East at 8.1 MPH (7 KT)	
01	Light Rain Fog	65.0 F (18.3 C)	29.93	0.25	97		64.0 F (17.8 C)	East at 5.8 MPH (5 KT)	
02	Fog	65.0 F (18.3 C)	29.92	0.25	97		64.0 F (17.8 C)	East at 6.9 MPH (6 KT)	
03	Light Rain Fog	65.0 F (18.3 C)	29.90	0.50	97		64.0 F (17.8 C)	East at 5.8 MPH (5 KT)	
04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
05	Fog	63.0 F (17.2 C)	29.86	0.50	97		62.1 F (16.7 C)	from the East at 6.9 gusting to 16.1 MPH (6 gusting to 14 KT)	
06	Light Rain Fog	63.0 F (17.2 C)	29.86	0.50	97		62.1 F (16.7 C)	East at 6.9 MPH (6 KT)	
07	Fog	63.0 F (17.2 C)	29.86	0.75	97		62.1 F (16.7 C)	East at 6.9 MPH (6 KT)	
08	Fog	63.0 F (17.2 C)	29.85	0.50	97		62.1 F (16.7 C)	East at 6.9 MPH (6 KT)	
09	Fog	64.0 F (17.8 C)	29.84	0.25	96		63.0 F (17.2 C)	East at 4.6 MPH (4 KT)	
10	Light Rain Fog/Mist	64.0 F (17.8 C)	29.83	0.75	96		63.0 F (17.2 C)	East at 5.8 MPH (5 KT)	
11	Light Rain Fog	64.0 F (17.8 C)	29.85	0.50	96		63.0 F (17.2 C)	Calm	
12	Light Drizzle Fog/Mist	67.0 F (19.4 C)	29.83	2.00	93		64.9 F (18.3 C)	East at 3.5 MPH (3 KT)	
13	Fog/Mist	70.0 F (21.1 C)	29.82	6.00	90		66.9 F (19.4 C)	Southeast at 5.8 MPH (5 KT)	
14	Fog/Mist	70.0 F (21.1 C)	29.80	6.00	90		66.9 F (19.4 C)	Southeast at 4.6 MPH (4 KT)	
15	Overcast	72.0 F (22.2 C)	29.77	10.00	84		66.9 F (19.4 C)	East at 4.6 MPH (4 KT)	
16	Mostly Cloudy	75.0 F (23.9 C)	29.76	10.00	79		68.0 F (20.0 C)	Calm	
17	Partly Cloudy	77.0 F (25.0 C)	29.75	10.00	74		68.0 F (20.0 C)	Southeast at 4.6 MPH (4 KT)	
18	Mostly Cloudy	72.0 F (22.2 C)	29.76	10.00	84		66.9 F (19.4 C)	Southeast at 3.5 MPH (3 KT)	
19	Thunderstorm Light Rain Fog/Mist	67.0 F (19.4 C)	29.78	3.00	93		64.9 F (18.3 C)	Calm	
20	Thunderstorm Light Rain Fog/Mist	67.0 F (19.4 C)	29.79	2.00	97		66.0 F (18.9 C)	Southeast at 10.4 MPH (9 KT)	
21	Light Rain Fog/Mist	66.0 F (18.9 C)	29.79	2.00	96		64.9 F (18.3 C)	Southeast at 9.2 MPH (8 KT)	
22	Fog/Mist	66.0 F (18.9 C)	29.79	1.00	96		64.9 F (18.3 C)	Calm	
23	Fog/Mist	66.0 F (18.9 C)	29.79	1.00	96		64.9 F (18.3 C)	Calm	

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Cortlandt Manor, NY USA Archived weather for June 14 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fog/Mist	67.0 F (19.4 C)	29.81	5.00	93		64.9 F (18.3 C)	Calm	
01	Light Rain Fog/Mist	67.0 F (19.4 C)	29.81	3.00	97		66.0 F (18.9 C)	Calm	
02	Fog	67.0 F (19.4 C)	29.79	0.50	93		64.9 F (18.3 C)	Calm	
03	Fog	67.0 F (19.4 C)	29.78	0.50	97		66.0 F (18.9 C)	West at 5.8 MPH (5 KT)	
04	Fog/Mist	66.0 F (18.9 C)	29.80	2.00	96		64.9 F (18.3 C)	Northwest at 5.8 MPH (5 KT)	
05	Fog/Mist	65.0 F (18.3 C)	29.81	2.00	97		64.0 F (17.8 C)	Calm	
06	Mostly Cloudy	66.0 F (18.9 C)	29.82	8.00	93		64.0 F (17.8 C)	Northwest at 5.8 MPH (5 KT)	
07	Mostly Cloudy	66.0 F (18.9 C)	29.83	10.00	93		64.0 F (17.8 C)	Northwest at 5.8 MPH (5 KT)	
08	Partly Cloudy	67.0 F (19.4 C)	29.85	10.00	91		64.0 F (17.8 C)	Northwest at 10.4 MPH (9 KT)	
09	Partly Cloudy	68.0 F (20.0 C)	29.86	10.00	84		63.0 F (17.2 C)	Northwest at 8.1 MPH (7 KT)	
10	Partly Cloudy	70.0 F (21.1 C)	29.87	10.00	76		62.1 F (16.7 C)	Northwest at 10.4 MPH (9 KT)	
11	Mostly Cloudy	70.0 F (21.1 C)	29.89	9.00	73		61.0 F (16.1 C)	Northwest at 12.7 MPH (11 KT)	
12	Mostly Cloudy	70.0 F (21.1 C)	29.89	10.00	73		61.0 F (16.1 C)	Northwest at 9.2 MPH (8 KT)	
13	Partly Cloudy	71.0 F (21.7 C)	29.88	10.00	66		59.0 F (15.0 C)	Northwest at 10.4 MPH (9 KT)	
14	Partly Cloudy	72.0 F (22.2 C)	29.88	10.00	55		55.0 F (12.8 C)	Northwest at 16.1 MPH (14 KT)	
15	Partly Cloudy	72.0 F (22.2 C)	29.89	10.00	48		51.1 F (10.6 C)	West at 17.3 MPH (15 KT)	
16	Partly Cloudy	70.0 F (21.1 C)	29.91	10.00	49		50.0 F (10.0 C)	from the West at 17.3 gusting to 23.0 MPH (15 gusting to 20 KT)	
17	A Few Clouds	69.0 F (20.6 C)	29.92	10.00	51		50.0 F (10.0 C)	from the Northwest at 17.3 gusting to 23.0 MPH (15 gusting to 20 KT)	
18	A Few Clouds	67.0 F (19.4 C)	29.94	10.00	53		48.9 F (9.4 C)	from the Northwest at 13.8 gusting to 26.5 MPH (12 gusting to 23 KT)	
19	A Few Clouds	65.0 F (18.3 C)	29.96	10.00	56		48.9 F (9.4 C)	from the Northwest at 11.5 gusting to 23.0 MPH (10 gusting to 20 KT)	
20	Fair	62.0 F (16.7 C)	29.97	10.00	58		46.9 F (8.3 C)	from the Northwest at 16.1 gusting to 25.3 MPH (14 gusting to 22 KT)	
21	Fair	60.0 F (15.6 C)	29.98	10.00	62		46.9 F (8.3 C)	Northwest at 11.5 MPH (10 KT)	
22	Fair	58.0 F (14.4 C)	30.00	10.00	67		46.9 F (8.3 C)	Northwest at 9.2 MPH (8 KT)	
23	Fair	58.0 F (14.4 C)	30.01	10.00	70		48.0 F (8.9 C)	Northwest at 6.9 MPH (6 KT)	

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Cortlandt Manor, NY USA Archived weather for June 15 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fair	58.0 F (14.4 C)	30.02	10.00	70		48.0 F (8.9 C)	Northwest at 9.2 MPH (8 KT)	
01	Fair	55.0 F (12.8 C)	30.01	10.00	80		48.9 F (9.4 C)	Calm	
02	Fair	54.0 F (12.2 C)	30.02	10.00	87		50.0 F (10.0 C)	Calm	
03	Fair	57.0 F (13.9 C)	30.03	10.00	81		51.1 F (10.6 C)	Calm	
04	A Few Clouds	55.0 F (12.8 C)	30.03	10.00	87		51.1 F (10.6 C)	West at 4.6 MPH (4 KT)	
05	Fair	57.0 F (13.9 C)	30.03	10.00	81		51.1 F (10.6 C)	Northwest at 9.2 MPH (8 KT)	
06	Fair	57.0 F (13.9 C)	30.04	10.00	81		51.1 F (10.6 C)	Northwest at 13.8 MPH (12 KT)	
07	Fair	59.0 F (15.0 C)	30.05	10.00	75		51.1 F (10.6 C)	Northwest at 17.3 MPH (15 KT)	
08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
09	A Few Clouds	64.0 F (17.8 C)	30.09	10.00	68		53.1 F (11.7 C)	from the Northwest at 13.8 gusting to 19.6 MPH (12 gusting to 17 KT)	
10	A Few Clouds	66.0 F (18.9 C)	30.09	10.00	61		52.0 F (11.1 C)	from the Northwest at 18.4 gusting to 26.5 MPH (16 gusting to 23 KT)	
11	A Few Clouds	68.0 F (20.0 C)	30.08	10.00	59		53.1 F (11.7 C)	from the Northwest at 16.1 gusting to 21.9 MPH (14 gusting to 19 KT)	
12	Fair	71.0 F (21.7 C)	30.08	10.00	55		54.0 F (12.2 C)	from the Northwest at 15.0 gusting to 20.7 MPH (13 gusting to 18 KT)	
13	Fair	72.0 F (22.2 C)	30.08	10.00	53		54.0 F (12.2 C)	Northwest at 15.0 MPH (13 KT)	
14	A Few Clouds	74.0 F (23.3 C)	30.06	10.00	50		54.0 F (12.2 C)	West at 13.8 MPH (12 KT)	
15	Fair	76.0 F (24.4 C)	30.06	10.00	48		55.0 F (12.8 C)	Variable at 6.9 MPH (6 KT)	
16	A Few Clouds	76.0 F (24.4 C)	30.06	10.00	47		54.0 F (12.2 C)	from the Northwest at 16.1 gusting to 20.7 MPH (14 gusting to 18 KT)	
17	Fair	77.0 F (25.0 C)	30.06	10.00	45		54.0 F (12.2 C)	Northwest at 12.7 MPH (11 KT)	
18	Fair	77.0 F (25.0 C)	30.05	10.00	47		55.0 F (12.8 C)	Northwest at 8.1 MPH (7 KT)	
19	Fair	76.0 F (24.4 C)	30.04	10.00	50		55.9 F (13.3 C)	Northwest at 8.1 MPH (7 KT)	
20	Fair	72.0 F (22.2 C)	30.06	10.00	59		57.0 F (13.9 C)	Northwest at 5.8 MPH (5 KT)	
21	Fair	67.0 F (19.4 C)	30.07	10.00	76		59.0 F (15.0 C)	Northwest at 4.6 MPH (4 KT)	
22	Fair	66.0 F (18.9 C)	30.08	10.00	73		57.0 F (13.9 C)	Northwest at 3.5 MPH (3 KT)	
23	Fair	63.0 F (17.2 C)	30.08	10.00	87		59.0 F (15.0 C)	Northwest at 4.6 MPH (4 KT)	

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Yorktown, NY USA Archived weather for June 16 2014.

Observed at: White Plains, Westchester County Airport, NY

Hour	Outlook	Temperature	Pressure	Visibility	Humidity	Heat Index	Dew Point	Wind	Air Quality
00	Fair	63.0 F (17.2 C)	30.09	10.00	84		57.9 F (14.4 C)	Calm	
01	Fair	60.0 F (15.6 C)	30.10	10.00	86		55.9 F (13.3 C)	Northwest at 4.6 MPH (4 KT)	
02	Fair	60.0 F (15.6 C)	30.10	10.00	90		57.0 F (13.9 C)	Northwest at 3.5 MPH (3 KT)	
03	Fair	60.0 F (15.6 C)	30.10	10.00	90		57.0 F (13.9 C)	West at 3.5 MPH (3 KT)	
04	Fair	60.0 F (15.6 C)	30.11	10.00	84		55.0 F (12.8 C)	Northwest at 5.8 MPH (5 KT)	
05	Fair	59.0 F (15.0 C)	30.12	10.00	83		54.0 F (12.2 C)	Northwest at 5.8 MPH (5 KT)	
06	Fair	62.0 F (16.7 C)	30.13	10.00	78		55.0 F (12.8 C)	Northwest at 4.6 MPH (4 KT)	
07	Fair	65.0 F (18.3 C)	30.15	10.00	76		57.0 F (13.9 C)	Variable at 4.6 MPH (4 KT)	
08	Fair	68.0 F (20.0 C)	30.15	10.00	68		57.0 F (13.9 C)	Calm	
09	Fair	69.0 F (20.6 C)	30.17	10.00	63		55.9 F (13.3 C)	Calm	
10	Fair	73.0 F (22.8 C)	30.17	10.00	46		51.1 F (10.6 C)	Variable at 3.5 MPH (3 KT)	
11	Fair	74.0 F (23.3 C)	30.16	10.00	48		53.1 F (11.7 C)	Calm	
12	Fair	74.0 F (23.3 C)	30.15	10.00	46		52.0 F (11.1 C)	Southeast at 8.1 MPH (7 KT)	
13	Fair	76.0 F (24.4 C)	30.14	10.00	42		51.1 F (10.6 C)	Southeast at 4.6 MPH (4 KT)	
14	A Few Clouds	77.0 F (25.0 C)	30.12	10.00	45		54.0 F (12.2 C)	Southeast at 8.1 MPH (7 KT)	
15	Fair	79.0 F (26.1 C)	30.11	10.00	42		54.0 F (12.2 C)	East at 5.8 MPH (5 KT)	
16	A Few Clouds	78.0 F (25.6 C)	30.09	10.00	43		54.0 F (12.2 C)	Southeast at 12.7 MPH (11 KT)	
17	Fair	77.0 F (25.0 C)	30.08	10.00	45		54.0 F (12.2 C)	South at 10.4 MPH (9 KT)	
18	Fair	76.0 F (24.4 C)	30.07	10.00	47		54.0 F (12.2 C)	South at 10.4 MPH (9 KT)	
19	Fair	73.0 F (22.8 C)	30.06	10.00	53		55.0 F (12.8 C)	South at 9.2 MPH (8 KT)	
20	Fair	70.0 F (21.1 C)	30.07	10.00	57		54.0 F (12.2 C)	South at 4.6 MPH (4 KT)	
21	Fair	68.0 F (20.0 C)	30.08	10.00	59		53.1 F (11.7 C)	Southeast at 4.6 MPH (4 KT)	
22	Fair	66.0 F (18.9 C)	30.09	10.00	68		55.0 F (12.8 C)	South at 3.5 MPH (3 KT)	
23	Fair	65.0 F (18.3 C)	30.08	10.00	73		55.9 F (13.3 C)	Calm	

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Weather Data

TRC-AIM Project: CT, MA, and RI Sites

Hourly Obs
Month/Year: 05/2014
Station Location: WINDHAM AIRPORT (54767)
Lat: 41.741
Lon: -72.183
Elev: 247 ft. above sea level

5/30/14: below 50 at 2:45. Acceptable night.
5/31/14: below 50 at 21:52. Cold out.
6/1/14: Below temp at 1:52. Cold out.
Good nights 6/2 through 6/6.

WBAN	Date	Time	SkyCondition	Temp (F)	WindSpeed	HourlyPrecip
54767	20140530	2052	CLR	56	0	
54767	20140530	2059	FEW003	56	0	
54767	20140530	2130	BKN002	55	0	
54767	20140530	2137	BKN002	55	0	
54767	20140530	2152	OVC002	55	0	
54767	20140530	2202	VV002	54	0	
54767	20140530	2231	VV002	55	3	
54767	20140530	2245	VV002	53	0	
54767	20140530	2252	VV002	53	0	
54767	20140530	2306	VV002	53	0	
54767	20140530	2327	BKN002	52	0	
54767	20140530	2333	SCT002	52	0	
54767	20140530	2352	CLR	52	0	
54767	20140531	52	CLR	51	0	
54767	20140531	106	FEW002	50	0	
54767	20140531	115	VV001	50	0	
54767	20140531	123	VV001	50	0	
54767	20140531	137	VV001	50	0	
54767	20140531	150	VV001	50	0	
54767	20140531	152	VV001	50	0	
54767	20140531	203	VV001	50	0	
54767	20140531	212	VV002	50	0	
54767	20140531	245	BKN002 OVC075	49	0	
54767	20140531	252	BKN001 BKN075	49	0	
54767	20140531	256	BKN001 BKN075	49	0	
54767	20140531	302	SCT001 BKN075	49	0	
54767	20140531	310	VV001	49	0	
54767	20140531	316	VV002	49	0	
54767	20140531	324	BKN002	49	0	
54767	20140531	330	SCT002 BKN014	49	0	
54767	20140531	345	FEW002 FEW014	48	0	
54767	20140531	352	FEW014	48	0	
54767	20140531	452	FEW085	48	3	
54767	20140531	528	BKN015	50	5	
54767	20140531	539	OVC014	51	5	
54767	20140531	552	OVC014	52	3	
54767	20140531	606	OVC015	52	3	
54767	20140531	652	OVC020	54	6	
54767	20140531	752	BKN027	57	9	
54767	20140531	828	FEW016 SCT024	60	8	

54767	20140531	837	FEW016 BKN024 BKN060	59	10	
54767	20140531	852	FEW016 SCT021 BKN027	60	9	
54767	20140531	921	SCT019 BKN030 OVC042	59	10	
54767	20140531	928	SCT019 BKN029 OVC041	59	13	
54767	20140531	936	FEW019 BKN041 OVC050	60	13	
54767	20140531	952	SCT020 BKN048 OVC080	61	17	T
54767	20140531	1052	FEW023 SCT032	62	14	T
54767	20140531	1152	FEW038	65	22	T
54767	20140531	1252	FEW050	67	13	T
54767	20140531	1352	SCT050	69	17	T
54767	20140531	1452	BKN055	70	13	
54767	20140531	1552	CLR	69	11	
54767	20140531	1652	FEW050	68	15	
54767	20140531	1752	CLR	66	13	
54767	20140531	1852	CLR	63	7	
54767	20140531	1952	FEW055	58	3	
54767	20140531	2052	CLR	54	3	
54767	20140531	2152	CLR	49	3	
54767	20140531	2252	CLR	47	0	
54767	20140531	2352	CLR	44	3	
54767	20140601	52	CLR	43	3	
54767	20140601	152	CLR	42	0	
54767	20140601	252	CLR	41	0	
54767	20140601	352	CLR	40	0	
54767	20140601	452	CLR	41	0	
54767	20140601	503	SCT002	41	0	
54767	20140601	506	BKN002	41	0	
54767	20140601	513	BKN002	41	0	
54767	20140601	519	BKN002	41	0	
54767	20140601	527	BKN002	42	0	
54767	20140601	536	SCT002	43	0	
54767	20140601	552	CLR	44	0	
54767	20140601	652	CLR	51	0	
54767	20140601	752	CLR	60	0	
54767	20140601	852	CLR	67	0	
54767	20140601	952	CLR	72	5	
54767	20140601	1052	CLR	73	7	
54767	20140601	1152	CLR	74	6	
54767	20140601	1252	CLR	75	5	
54767	20140601	1352	CLR	77	6	
54767	20140601	1452	CLR	77	3	
54767	20140601	1552	CLR	77	7	
54767	20140601	1652	CLR	75	15	
54767	20140601	1752	CLR	73	7	
54767	20140601	1852	CLR	70	7	
54767	20140601	1952	CLR	65	6	
54767	20140601	2052	CLR	61	0	

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54767	20140601	2152	CLR	60	5
54767	20140601	2252	CLR	53	0
54767	20140601	2352	CLR	52	0
54767	20140602	52	CLR	50	0
54767	20140602	152	CLR	48	3
54767	20140602	252	CLR	47	0
54767	20140602	352	CLR	46	0
54767	20140602	452	CLR	46	0
54767	20140602	552	CLR	50	0
54767	20140602	652	CLR	55	0
54767	20140602	752	CLR	63	0
54767	20140602	852	CLR	72	5
54767	20140602	952	CLR	74	10
54767	20140602	1052	CLR	76	8
54767	20140602	1152	CLR	77	7
54767	20140602	1252	CLR	79	10
54767	20140602	1352	CLR	79	8
54767	20140602	1452	CLR	79	10
54767	20140602	1552	CLR	78	10
54767	20140602	1652	CLR	79	6
54767	20140602	1752	CLR	76	10
54767	20140602	1852	CLR	73	8
54767	20140602	1952	CLR	68	7
54767	20140602	2052	CLR	65	0
54767	20140602	2152	CLR	61	3
54767	20140602	2252	CLR	59	0
54767	20140602	2352	CLR	57	0
54767	20140603	52	CLR	56	0
54767	20140603	152	CLR	55	0
54767	20140603	252	CLR	54	3
54767	20140603	352	CLR	53	0
54767	20140603	452	CLR	53	0
54767	20140603	552	CLR	56	0
54767	20140603	652	CLR	61	0
54767	20140603	752	CLR	66	0
54767	20140603	852	CLR	72	6
54767	20140603	952	CLR	76	6
54767	20140603	1052	CLR	79	10
54767	20140603	1152	CLR	81	7
54767	20140603	1252	CLR	82	7
54767	20140603	1352	CLR	83	9
54767	20140603	1452	CLR	83	9
54767	20140603	1552	CLR	79	11
54767	20140603	1652	CLR	74	14
54767	20140603	1752	BKN075	70	10
54767	20140603	1852	SCT080 BKN095	67	3
54767	20140603	1952	FEW041 BKN060 BKN080	65	3

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54767	20140603	2052	BKN060 OVC100	64	5		
54767	20140603	2152	SCT012 BKN080	63	3		
54767	20140603	2204	BKN012 BKN085	63	0		
54767	20140603	2252	OVC012	62	3		
54767	20140603	2352	OVC011	62	6		
54767	20140604	52	OVC011	61	6		
54767	20140604	152	OVC011	61	6		
54767	20140604	252	OVC011	60	5		
54767	20140604	352	OVC010	60	0		
54767	20140604	452	OVC013	60	6		
54767	20140604	552	BKN010 OVC014	60	6		
54767	20140604	601	OVC009	60	0		
54767	20140604	620	OVC011	60	3		
54767	20140604	649	OVC015	61	8		
54767	20140604	652	OVC015	60	8		
54767	20140604	741	OVC014	60	7		
54767	20140604	752	OVC013	60	6		
54767	20140604	852	OVC012	61	0		
54767	20140604	928	SCT013 OVC020	62	0		
54767	20140604	952	OVC015	64	3		
54767	20140604	1014	SCT016 OVC034	64	3		
54767	20140604	1052	OVC035	68	0		
54767	20140604	1152	OVC033	72	5		
54767	20140604	1252	OVC034	73	8		
54767	20140604	1337	BKN027 OVC033	73	7		
54767	20140604	1352	BKN027 BKN034	72	5		
54767	20140604	1426	SCT027 BKN039	73	6		
54767	20140604	1452	CLR	73	7		
54767	20140604	1542	BKN025	72	8		
54767	20140604	1550	SCT023	72	6		
54767	20140604	1552	SCT023	72	6		
54767	20140604	1640	BKN019	70	6		
54767	20140604	1652	BKN020 BKN110	69	5		
54767	20140604	1726	SCT018 BKN050 BKN120	69	5		
54767	20140604	1752	CLR	68	3		0.01
54767	20140604	1852	CLR	67	3		
54767	20140604	1952	SCT011	66	0		
54767	20140604	2004	BKN011	66	0		
54767	20140604	2050	SCT011 BKN095	64	0		
54767	20140604	2052	SCT010 BKN095	65	0		
54767	20140604	2107	BKN010 BKN095	65	3		
54767	20140604	2122	OVC009	65	0		
54767	20140604	2152	OVC008	65	5		
54767	20140604	2252	OVC007	64	0		
54767	20140604	2352	OVC006	64	5	T	
54767	20140605	52	OVC005	63	0	T	
54767	20140605	115	OVC004	63	6		

54767	20140605	152	OVC003	63	5	T	
54767	20140605	252	OVC005	63	0	T	
54767	20140605	352	BKN006 OVC070	63	0	T	
54767	20140605	428	FEW006 OVC100	63	0		
54767	20140605	452	OVC100	62	0		0.03
54767	20140605	507	FEW004 OVC095	62	3		
54767	20140605	552	FEW070 OVC085	62	3		0.01
54767	20140605	607	FEW003 OVC085	62	6		
54767	20140605	620	OVC085	62	5		
54767	20140605	629	FEW009 OVC085	62	3		
54767	20140605	652	FEW065 OVC085	62	0		0.07
54767	20140605	704	SCT060 OVC085	62	0		
54767	20140605	712	BKN060 OVC080	62	0		
54767	20140605	734	SCT060 OVC080	62	3		
54767	20140605	744	BKN060 OVC075	62	3		
54767	20140605	750	SCT060 OVC080	63	3		
54767	20140605	752	SCT060 OVC075	62	3		0.13
54767	20140605	803	BKN065 OVC080	62	5		
54767	20140605	811	OVC075	62	6		
54767	20140605	852	BKN070 OVC080	61	3		0.09
54767	20140605	906	BKN065 OVC080	61	6		
54767	20140605	919	FEW006 BKN065 OVC080	62	5		
54767	20140605	952	OVC075	62	7		0.08
54767	20140605	1012	SCT055 OVC070	62	6		
54767	20140605	1027	OVC060	62	6		
54767	20140605	1041	FEW005 BKN050 OVC070	62	3		
54767	20140605	1050	FEW005 SCT055 OVC070	63	7		
54767	20140605	1052	FEW005 SCT055 OVC070	62	7		0.16
54767	20140605	1152	SCT009 OVC070	64	7		0.03
54767	20140605	1223	BKN012 BKN020 OVC070	64	8		
54767	20140605	1232	SCT012 BKN020 OVC070	64	7		
54767	20140605	1250	FEW009 BKN022 OVC070	64	11		
54767	20140605	1252	FEW009 BKN029 OVC065	64	9		0.03
54767	20140605	1347	FEW014 BKN080 OVC095	63	8		
54767	20140605	1352	FEW013 BKN080 OVC095	64	9		0.01
54767	20140605	1405	SCT012 BKN022 OVC095	63	9		
54767	20140605	1434	BKN012 BKN021 OVC075	64	9		
54767	20140605	1452	BKN012 BKN017 OVC080	64	8	T	
54767	20140605	1535	FEW014 BKN021 OVC026	65	9		
54767	20140605	1552	FEW014 BKN023	65	11		
54767	20140605	1615	SCT024	65	9		
54767	20140605	1639	SCT020 BKN026	66	9		
54767	20140605	1652	SCT020 BKN026	66	9		
54767	20140605	1703	FEW021 SCT027	66	9		
54767	20140605	1747	BKN025	66	8		
54767	20140605	1752	SCT025	66	7		
54767	20140605	1852	CLR	65	5		

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54767	20140605	1952	CLR	60	0
54767	20140605	2044	FEW002	58	0
54767	20140605	2052	CLR	58	0
54767	20140605	2130	SCT002	57	0
54767	20140605	2152	FEW003 FEW090	58	3
54767	20140605	2252	OVC085	57	3
54767	20140605	2352	OVC085	59	3
54767	20140606	52	OVC080	60	3
54767	20140606	152	OVC075	59	5
54767	20140606	252	OVC075	58	0
54767	20140606	352	FEW050 BKN070	57	0
54767	20140606	452	OVC070	57	0
54767	20140606	552	OVC080	58	0
54767	20140606	652	BKN055 BKN070 OVC085	60	7
54767	20140606	752	BKN055 OVC090	62	8
54767	20140606	852	FEW080	66	10
54767	20140606	923	BKN029	66	10
54767	20140606	931	BKN031	66	10
54767	20140606	952	BKN035	68	7
54767	20140606	1052	BKN041 BKN050	71	9
54767	20140606	1152	FEW043 OVC055	70	8
54767	20140606	1252	OVC070	72	9
54767	20140606	1352	BKN050 OVC070	71	15
54767	20140606	1452	SCT080	73	11
54767	20140606	1552	SCT055	73	9
54767	20140606	1652	BKN080	74	7
54767	20140606	1752	OVC080	72	5
54767	20140606	1852	BKN070 OVC085	71	5
54767	20140606	1952	OVC080	67	3
54767	20140606	2052	CLR	63	0
54767	20140606	2152	CLR	60	3
54767	20140606	2252	CLR	57	0
54767	20140606	2352	CLR	56	3
54767	20140607	52	CLR	54	0
54767	20140607	152	CLR	53	0
54767	20140607	252	CLR	53	0
54767	20140607	352	CLR	52	0
54767	20140607	452	CLR	52	0
54767	20140607	552	CLR	57	0
54767	20140607	652	CLR	63	3
54767	20140607	752	CLR	69	9
54767	20140607	852	CLR	74	0
54767	20140607	952	CLR	77	8
54767	20140607	1052	CLR	78	8
54767	20140607	1152	CLR	80	7
54767	20140607	1252	BKN060	80	8
54767	20140607	1352	FEW065	81	9

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54767	20140607	1452	SCT075	82	7		
54767	20140607	1552	SCT070	82	0		
54767	20140607	1652	CLR	79	0		
54767	20140607	1752	CLR	78	0		
54767	20140607	1852	CLR	74	0		
54767	20140607	1952	CLR	68	0		
54767	20140607	2052	CLR	65	3		
54767	20140607	2152	CLR	64	0		
54767	20140607	2252	CLR	62	3		
54767	20140607	2352	CLR	60	0		
54767	20140608	52	CLR	59	0		
54767	20140608	152	CLR	58	0		
54767	20140608	252	CLR	56	3		
54767	20140608	352	CLR	56	0		
54767	20140608	452	CLR	55	3		
54767	20140608	552	CLR	58	0		
54767	20140608	652	CLR	63	0		
54767	20140608	752	CLR	71	0		
54767	20140608	852	CLR	77	0		
54767	20140608	952	CLR	81	3		
54767	20140608	1052	SCT070	81	0		
54767	20140608	1152	BKN070	82	8		
54767	20140608	1252	BKN060 OVC085	81	8		
54767	20140608	1352	CLR	84	0		
54767	20140608	1452	FEW070	83	10		
54767	20140608	1552	OVC070	83	9		
54767	20140608	1652	CLR	82	10		
54767	20140608	1752	CLR	81	8		
54767	20140608	1852	CLR	77	6		
54767	20140608	1952	CLR	71	0		
54767	20140608	2052	CLR	69	3		
54767	20140608	2152	CLR	69	0		
54767	20140608	2252	CLR	65	3		
54767	20140608	2352	CLR	61	3		
54767	20140609	52	CLR	60	3		
54767	20140609	152	CLR	57	0		
54767	20140609	252	CLR	58	0		
54767	20140609	352	CLR	57	0		
54767	20140609	452	CLR	57	0		
54767	20140609	552	BKN120	59	0		
54767	20140609	652	BKN110	62	0	T	
54767	20140609	752	OVC110	64	0	T	
54767	20140609	852	BKN110	65	3	T	
54767	20140609	952	OVC110	67	0		0.01
54767	20140609	1052	BKN065 OVC110	68	0	T	
54767	20140609	1152	BKN065 BKN090 OVC110	69	3		
54767	20140609	1252	OVC090	71	3		

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54767	20140609	1350	BKN027 OVC034	70	6		
54767	20140609	1352	BKN027 OVC034	69	8		
54767	20140609	1422	SCT030 OVC048	69	7		
54767	20140609	1452	OVC042	67	5		
54767	20140609	1552	BKN025 OVC036	67	5	T	
54767	20140609	1650	SCT019 OVC030	64	5		
54767	20140609	1652	SCT019 OVC030	65	5	T	
54767	20140609	1752	FEW023 OVC040	63	6	T	
54767	20140609	1840	BKN026 OVC037	62	0		
54767	20140609	1852	BKN024 OVC030	63	0		0.04
54767	20140609	1952	BKN018 OVC022	63	0		0.02
54767	20140609	2044	OVC014	63	0		
54767	20140609	2052	OVC013	63	0	T	
54767	20140609	2152	OVC010	63	0	T	
54767	20140609	2206	OVC009	63	0		
54767	20140609	2252	OVC007	62	0		
54767	20140609	2352	OVC006	62	0		
54767	20140610	52	OVC005	63	0		
54767	20140610	105	BKN004 OVC012	63	0		
54767	20140610	152	OVC004	63	0		
54767	20140610	221	OVC005	63	0		
54767	20140610	250	OVC004	63	0		
54767	20140610	252	OVC004	63	0		
54767	20140610	305	OVC004	63	0		
54767	20140610	315	OVC003	63	0		
54767	20140610	335	OVC002	63	0		
54767	20140610	352	VV003	63	0	T	
54767	20140610	413	VV003	63	0		
54767	20140610	426	VV003	63	0		
54767	20140610	452	OVC003	63	0	T	
54767	20140610	514	VV003	63	0		
54767	20140610	552	VV003	63	0		
54767	20140610	632	VV003	64	0		
54767	20140610	650	OVC002	64	0		
54767	20140610	652	OVC002	64	0		
54767	20140610	658	OVC002	64	0		
54767	20140610	752	OVC003	65	0		
54767	20140610	852	OVC004	67	3		
54767	20140610	914	OVC005	68	3		
54767	20140610	952	OVC005	69	5		
54767	20140610	1052	OVC006	69	3		
54767	20140610	1130	OVC011	70	3		
54767	20140610	1150	BKN009 OVC020	72	0		
54767	20140610	1152	BKN009 BKN016 OVC022	71	0		
54767	20140610	1212	FEW009 FEW013 OVC022	72	6		
54767	20140610	1252	BKN018 OVC023	73	5		
54767	20140610	1318	OVC014	72	3		

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54767	20140610	1352	FEW016 OVC027	75	3	
54767	20140610	1420	SCT017	76	8	
54767	20140610	1452	FEW017	76	5	
54767	20140610	1552	FEW024 FEW028 BKN100	78	5	
54767	20140610	1652	OVC110	78	6	
54767	20140610	1752	FEW110	76	5	
54767	20140610	1852	FEW020 BKN100	74	3	
54767	20140610	1917	SCT018 BKN022 BKN100	72	13	
54767	20140610	1939	FEW015 BKN036 OVC060	69	15	
54767	20140610	1952	FEW013 BKN038 OVC045	68	9	T
54767	20140610	2021	BKN014 BKN027 OVC034	67	10	
54767	20140610	2052	OVC012	66	8	
54767	20140610	2115	OVC016	65	14	
54767	20140610	2152	OVC013	64	9	
54767	20140610	2242	OVC015	64	9	
54767	20140610	2252	BKN015 OVC035	63	11	
54767	20140610	2352	BKN015 OVC032	63	11	
54767	20140611	17	SCT015 OVC032	63	13	
54767	20140611	52	FEW016 OVC038	62	11	
54767	20140611	152	OVC042	62	8	
54767	20140611	252	SCT017 OVC042	61	9	
54767	20140611	352	BKN050 OVC065	61	8	T
54767	20140611	452	OVC060	61	10	
54767	20140611	552	BKN060 OVC080	61	7	
54767	20140611	652	OVC075	61	7	
54767	20140611	752	OVC070	62	5	
54767	20140611	852	SCT070 OVC100	64	9	
54767	20140611	952	FEW100	67	11	
54767	20140611	1052	FEW070 BKN110	69	10	
54767	20140611	1152	OVC090	69	5	
54767	20140611	1252	BKN090	71	9	
54767	20140611	1352	OVC060	71	5	
54767	20140611	1452	BKN060 BKN075 OVC090	70	5	T
54767	20140611	1552	FEW034 BKN090 OVC120	69	6	T
54767	20140611	1652	CLR	70		
54767	20140611	1752	CLR	68	3	
54767	20140611	1852	FEW070	65	0	
54767	20140611	1952	FEW070 SCT110	64	5	
54767	20140611	2052	BKN070	63	0	
54767	20140611	2152	CLR	61	0	
54767	20140611	2252	CLR	58	0	
54767	20140611	2342	BKN021 OVC110	59	0	
54767	20140611	2352	OVC021	58	3	
54767	20140612	52	OVC016	60	3	
54767	20140612	152	OVC016	60	5	T
54767	20140612	252	OVC017	60	0	T
54767	20140612	352	OVC016	59	6	

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54767	20140612	452	OVC015	60	6		
54767	20140612	552	OVC014	61	5		
54767	20140612	652	OVC013	61	6		
54767	20140612	752	OVC012	62	3		
54767	20140612	852	OVC013	64	0		
54767	20140612	952	OVC013	65	5		
54767	20140612	1052	OVC014	65	5		
54767	20140612	1152	OVC013	65	5		
54767	20140612	1252	OVC010	65	5	T	
54767	20140612	1348	OVC008	64	5		
54767	20140612	1352	OVC008	66	5	T	
54767	20140612	1452	OVC009	67	0	T	
54767	20140612	1459	OVC010	68	0		
54767	20140612	1532	OVC015	68	6		
54767	20140612	1552	OVC017	69	3	T	
54767	20140612	1652	OVC015	70	0		
54767	20140612	1704	OVC014	70	5		
54767	20140612	1752	OVC014	69	5	T	
54767	20140612	1852	BKN013 OVC022	68	5	T	
54767	20140612	1905	BKN015 OVC022	68	5		
54767	20140612	1917	OVC014	68	5		
54767	20140612	1952	OVC013	67	3	T	
54767	20140612	2052	OVC013	66	0	T	
54767	20140612	2152	BKN013 OVC019	65	6	T	
54767	20140612	2252	OVC012	65	6	T	
54767	20140612	2352	OVC012	65	3	T	
54767	20140613	52	OVC010	64	0	T	
54767	20140613	102	OVC009	64	6		
54767	20140613	152	OVC007	63	5	T	
54767	20140613	252	OVC006	63	6	T	
54767	20140613	352	OVC005	63	3	T	
54767	20140613	452	OVC006	64	6		0.01
54767	20140613	552	OVC006	64	7	T	
54767	20140613	652	OVC006	65	6	T	
54767	20140613	741	OVC008	65	3		
54767	20140613	752	OVC008	65	6		0.21
54767	20140613	800	BKN008 OVC011	65	6		
54767	20140613	852	OVC007	66	0	T	
54767	20140613	952	OVC007	68	6	T	
54767	20140613	1052	OVC007	69	0	T	
54767	20140613	1152	OVC006	70	6		0.01
54767	20140613	1252	OVC005	71	6		
54767	20140613	1352	OVC007	72	3	T	
54767	20140613	1429	BKN010 OVC014	73	5		
54767	20140613	1447	SCT009 OVC014	73	3		
54767	20140613	1452	SCT009 OVC014	73	7		
54767	20140613	1502	BKN009 OVC013	73	5		

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TRC-AIM Project: CT, MA, and RI Sites

54767	20140613	1550	OVC009	72	5	
54767	20140613	1552	OVC009	71	6	0.01
54767	20140613	1601	BKN007 OVC010	71	3	
54767	20140613	1618	OVC006	70	6	
54767	20140613	1643	OVC006	70	6	
54767	20140613	1652	BKN008 OVC013	70	6	0.05
54767	20140613	1702	BKN008 OVC014	70	5	
54767	20140613	1706	BKN010 OVC014	70	6	
54767	20140613	1713	BKN008 OVC012	70	6	
54767	20140613	1719	BKN010 OVC014	70	6	
54767	20140613	1729	OVC011	70	7	
54767	20140613	1739	BKN008 OVC015	70	6	
54767	20140613	1750	BKN006 OVC011	70	7	
54767	20140613	1752	BKN006 OVC011	70	7	0.03
54767	20140613	1800	BKN006 OVC014	69	7	
54767	20140613	1830	OVC007	69	6	
54767	20140613	1852	OVC007	68	8	0.01
54767	20140613	1952	OVC006	67	5 T	
54767	20140613	2050	OVC004	66	3	
54767	20140613	2052	OVC004	67	5 T	
54767	20140613	2152	OVC003	66	5 T	
54767	20140613	2204	OVC003	66	5	
54767	20140613	2216	OVC003	66	3	
54767	20140613	2225	OVC003	66	0	
54767	20140613	2245	OVC003	66	5	
54767	20140613	2250	OVC003	66	5	
54767	20140613	2252	OVC003	66	6	0.02
54767	20140613	2352	OVC004	65	0 T	
54767	20140614	44	OVC003	65	3	
54767	20140614	52	OVC002	65	3	
54767	20140614	107	OVC002	65	3	
54767	20140614	152	VV003	65	3	
54767	20140614	220	OVC003	65	3	
54767	20140614	229	OVC003	65	0	
54767	20140614	236	OVC003	65	3	
54767	20140614	252	OVC003	65	0 T	
54767	20140614	259	OVC003	65	0	
54767	20140614	313	OVC002	65	3	
54767	20140614	322	OVC002	65	0	
54767	20140614	352	OVC003	65	0	
54767	20140614	429	OVC002	65	0	
54767	20140614	441	OVC002	65	3	
54767	20140614	452	OVC002	65	0	
54767	20140614	550	OVC002	64	3	
54767	20140614	552	OVC002	65	3	
54767	20140614	607	BKN002 BKN013 OVC022	65	0	
54767	20140614	622	SCT002 SCT023	66	0	

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54767	20140614	652	FEW003	67	0	
54767	20140614	752	FEW013 BKN110	68	6	
54767	20140614	819	BKN015 BKN110	68	3	
54767	20140614	852	OVC015	67	7	
54767	20140614	904	OVC014	67	5	
54767	20140614	917	OVC015	67	7	
54767	20140614	952	OVC015	68	6	
54767	20140614	1052	OVC019	69	9	
54767	20140614	1152	OVC022	70	9	
54767	20140614	1252	OVC027	72	6	
54767	20140614	1328	OVC032	74	7	
54767	20140614	1352	BKN034 OVC042	74	9	
54767	20140614	1452	FEW042 OVC050	74	10	
54767	20140614	1552	FEW055	74	8	
54767	20140614	1652	CLR	72	13	
54767	20140614	1752	CLR	70	16	
54767	20140614	1852	CLR	64	13	
54767	20140614	1952	CLR	60	9	
54767	20140614	2052	CLR	58	3	
54767	20140614	2152	CLR	57	3	
54767	20140614	2252	CLR	56	3	
54767	20140614	2352	CLR	53	0	
54767	20140615	52	CLR	55	0	
54767	20140615	152	CLR	53	0	
54767	20140615	252	CLR	52	3	
54767	20140615	352	CLR	50	0	
54767	20140615	452	CLR	55	5	
54767	20140615	552	CLR	58	6	
54767	20140615	652	CLR	62	10	
54767	20140615	752	CLR	65	18	T
54767	20140615	852	CLR	67	20	T
54767	20140615	952	CLR	70	15	T
54767	20140615	1052	CLR	72	13	T
54767	20140615	1152	FEW046	74	9	T
54767	20140615	1252	FEW048	76	10	T
54767	20140615	1352	BKN049	77	9	T
54767	20140615	1452	CLR	79	9	T
54767	20140615	1552	CLR	78	13	T
54767	20140615	1652	CLR	77	13	T
54767	20140615	1752	CLR	76	9	T
54767	20140615	1852	CLR	73	8	T
54767	20140615	1952	CLR	70	3	T
54767	20140615	2052	CLR	63	5	
54767	20140615	2152	CLR	62	3	
54767	20140615	2252	CLR	60	3	
54767	20140615	2352	CLR	57	5	
54767	20140616	52	CLR	57	0	

Weather Data

TRC-AIM Project: CT, MA, and RI Sites

54767	20140616	152	CLR	54	0
54767	20140616	252	CLR	53	0
54767	20140616	352	CLR	52	0
54767	20140616	452	CLR	52	0
54767	20140616	552	CLR	55	0
54767	20140616	652	CLR	60	0
54767	20140616	752	CLR	67	3
54767	20140616	852	CLR	71	0
54767	20140616	952	CLR	74	3
54767	20140616	1052	CLR	74	5
54767	20140616	1152	CLR	76	5
54767	20140616	1252	CLR	78	
54767	20140616	1352	CLR	80	10
54767	20140616	1452	CLR	80	6
54767	20140616	1552	CLR	81	6
54767	20140616	1652	CLR	79	9
54767	20140616	1752	CLR	74	9
54767	20140616	1852	CLR	71	6
54767	20140616	1952	CLR	68	7
54767	20140616	2052	CLR	65	3
54767	20140616	2152	CLR	63	0
54767	20140616	2252	CLR	61	0
54767	20140616	2352	SCT075	60	0
54767	20140617	52	FEW075	59	0
54767	20140617	152	FEW070 BKN090	59	0
54767	20140617	252	BKN090	59	0
54767	20140617	352	CLR	58	0
54767	20140617	452	FEW055	59	0
54767	20140617	552	CLR	63	0
54767	20140617	652	CLR	65	0
54767	20140617	752	CLR	70	0
54767	20140617	852	CLR	76	6
54767	20140617	952	FEW023	78	8
54767	20140617	1052	CLR	80	5
54767	20140617	1150	BKN028 BKN035	82	8
54767	20140617	1152	BKN030 BKN035	81	3
54767	20140617	1252	FEW037 SCT055	83	7
54767	20140617	1352	SCT035 BKN042 BKN055	84	7
54767	20140617	1452	BKN037	84	13
54767	20140617	1552	CLR	84	13
54767	20140617	1652	CLR	83	9
54767	20140617	1752	CLR	81	9
54767	20140617	1852	CLR	79	8
54767	20140617	1952	CLR	76	6
54767	20140617	2052	CLR	73	6
54767	20140617	2152	CLR	71	6
54767	20140617	2252	CLR	70	5

Weather Data

TRC-AIM Project: CT, MA, and RI Sites

54767	20140617	2352	CLR	69	5	
54767	20140618	52	CLR	69	5	
54767	20140618	152	SCT048 BKN060 BKN080	70	7	
54767	20140618	252	CLR	74	0	
54767	20140618	352	FEW055	69	3	
54767	20140618	452	CLR	69	0	
54767	20140618	552	CLR	70	0	
54767	20140618	652	CLR	74	6	
54767	20140618	752	FEW032	79	9	
54767	20140618	852	SCT035	80	15	T
54767	20140618	952	FEW034	80	11	T
54767	20140618	1052	SCT040	80	14	T
54767	20140618	1152	FEW049	80	16	T
54767	20140618	1252	FEW042	81	16	T
54767	20140618	1352	BKN045	83	14	T
54767	20140618	1452	CLR	83	10	
54767	20140618	1552	FEW048	83	10	
54767	20140618	1652	CLR	83	9	
54767	20140618	1752	CLR	80	9	
54767	20140618	1852	CLR	77	5	
54767	20140618	1952	CLR	75	6	
54767	20140618	2052	CLR	73	0	
54767	20140618	2152	BKN110	71	3	
54767	20140618	2252	CLR	68	0	
54767	20140618	2352	CLR	69	0	
54767	20140619	52	CLR	69	0	
54767	20140619	152	FEW110	67	0	
54767	20140619	252	BKN110	68	0	
54767	20140619	352	FEW110	66	0	
54767	20140619	452	BKN110	67	3	
54767	20140619	552	OVC110	66	0	
54767	20140619	652	OVC110	66	0	
54767	20140619	752	OVC100	67	3	
54767	20140619	809	FEW006 BKN100 OVC120	67	0	
54767	20140619	823	FEW006 SCT033 OVC100	67	3	
54767	20140619	852	SCT033 BKN100 OVC120	67	5	
54767	20140619	926	FEW007 SCT042 BKN110	67	0	
54767	20140619	952	SCT007	69	3	
54767	20140619	1043	FEW011 SCT016 BKN021	72	5	
54767	20140619	1052	BKN014 BKN022	72	5	
54767	20140619	1101	BKN016 BKN020	73	3	
54767	20140619	1112	SCT016	73	3	
54767	20140619	1152	FEW030 SCT038	76	6	
54767	20140619	1252	FEW030 SCT042 BKN050	78	9	
54767	20140619	1352	FEW037	79	8	
54767	20140619	1452	CLR	80	7	
54767	20140619	1552	SCT065	83	9	

54767	20140619	1652	BKN065	81	5
54767	20140619	1752	CLR	77	6
54767	20140619	1852	CLR	73	0
54767	20140619	1952	CLR	68	3
54767	20140619	2052	CLR	63	0
54767	20140619	2152	CLR	61	0
54767	20140619	2252	CLR	59	0
54767	20140619	2352	CLR	58	0

Appendix D

Sample Site and Acoustic Equipment Setting Summary

Appendix D

Sample Site and Acoustic Equipment Setting Summary

Sample Pt	Line/Facility	County	State	Latitude (N)	Longitude (W)	Habitat	Start Date	Detector #	Staff*	Vertical Angle (°)	Bearing (° Magnetic)	Height (m)	Dist to Clutter (m)
H-SP-1	Mainline T/U & Relay	Rockland	NY	41.20783	-74.05373	Forest/ROW Edge	5/28/14	689	MSF	45	225	2	40
H-SP-2	Mainline T/U & Relay	Rockland	NY	41.21724	-74.04795	Forest/ROW Edge	5/28/14	617	MSF	45	75	2	70
H-SP-3	Mainline T/U & Relay	Rockland	NY	41.22662	-74.0406	Forest/ROW Edge	5/28/14	688	MSF	45	210	2	70
H-SP-4	Mainline T/U & Relay	Rockland	NY	41.23259	-74.03658	Forest/ROW Edge	5/28/14	651	MSF	45	131	2	23
H-SP-5	Mainline T/U & Relay	Rockland	NY	41.2384	-74.02237	Stream Corridor	6/2/14	689	MSF	45	8	2.1	12
H-SP-6	Mainline T/U & Relay	Rockland	NY	41.24103	-74.02103	Forest/ROW Edge	6/2/14	617	MSF	45	359	1.9	20
SP-Y-1	Mainline T/U & Relay	Rockland	NY	41.24961	-74.00891	Forest/ROW Edge	6/2/14	688	MSF	45	123	1.6	20
SP-Y-2	Mainline T/U & Relay	Rockland	NY	41.25592	74.00214	Forest/ROW Edge	6/2/14	651	MSF	45	164	1.1	40
SP-Y-3	Mainline T/U & Relay	Rockland	NY	41.25902	-73.99903	Forest/ROW Edge	6/2/14	659	MSF	45	284	1.5	20
SP-Y-4	Mainline T/U & Relay	Rockland	NY	41.26481	-73.98035	Forest/ROW Edge	6/4/14	651	MSF	45	8	1.5	30
SP-Y-5	Mainline T/U & Relay	Rockland	NY	41.26352	-73.98088	Stream Corridor	6/4/14	659	MSF	45	195	2.5	15
SP-Y-6	Mainline T/U & Relay	Westchester	NY	41.25821	-73.96052	Road Corridor	6/4/14	689	MSF	45	3	1.5	10
SP-Y-7	Mainline T/U & Relay	Westchester	NY	41.26252	-73.94581	Road Corridor	6/4/14	617	MSF	45	210	2.1	30
SP-Y-8	Mainline T/U & Relay	Westchester	NY	41.26359	-73.94212	Over Still Water/Wetland	6/4/14	688	MSF	45	144	2	10
SP-Y-9	Mainline T/U & Relay	Westchester	NY	41.26841	-73.9332	Over Still Water/Wetland	6/10/14	622	MSF	45	140	2	30
SP-Y-10	Mainline T/U & Relay	Westchester	NY	41.26287	-73.92406	over Still Water/Pond	6/10/14	651	MSF	45	300	2	25
SP-Y-11	Mainline T/U & Relay	Westchester	NY	41.26348	-73.91579	Road Corridor	6/10/14	659	MSF	45	120	2	25
SP-Y-12	Mainline T/U & Relay	Westchester	NY	41.26838	-73.90366	Road Corridor	6/10/14	689	MSF	45	158	2	15
SP-Y-13	Mainline T/U & Relay	Westchester	NY	41.27561	-73.89339	Forest/ROW Edge	6/10/14	688	MSF	45	270	2	35
SP-Y-14	Mainline T/U & Relay	Westchester	NY	41.28341	-73.88443	Over Still Water/Wetland	6/12/14	617	MSF	45	30	1.5	10
SP-Y-15	Mainline T/U & Relay	Westchester	NY	41.28774	-73.87891	Forest/ROW Edge	6/12/14	622	MSF	45	290	2.1	23
SP-Y-16	Mainline T/U & Relay	Westchester	NY	41.29154	-73.86790	Forest/ROW Edge	6/12/14	651	MSF	45	133	2.2	10
SP-Y-17	Mainline T/U & Relay	Westchester	NY	41.29544	-73.85264	Over Still Water/Wetland	6/14/14	689	MSF	45	228	2	20
SP-Y-18	Mainline T/U & Relay	Westchester	NY	41.29852	-73.84765	Forest/ROW Edge	6/14/14	659	MSF	45	108	2	30
SP-Y-19	Mainline T/U & Relay	Westchester	NY	41.30414	-73.83481	Forest/ROW Edge	6/14/14	688	MSF	45	34	2	35
1A	Southeast, NY-MLV19	Fairfield	CT	41.384858	-73.534661	Forest/ROW Edge	6/7/14	48	KO	45	281	1.5	50
2A	Southeast, NY-MLV20	Fairfield	CT	41.38741	-73.5221	Forest/ROW Edge	6/7/14	55	KO	45	51	2	50
3A	Southeast, NY-MLV21	Fairfield	CT	41.394167	-73.507	Forest/ROW Edge	6/7/14	2	BC	45	230	1.5	30
4A	Southeast, NY-MLV22	Fairfield	CT	41.4	-73.493333	Forest/ROW Edge	6/7/14	29	KO	45	70	2	30
5A	Southeast, NY-MLV23	Fairfield	CT	41.3992	-73.49329	Forest/ROW Edge	6/7/14	26	KO	45	80	1.5	30
6A	Southeast, NY-MLV24	Fairfield	CT	41.405389	-73.481917	Open Field/Forest Edge	6/7/14	52	BC	45	227	1.5	100
7A	Southeast, NY-MLV25	Fairfield	CT	41.410494	-73.47305	Landscaped/Forest Edge	6/7/14	51	BC	45	258	1.5	30
8A	Line 36 A Loop Ext.	Middlesex	CT	41.632972	-72.661222	Forest/ROW Edge	6/14/14	48	BC	45	95	1.5	30
9A	Line 36 A Loop Ext.	Middlesex	CT	41.634139	-72.652583	Forest/ROW Edge	6/14/14	26	BC	45	245	1.5	45
10A	Line 36 A Loop Ext.	Hartford	CT	41.63875	-72.639139	Old Field/Forest Edge	6/14/14	52	BC	45	228	1.5	30
11A	E1 Sys Lat T/U & Relay	New London	CT	41.65845	-72.218	Forest/ROW Edge	5/30/14	29	KO, BC	45	151	1.5	50
12A	E1 Sys Lat T/U & Relay	New London	CT	41.65175	-72.211283	Forest/ROW Edge	5/30/14	31	KO, BC	45	100	1.5	70
13A	E1 Sys Lat T/U & Relay	New London	CT	41.645117	-72.203417	Hedgerow/Old Field Edge	5/30/14	28	BC	45	155	1.5	50
14A	E1 Sys Lat T/U & Relay	New London	CT	41.6428	-72.201889	Stream Corridor	5/30/14	54	KO	45	247	1.5	20
15A	E1 Sys Lat T/U & Relay	New London	CT	41.63185	-72.18935	Forest/ROW Edge	5/30/14	52	BC	45	320	1.5	45
16A	E1 Sys Lat T/U & Relay	New London	CT	41.6252	-72.1795	Old Field/Forest Edge	5/30/14	48	KO	45	339	1.5	40
17A	E1 Sys Lat T/U & Relay	New London	CT	41.621	-72.17425	Old Field/Forest Edge	5/30/14	26	BC	45	150	1.5	50
18A	E1 Sys Lat T/U & Relay	New London	CT	41.61075	-72.164944	Forest/ROW Edge	5/30/14	55	KO, BC	45	97	1.5	75
19A	E1 Sys Lat T/U & Relay	New London	CT	41.603583	-72.158056	Forest/ROW Edge	5/30/14	51	KO, BC	45	309	1.5	50
20A	E1 Sys Lat T/U & Relay	New London	CT	41.600861	-72.153028	Forest/ROW Edge	6/5/14	55	KO, BC	45	310	1.5	50
21A	E1 Sys Lat T/U & Relay	New London	CT	41.595028	-72.142694	Forest/ROW Edge	6/5/14	29	BC, KO	45	310	1.5	75

Appendix D

Sample Site and Acoustic Equipment Setting Summary

Sample Pt	Line/Facility	County	State	Latitude (N)	Longitude (W)	Habitat	Start Date	Detector #	Staff*	Vertical Angle (°)	Bearing (° Magnetic)	Height (m)	Dist to Clutter (m)
22A	E1 Sys Lat T/U & Relay	New London	CT	41.587961	-72.13285	Over Still Water/Wetland	6/2/14	26	KO	45	31	1.5	50
23A	E1 Sys Lat T/U & Relay	New London	CT	41.585389	-72.128167	Old Field/Forest Edge	6/5/14	1	KO, BC	45	190	1.5	35
24A	E1 Sys Lat T/U & Relay	New London	CT	41.577431	-72.115108	Forest/ROW Edge	6/2/14	51	KO	45	329	1.5	40
25A	E1 Sys Lateral	New London	CT	41.481444	-72.124472	Road Corridor	6/5/14	48	KO, BC	45	180	1.5	40
26A	E1 Sys Lateral	New London	CT	41.47	-72.125417	Road Corridor	6/5/14	52	KO, BC	45	185	1.5	40
27A	Willimantic M&R Sta.	Windham	CT	41.701111	-72.21	Forest/ROW Edge	6/14/14	2	KO	45	263	1.5	60
28A	Chaplin	Windham	CT	41.82	-72.156389	Forest/ROW Edge	6/14/14	29	KO	45	55	1.5	50
No #	Burrillville	Providence	RI	41.969722	-71.750278	Landscaped/Forest Edge	6/14/14	55	KO	45	23	2	30
No #	West Roxbury M&R Sta	Suffolk	MA	42.27	-71.163333	Landscaped/Forest Edge	6/10/14	MF2	KO	45	303	2	30
No #	West Roxbury 2 - Lateral	Suffolk	MA	42.255	-71.165833	Forest/ROW Edge	6/10/14	26	KO	45	53	2.5	40
No #	West Roxbury 3 - Lateral	Suffolk	MA	42.222222	-71.171389	Forest/ROW Edge	6/10/14	48	KO	45	138	2	15
No #	Assonet	Bristol	MA	41.7725	-71.098333	Old Field/Shrub Edge	6/10/14	51	KO	45	235	2.5	15

* Staff: MSF=M.S. Fishman; KO=Katie O'Connor; BC=Beth Cooper

Appendix E

Acoustic Bat Detections by Species and Site

Appendix E:

Acoustic Bat Detections by Species and Site

Site	Date	EPFU	LANO	LABO	LACI	MYLE	MYLU	MYSE	MYSO	MYLU/MYSO	PESU	Total by Night	Total by Site	Manual Check (Consensus or ByVote identified myotis)?	MYSO/MYSE concern after manual check?
NY												0			
HSP1	5/28/2014	11	22	10	2							45	189	No	
HSP1	5/29/2014	70	25	46	3							144		No	
HSP2	5/28/2014		2	3							3	8	22	Yes	1 Mylu, 2 Labo
HSP2	5/29/2014	3	2	8	1							14		No	
HSP3	5/28/2014	9	1	5	3						1	19	65	Yes	1 Myso
HSP3	5/29/2014	34	5	6	1							46		No	
HSP4	5/28/2014	1	1	2	1						1	6	35	Yes	No - 1 Mylu
HSP4	5/29/2014	1	5	16	5						2	29		Yes	No - 2 Mylu
HSP5	6/2/2014	2	1								2	5	11	Yes	No - 2 Mylu
HSP5	6/16/2014		1		1						4	6		Yes	No - 4 Mylu
HSP6	6/2/2014	45	27	3	3							78	81	No	
HSP6	6/3/2014	3										3		No	
SPY1	6/2/2014	71	9	21	5		2				3	111	182	Yes	No - 3 Mylu
SPY1	6/3/2014	65		1	2						3	71		Yes	No - 3 MYLU - 1 poor quality recording; 1 LABO/
SPY2	6/2/2014	139	13	5	8						2	167	198	Yes	No - 2 Mylu
SPY2	6/3/2014	22	8		1							31		No	
SPY3	6/2/2014	84	27	10							1	122	229	Yes	No - 1 Mylu
SPY3	6/3/2014	49	13	6	39							107		No	
SPY4	6/4/2014	45	10	17	7						1	80	160	Yes	No - 1 Mylu
SPY4	6/5/2014	16	23	34	6						1	80		Yes	No - 1 Labo
SPY5	6/4/2014	5	2	2								9	15	No	
SPY5	6/17/2014			2	4							6		No	
SPY6	6/4/2014	3	1									4	33	No	
SPY6	6/16/2014	12	7	6	1	3						29		Yes	2-3 Myle
SPY7	6/4/2014	528	9	39	3		16	1	4			600	1356	Yes	Yes - 4 possible Myso and 1 Myse
SPY7	6/5/2014	501	2	186			12		1		54	756		Yes	Yes - possible Myso
SPY8	6/4/2014	4	5	1	2						1	13	30	Yes	No - Mylu
SPY8	6/5/2014	15	1		1							17		No	
SPY9	6/9/2014	8	10	1	9						1	29	86	Yes	No - Mylu
SPY9	6/11/2014	30	8	1	15						3	57		Yes	No - 3 Mylu
SPY10	6/9/2014	12	1	21	3						1	38	122	Yes	No - 1 Mylu
SPY10	6/11/2014	23		49	3	1					8	84		Yes	No - all Mylu
SPY11	6/9/2014	16	2	6	4							28	61	No	
SPY11	6/11/2014	19	2	7	1						4	33		Yes	No - 4 Mylu
SPY12	6/9/2014	43	22	4	3						1	73	117	Yes	No - Mylu
SPY12	6/11/2014	16	27		1							44		No	
SPY13	6/9/2014	119	22	6	4						2	153	389	Yes	No - all Mylu
SPY13	6/11/2014	187	14	21	4		2	3			5	236		Yes	Yes - 1 MYSE
SPY14	6/14/2014	5	12	2	7							26	82	No	
SPY14	6/15/2014	20	20	2	14							56		No	
SPY15	6/16/2014	33	12	2	9							56	133	No	
SPY15	6/17/2014	53	9	3	9						3	77		Yes	No - all Mylu
SPY16	6/12/2014	57	5	4	1		1					68	128	Yes	No - 1 MYLU
SPY16	6/17/2014	39	10	1	7						3	60		Yes	No - 3 MYLU
SPY17	6/14/2014	1										1	5	No	

Appendix E

Acoustic Bat Detections by Species and Site

SPY17	6/15/2014	2	1		1						4	No		
SPY18	6/14/2014	17	2	6			1				26	149	Yes	No - 1 poor quality call - MYLU?
SPY18	6/15/2014	109	2	6	2				4		123		Yes	No - 2 poor quality MYLU calls
SPY19	6/14/2014	5	2	5	4				2		18	101	Yes	No - 2 MYLU
SPY19	6/15/2014	54	9	3	17						83		No	
CT											0			
Site1	6/7/2014	35	4	5	2		1				47	158	Yes	No
Site1	6/8/2014	89	11	11							111		Yes	No
Site2	6/7/2014	113	13	17	2		3		1		149	313	Yes	No
Site2	6/8/2014	120	26	8	8		1		1		164		Yes	No
Site3	6/7/2014										0	8	no bats detected	
Site3	6/8/2014	7		1							8		No	
Site4	6/7/2014	2	2								4	17	No	
Site4	6/8/2014	8	1				1		3		13		Yes	No
Site5	6/7/2014	81	3	16				1	4		105	175	Yes	No
Site5	6/8/2014	50	2	13			2		3		70		Yes	No
Site6	6/7/2014	42	8	25	2				3		80	144	Yes	No
Site6	6/8/2014	36	5	17	2		3		1		64		Yes	No
Site7	6/7/2014	110	5	34	2						151	230	Yes	No
Site7	6/8/2014	59	7	9	3		1				79		Yes	No
Site8	6/14/2014	85	1	61	2		1		3	1	154	725	Yes	No
Site8	6/15/2014	443	14	112	2						571		No	
Site9	6/14/2014	13		8							21	111	No	
Site9	6/15/2014	43		45	2						90		No	
Site10	6/14/2014	4	1	8							13	51	No	
Site10	6/15/2014	24	4	10							38		No	
Site11	5/30/2014	65	1	24					1		91	171	Yes	No
Site11	6/3/2014	77	1	2							80		No	
Site12	5/30/2014	2									2	27	No	
Site12	6/4/2014	17	4	2						2	25		No	
Site13	5/30/2014	8	1	7							16	173	No	
Site13	6/4/2014	153	1	2	1						157		No	
Site14	6/4/2014	28	4	3	3						38	38	No	
Site14	6/5/2014										0		no bats identified	
Site15	5/30/2014	5		1					1		7	52	Yes	no
Site15	6/3/2014	31	4	10							45		No	
Site16	5/30/2014	137	3	9		7					156	519	Yes	No
Site16	6/3/2014	336	12	10	3	2					363		Yes	No
Site17	5/30/2014	1		5							6	94	No	
Site17	6/2/2014	58	3	25		1			1		88		Yes	No
Site18	5/30/2014	3		13		1					17	194	Yes	No - MYLE
Site18	6/4/2014	133	4	39			1				177		Yes	No
Site19	5/30/2014	6		1							7	34	No	
Site19	6/2/2014	25			1					1	27		No	
Site20	6/5/2014	2									2	18	No	
Site20	6/6/2014	9	2	4					1		16		Yes	No
Site21	6/5/2014	25	4	12	1	2		1	3		48	70	Yes	No

Appendix E:
Acoustic Bat Detections by Species and Site

Site21	6/6/2014	15	1	2		1		1			22	Yes		No - MYLE
Site22	6/2/2014	6	3	30	3		1			3	46	57	Yes	No
Site22	6/6/2014	1	3	2	4					1	11		No	
Site23	6/5/2014										0	0	no bats detected	
Site23	6/6/2014										0		no bats detected	
Site24	6/2/2014	94	7	110		9			1	1	222	459	Yes	No
Site24	6/14/2014	52	2	182						1	237		Yes	No - Sonobat classifies all as MYLE by vote
Site25	6/5/2014	6		1							7	121	No	
Site25	6/6/2014	78	2	31		2				1	114		Yes	No
Site26	6/5/2014	46	2	361	1	3	1		1	25	440	1218	Yes	No - MYLE and MYLE/MYLU and MYLE/LABO
Site26	6/6/2014	177	7	588	4	1				1	778		Yes	No
Site27	6/14/2014	2	1								3	9	No	
Site27	6/15/2014	4	2								6		No	
Site28	6/14/2014				2						2	136	No	
Site28	6/15/2014	70	8	6	50						134		No	
RI														
Burriville	6/14/2014	165	4	81	3						253	426	No	
Burriville	6/15/2014	112	4	25	32						173		Yes	No
MA											0			
WR1	6/10/2014	1									1	1	No	
WR1	6/11/2014										0		no bats identified	
WR2	6/10/2014										0	0	no bats detected	
WR2	6/11/2014										0		no bats detected	
WR3	6/10/2014	17	1	6							24	38	No	
WR3	6/11/2014	10		4							14			
Assonet	6/10/2014			7							7	15	No	
Assonet	6/11/2014		1	6	1						8		No	
Total by Species		5947	613	2590	353	35	50	5	9	170	9			
Total Bats		9781										9781		

Appendix E
Acoustic Bat Detections by Species and Site

MYLU prob MYLU

Appendix F

Qualifications

Michael S. Fishman, CWB, PWS, QIBS

Managing Senior Environmental Scientist

Summary

Mr. Fishman has more than 20 years of experience working with bats, and more than 25 years as a practicing wildlife biologist designing, implementing, and managing wildlife (especially threatened and endangered species) survey, inventory, and monitoring projects in 25 states. His survey experience includes inventories of mammals, birds, reptiles, amphibians, and a variety of terrestrial and aquatic invertebrates and fish. He has extensive experience in the use of both capture-based and observational-based sampling techniques, as well as radio-telemetry of bats and birds. Mr. Fishman was the first consultant in New York State to be licensed to perform federal protocol surveys for Indiana bats. He initiated an independent research program, the Long Island Century Bat Survey, in 2012, which yielded significant findings, including the largest remaining concentration of Northern Long-eared Bats in the Northeast. He has been the principal investigator on numerous bat surveys on sites up to 35,000 acres in area. In addition he has performed many Endangered Species Act formal consultations with the U.S. Fish & Wildlife Service, accomplishing clients' land use goals, while protecting endangered species.

Relevant Project Experience

Large Scale Bat Surveys

Algonquin Incremental Market Project Acoustic Bat Survey, Westchester County, NY, Various Locations in CT, MA, and RI, 2014
Conducted federal protocol acoustic surveys for bats at 25 sites along linear gas pipeline corridors proposed for upgrades. Included deploying acoustic detectors, analyzing calls using Sonobat and Kaleidoscope bat call identification software, and visually vetting high frequency (>35 kHz) calls to determine whether they were Indiana bats or northern long-eared bats.

Eastern Ohio Gas Pipeline Bat Survey, St. Clairsville, OH, 2013
Conducted mist net and acoustic surveys for Indiana bats at multiple sites along a ±50-mile proposed gas pipeline right-of-way. Included identifying and selecting sample sites, setting up equipment, capturing and handling bats, processing and vetting acoustic recordings, and documenting findings on data sheets.

Brookhaven National Laboratory Bat Survey, Upton, NY, 2012-2013
Conducted mist net and acoustic surveys for all bat species on a U.S. Department of Energy national laboratory facility. Sampled a variety of terrestrial forested habitats, as well as coastal plain ponds and drainage structures. Also conducted comparative study of bat habitat use in burned and unburned Pitch Pine (*Pinus rigida*) forest, and sampled perimeter area of solar power array to determine bat use of this man-altered habitat.

Education

B.S. (1988), Natural Resources, Wildlife & Aquatic Sciences, Cornell University College of Agriculture and Life Sciences

M.S. (2014), Conservation Biology, State University of New York College of Environmental Science and Forestry

Professional Certifications

Certified Wildlife Biologist (CWB®)
Certified Professional Wetland Scientist (PWS)
USFWS/State Qualified Indiana Bat Surveyor in NY, OH and PA

Professional Affiliations

NY Chapter, The Wildlife Society
Past President, 2014-15
President, 2012-14
President-Elect, 2011-12
Vice President, 2010-11
Northeast Bat Working Group
Past President, 2013-14
Chair, 2012-13
Co-Chair, 2011-12
North American Society for Bat Research (NASBR)
2014 Conference Committee
New York State Wetlands Forum
Board of Governors, Vice Chair 2006-2013

Michael S. Fishman, CWB, PWS, QIBS

Managing Senior Environmental Scientist

Wertheim National Wildlife Refuge Bat Survey, Brookhaven, NY 2012
Conducted mist net and acoustic surveys for all bat species on a U.S. Department of Interior Fish & Wildlife Service Refuge, including sampling a variety of terrestrial forested habitats and estuarine streams. Detected or captured 7 species of bats.

Endless Mountains Region Bat Survey, North-central Pennsylvania, 2010
Served as Principal Investigator and conducted mist net surveys for all bat species over a 35,000 acre area, including private lands and state forest lands in north-central Pennsylvania to determine potential impacts to bats from proposed Marcellus Shale gas development. Oversaw operations of 6 field teams, each led by a Qualified Indiana Bat Surveyor (QIBS). Completed the study in 6 weeks, meeting all federal and state protocol requirements.

West Point Military Reservation Bat Survey, Highland, NY, 2008
Conducted mist net surveys for all bat species on a U.S. Department of Defense Military Reservation, including sampling of a variety of terrestrial and riparian habitats. Conducted comparative study of bat species distributions on the site pre and post-White-Nose Syndrome. Study was presented at the 2011 North American Symposium on Bat Research in Toronto, ONT, Canada, and was awarded the Organization for Bat Conservation Award.

Mist Net Bat Surveys: Principal investigator for federal protocol mist net surveys for Indiana bats and general bat mist net surveys on more than 150 sites. Included project design, equipment acquisition and coordination of field survey operations, identification of potential habitat, all bat species, and preparation of project reports:

- Long Island Century Bat Survey, Long Island, NY, August 2014**
- Brookhaven National Laboratory Bat Survey, Year 3, Upton, NY, July 2014**
- Brookhaven National Laboratory Bat Survey, Year 2, Upton, NY, August 2013**
- Eastern Ohio Pipeline Indiana Bat Survey, St. Clairsville, OH, July 2013**
- Pennsylvania Department of Transportation, State Route 219 Mine Portal Bat Survey, September/October 2012.**
- Development Authority of the North Country, Solid Waste Management Facility Southern Expansion Bat Survey, August 2012**
- Adriance Farm Bat Survey, Season 3, Clinton, NY, August 2012**
- Adams Fairacre Farms – Post Construction Bat Survey, Wappinger, NY, August 2012**
- Brookhaven National Laboratory Bat Inventory, Upton, NY, July 2012**
- Wertheim National Wildlife Refuge Bat Inventory, Brookhaven, NY, July 2012**
- Esopus Farm Indiana Bat Survey, Esopus, NY, June 2012**
- Adriance Farm Bat Survey, Season 2, Clinton, NY, August 2011

- Obercreek Bat Survey, Wappinger, NY, August 2011
- Ohioville Acres Bat Survey, Gardiner, NY, July 2011
- Adriance Farm (Year 2), Clinton, NY 2011
- Spectra Energy Bat Survey, Ramapo, NY, June 2011**
- Laurel Mountain Pipeline Bat Survey, PA, May-June 2011
- Floyd Bennett Memorial Airport Bat Survey, ±60 acres, Warren County, NY 2010
- Marshlands Well Field Bat Survey, 52,000 acres, Tioga and Potter Counties, PA 2010**
- Adams Fairacre Farms, 12 acres, Wappingers Falls, NY 2010
- Adriance Farm, ±60 acres, Clinton, NY 2010*
- Stewart Airport, ±80 acres, New Windsor, NY 2009
- West Point Military Reservation, ±16,000 acres, West Point, NY 2008
- Savannah Multi-Use Development Property, Montgomery, NY, 2008
- Container Intermodal Distribution Site, Minoa, NY, 2008
- Syracuse Airport Safety Zone, Syracuse, NY, 2008
- Silo Ridge Golf Course and Residential Development, Amenia, NY, 2007
- Timber Banks Golf and Residential Development Site, ±800 acres, Lysander, NY, 2007
- Riverwalk Residential Subdivision, Clay, NY, 2007
- Hudson Crossings Distribution Center, Hamptonburgh, NY, 2007*
- Hyde Park Residential Subdivision, Hyde Park, NY, 2006*
- Master's Degree Research for Habitat Characterization of Indiana Bats in Central New York, 2006-2008* (about 25 sites)
- Harbor Heights Residential Subdivision, Baldwinsville, NY, 2005*
- Carvel Property Multi-Use Development, Milan and Pine Plains, NY, 2005*
- Esopus Lake Federal Protocol Indiana Bat Survey, Esopus, NY, 2005*
- Glasco Ponds Site Federal Protocol Indiana Bat Survey, Saugerties, NY, 2005*
- Oot Brothers Parcel Bat Monitoring, East Syracuse, NY, 2005*
- Kingston Brickyard Residential Redevelopment Site, Ulster County, NY, 2004
- Air Force Research Laboratory Youngstown Site, Niagara, NY, 2001*
- Finger Lakes National Forest, Schuyler and Seneca Counties, NY, 2000-2001*

*included acoustic monitoring for bats using *Anabat* equipment/software
**included acoustic monitoring for bats using *Binary Acoustics* or *Wildlife Acoustics* equipment/software and visual vetting of calls

Bat Hibernacula Surveys (Caves and Mines): these projects included conducting surveys and censuses for all bat species in both caves and mines, including conducting onsite counts and photographing bats for remote counting.

- Pennsylvania Department of Transportation, State Route 219 Mine Portal Bat Survey, September/October 2012.**

- Jamesville Bat Hibernaculum Census, Onondaga County, NY, 2005, 2007, 2009-2011
- Jamesville Hibernaculum Swarming Study, Onondaga County, NY, 2004
- Jamesville Hibernaculum Spring Emergence Study, Onondaga County, NY, 2006
- Williams Hotel Mine Hibernaculum Census, Ulster County, NY, 2001-2013
- Williams Lake Mine Hibernaculum Census, Ulster County, NY, 2001-2011
- Williams Preserve Mine Hibernaculum Census, Ulster County, NY, 2001-2013
- Barton Hill Mine Hibernaculum Census, Essex County, NY, 1991, 2001-2013
- Glen Park Cave Hibernaculum Census, Jefferson County, NY 2007

Cave/Portal Surveys: These projects included aerial and ground level surveys for mine openings and caves by walking transects through probably sites (history of mining, or karst geology), and investigation of caves/mines for bat roosting suitability.

- Pennsylvania Department of Transportation, State Route 219 Mine Portal Bat Survey, September/October 2012.**
- Adriance Farm, Clinton, NY, 2010
- Williams Lake Hotel Site, Rosendale, NY, 2007 (Identified more than 100 mine openings, including a new entrance to a known Indiana bat hibernaculum)
- West Point Military Reservation, Highland, NY, 2008
- Carvel Property, Milan, NY, 2005
- Split Rock Site, Ramapo, NY, 2004
- Kingston Brickyard Site, Kingston, NY, 2004

Bat Radio-Telemetry Studies: these studies included the capture, radio-marking, and radio-tracking of bats to identify day roosts (static tracking), as well as to map foraging areas (fixed station triangulation).

- Laurel Mtn, Pipeline, PA, 2011 (female Silver Haired Bat)
- Riverwalk Residential Subdivision, Clay, NY, 2007
- Hudson Crossings Distribution Center, Hamptonburgh, NY, 2007
- Master's Degree Research for Habitat Characterization of Indiana Bats in Central New York, 2006-2008
- Williams Lake Hibernaculum Emergence Study, Ulster Co, NY, 2004-2007
- Jamesville Hibernaculum Emergence Study, Jamesville, NY, 2006
- Glen Park Indiana Bat Emergence Monitoring, Jefferson County, NY, 2005
- Barton Hill Indiana Bat Radio Telemetry Project, Essex County, NY, 2001

Endangered Species Act (ESA) Section 7 Consultations for Bats: these projects included development of mitigation strategies to avoid or minimize the likelihood of take of Indiana bats due to proposed development activities. Projects marked

with a (*) included preparation of a Biological Assessment in compliance with ESA Section 7.

- LaGrange Town Center, 2011-14*
- Hudson River Valley Resort, 2010-14
- Stewart Airport Informal Consultation, 2010
- Woodstock Commons Indiana Bat Informal Consultation, 2009-11
- Adams Fairacre Farms Indiana Bat Formal Consultation, 2009*
- Esopus Lake Residential Subdivision Formal Consultation, 2007-8*
- Timber Banks Golf and Residential Development Informal Consultation, Lysander, NY, 2007*
- Riverwalk Residential Subdivision, Informal Consultation, Clay, NY, 2007*
- Hudson Crossings Distribution Center, Informal Consultation, Hamptonburgh, NY, 2007*
- Iron Mountain Storage Facility, Informal Consultation, Rosendale, NY, 2006
- Moore Farm Residential Subdivision Site, Informal Consultation, Dutchess County, NY, 2004
- Seven Springs Farm Golf Course/Residence Site, Informal Consultation, Westchester County, NY, 2004

Presentations/Publications/Seminars/Research

- "Indiana bat day roost selection and characteristics in the Ontario Lake plain of New York", poster accepted for exhibit at The Wildlife Society 2014 Annual Meeting, Pittsburgh, PA, October 2014.
- "Habitat Modeling for Indiana Bats in Central New York" – Presentation at the Northeast Bat Working Group 2014 Annual Meeting, Clinton, NJ, January 2014.
- "Long Island's Bats" – Invited presentation at the 2nd Annual Long Island Natural History Conference, Long Island, NY, December 2013
- "Bats of the Barrens" – Invited presentation at the 18th Annual Long Island Pine Barrens Research Forum, Long Island, NY, October 2013
- "Introducing the New 2013 Indiana bat Summer Survey Guidelines", presentation at the 2013 Annual Meeting of the New York State Wetlands Forum, Lake George, NY, April 2013.
- "Bats of Long Island, NY", presentation at the 2013 Northeast Natural History Conference, Springfield, MA, April 2013
- "Bats of Long Island", presentation at the 2013 Annual Meeting of the Northeast Bat Working Group, Albany, NY, January 2013
- "Indiana Bat Roost Selection in the Southern Ontario Lake Plain of New York", primary author/presentation at the 42nd Annual North American Symposium on Bat Research, San Juan, Puerto Rico, October, 2012

Michael S. Fishman, CWB, PWS, QIBS

Managing Senior Environmental Scientist

- "Bat Species Frequency Distribution Shift After White-Nose Syndrome Reaches the West Point Military Reservation", primary author of poster presentation at the 41st Annual North American Symposium on Bat Research, Toronto, ONT, Canada. Received the *Organization for Bat Conservation Award*. October 2011.
- "Bats of New York" and Mist Netting Training Program, Invited training session at Finger Lakes Community College, Canandaigua, NY June 2011
- "White Nose Syndrome – What Happened, Where Are We, and Where Are We Going?", Invited Keynote Address to the Northeast Wildlife Conclave, State University of New York, Cobleskill, NY, April 2011
- "Landscape Metrics of Indiana Bat Habitat in Central New York", invited presentation to the Northeast Natural History Conference, Albany, NY, April 2011
- "Bat Species Frequency Distributions Pre and Post White-nose Syndrome at West Point Military Reservation", presentation to the 21st Annual Mammal Colloquium and Annual Meeting of the Northeast Bat Working Group, Louisville, KY, March 2011
- "White Nose Syndrome: What We Know So Far," invited presentation to the community of Rosendale, Rosendale, NY, March 2009.
- "A Comparison of Bat Surveys at the West Point Military Reservation Pre- and Post-White Nose Syndrome," primary author of poster presented at the Northeast Fish & Wildlife Conference, Lancaster, PA, April, 2009.
- "Habitat Use by a Female Indiana Bat at an Urban-Rural Interface in Central New York at Multiple Spatial Scales," primary author of poster presented at the Northeast Natural History Conference, Albany, NY, May 2008.
- "Summer Habitat Selection of the Indiana Bat (*Myotis sodalis*) in Central New York, USA," presentation at the New York State Wetlands Forum Annual Meeting, Seneca Falls, NY, April 2008.
- "Indiana Bat Emergence Studies Continued: The Jamesville 2006 Release," invited presentation at the 2007 Annual Meeting of the New York State Wetlands Forum, Lake Placid, NY, April 2007.
- "Saving Your Project From the Endangered Species List," invited article in the New York State Real Property Law Journal, 33(3), Summer, 2005.
- "Living With Uncertainty: The Indiana Bat in New York," invited presentation at the New York State Wetlands Forum Annual Meeting, Glens Falls, NY, April, 2005.
- "The Endangered Species Consultation Process," invited presentation before the Erie County Bar Association's Environmental Committee, Buffalo, NY, January, 2005

- "Bats of New York," invited lecture for the Field Biology Class (Prof. Charles R. Smith) at Cornell University's Natural Resources Department, Ithaca, NY, October, 2004-2010.

KATHLEEN E. O'CONNOR

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Albany, NY, 12203
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kteoconnor@gmail.com

EDUCATION: **UNION COLLEGE,** *Schenectady, New York* **June 2010**
B.S. in Biology

RECENT WORK HISTORY:

Wildlife Technician, Department of Environmental Conservation, *Albany, NY* **August 2010-current**

- Perform various duties for the Endangered Species Unit--work primarily focused on bats.
- Use Microsoft Access and geodatabase ArcMap to keep tally of winter bat populations, count photographs of bats, and quantify fungal infections present on their faces and ears.
- Survey bat populations at local caves and mines; taking notes on species present, cluster size, and overall count. In addition to counts, some projects include additional goals, such as swabbing bats, taking substrate samples, or installation of equipment.
- Perform data analysis and volunteer coordination for the acoustic program, including manual analysis of all calls recorded on routes throughout New York State during the month of June.
- Rabies vaccinated, September 2010. Titer check September 2013.

Technician, Cary Institute of Ecosystem Studies, *Milbrook, NY* **Summer 2009**

- Field techniques including trapping and handling of small mammals (mice, chipmunks, squirrels), meso-mammals (opossums and raccoons), and birds.
- Also directly involved in the animal husbandry, feeding animals and ensuring their general well-being.
- Independent research on internal parasites of squirrels involved floatation techniques, the use of McMaster slides, and identification of parasitic eggs.
- Summer research provided data for a two-term senior thesis in the fall and winter of 2009-2010

RESEARCH EXPERIENCES:

Senior Thesis: **2009/2010**

- Independent research involved microscopic examination and identification of helminth eggs and protozoan cysts found in squirrels and chipmunks.
- Independent research and review of relevant literature culminated in a thesis submitted for Honors in Biological Science at Union College. Project is ongoing, and with further data, may result in co-authorship on a publication.
- Research presented at the National Conference of Undergraduate Research (NCUR) in Missola, Montana in April 2010 and at Steinmetz Symposium at Union College in May 2010.

Term Abroad Research Experience in Palermo, Italy: Consiglio Nazionale delle Ricerche **Spring 2009**

- Worked directly with researchers in the labs of the CNR on projects relating to the biochemistry and biophysics of Alzheimer's disease.
- Practiced precise preparation of solutions and samples for analyses using Dynamic Light Scattering, CD spectrometry, and fluorescence machines.

ACCOMPLISHMENTS AND EXTRACURRICULARS:

- Member of Phi Beta Kappa and Sigma Xi, academic honor societies.
- Music Minor, with years of choir and a senior recital on pipe organ.
- Grew up in the mountains of southwestern Virginia, on 55 acres of land with nine horses and four siblings.

Michael D. Clark

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Maplecrest, NY 12454
(518) 209-6556
Clarky711@aol.com

EMPLOYMENT:

New York State Department of Environmental Conservation (NYS DEC), Stamford, NY
Wildlife Biologist I –December 2010 to present

- Regional Sportsman Education Coordinator
- Manage over 350 volunteer sportsman education instructors within 9 counties
- Train all new instructors for Hunter Ed, Bowhunter Ed, Trapping and Waterfowl ID
- Maintain, inventory, and distribute all necessary materials, firearms, ammunition and supplies to instructors.
- Participate as active member with NYS DEC Furbearer Team
- Coordinate pelt sealing from wildlife and law enforcement staff within 9 counties
- Review and inspect all Article 24 Wetland Permits for Otsego County
- Participate as a Department representative with the Otsego County Sportsman Federation

New York State Department of Environmental Conservation (NYS DEC), Stony Brook, NY
Wildlife Biologist I – September 2006 to December 2010

- Deer nuisance permit and DMAP issuance and inspections
- Manage hunter check station operation
- Participate as active member with NYS DEC Deer Team
- CWD sample coordination and collection
- Work with localities on urban deer management problems and solutions
- Participate as active member with NYS DEC Wildlife Diversity Team
- Review permits involving endangered species
- Participate on Tiger Salamander recovery team

New York State Department of Environmental Conservation (NYS DEC), Albany, NY
Wildlife Technician I – June 2001 to September 2006

- Helped coordinate and implement Indiana Bat spring emergence projects, bat mist-netting, winter bat cave census counts, and mat mark/recapture study
- Coordinated/implemented initial DEC short-eared owl trapping/monitoring in Fort Edwards
- Coordinated the NYS New England Cottontail research project (2002-2005)
- Coordinated NYS waterfowl banding schedules
- Assisted state and federal biologists and technicians on various field/office projects

FIELD EXPERIENCE AND SKILLS:

Wildlife

- Bat Population Surveys in Caves/Mines
- Radio-telemetry (ground and aerial)
- Deer and Bear Aging and Sexing
- Bear and Moose Immobilization and Relocation
- CWD Tissue Preparation and Sampling
- Threatened and Endangered Herp. Surveys
- New England Cottontail Fecal Pellet Collections
- New England Cottontail Trapping
- Frog and Toad Call Identification
- Habitat (Browse) Sampling
- Mist Netting, Banding, and Aging/Sexing Bats
- Nuisance Wildlife Inspections
- Firearms Trained and Certified (DLE)

Avian

- Short-eared Owl Trapping/Telemetry Project
- T&E Shorebird Management/Protection
- Waterfowl Banding (age and sexing)
- Breeding Waterfowl Plot Surveys
- Rocket-netting (waterfowl, eagle, turkey)
- Bird Audio/Visual Identification
- Audio Marsh Bird Surveys
- Aerial Surveys (waterfowl and raptors)
- Bald Eagle Trapping and Nestling Banding
- Aging and Sexing Turkey Legs
- Compressed Air Net Gun Use (turkey)
- Participated in USFWS Atlantic Flyaway Wingbee
- Mist Netting, Banding, Aging/Sexing Songbirds

EDUCATION:

State University of New York at Cobleskill, Cobleskill, NY 12043

- ***Bachelor of Technology Degree in Animal Science - Wildlife Management***
  Graduated with Honors - December 2004
- ***Associate of Applied Science Degree - Fisheries and Wildlife Technology***
  Graduated - August 2002

OTHER SKILLS/ACTIVITIES:

- DEC Cave Safety Training
- DEC Water Safety Training
- DEC Supervisor Health and Safety Training
- DEC Supervisor's Responsibility in Dealing with Difficult People Training
- NYS Parks Boating Safety Course
- Game of Logging – Chainsaw Training
- DEC Bloodborne Pathogen Training
- DEC Rocket Netting/Fire Extinguisher Training
- Computer Skills: Word, Excel, Power Point, Access, MapTech, and ArcMap GIS (Advanced Training)
- Presented study results via power point at various natural history conferences/meetings
- Completed Safe Capture Chemical Immobilization Class in 2001, 2004, and 2006
- Knowledge of GPS systems and orienteering
- Experienced 4WD truck, ATV, boat, snowmobile, and trailer operator
- Experienced mechanical and engine repair on automobiles, boats, snowmobiles, and ATVs
- Rabies vaccinated in 2002 with successful titers
- Avid hunter, fisherman, and trapper
- Achieved Boy Scout Eagle Scout Award in 1998
- CPR, AED, and First Aid Certified
- Strong leadership abilities
- Comfortable public speaking abilities
- Works well individually or in groups

REFERENCES:

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emcooper@gw.dec.state.ny.us
126 Prospect Street Apt. 2
Schoharie, NY 12157

WORK EXPERIENCE:

Dec 2007-Present

Fisheries & Wildlife Technician 1
New York State Department of Environmental Conservation Bureau of Wildlife, Schenectady, NY

- Regularly provide technical coverage for 2 counties, including but not limited to review of project applications, issuance of permits, management activities on State Lands, and public outreach events.
- Assist with other wildlife activities including but not limited to: bat surveys, herp surveys, Game and non-game bird banding, hunter surveys, sportsman education, and answering various information requests by the general public.
- Trapped Short-eared Owls using bow nets, Bal-Chatri traps, and pole traps
- White-tail Deer reproductive study: coordinated with State, County, and Town Highway Departments in 4 counties to obtain deer carcasses, conducted field necropsies to collect reproduction, age, and condition data; recorded and summarized data.

Part-time 2011-2012

Independent Contractor
Sub-contracted by Vesper Environmental LLC, Hurley, NY

- Conducted mist net surveys in PA to determine species and numbers of bats utilizing habitat along proposed pipeline corridor.
- Participated in multi-state (IL-WI-MI) bat banding study during which 1,500 *Myotis lucifugus* were banded.

April 2006-Nov 2007

Fisheries & Wildlife Technician 1
New York State Department of Environmental Conservation Bureau of Wildlife, Albany, NY

- Ruffed Grouse study: trapped, marked, and tracked ~40 birds using radio telemetry
- Mute Swan study: collected data on population growth, survival, mortality, movements, and behavior through nest and brood searches, GPS satellite transmitters, and observations; captured and marked >50 swans
- Assisted with other wildlife activities including but not limited to: waterfowl banding, CWD sampling, hunter surveys, and answering nuisance wildlife complaints

Jan-April 2006

Intern (Wildlife Technician)
New York State Department of Environmental Conservation Bureau of Wildlife, Watertown, NY

- Conducted turkey population surveys
- Captured and banded turkeys with rocket nets and passive traps
- Assisted in a pine martin survey using motion-sensor cameras

May-August 2005

Taxidermy Shop Assistant
Frank J. Zitz & Company, Rhinebeck NY

- Repaired and trimmed tanned hides in preparation for mounting
- Attached hides to life-size and shoulder mounts
- Groomed finished mounts

June-August 2004 **Lab/Field Technician**
LMS Engineers, Nyack NY
- Sorted & catalogued icthyoplankton samples
- Hazed waterfowl using pyrotechnics

June-August 2003 **Roving Ranger**
Museum of the Hudson Highlands, Cornwall NY
- Manned reception desk & gift shop
- Cared for various small mammals, reptiles, amphibians, and birds
- Guided nature walks

June 2000-August 2003 **Laborer**
Steven Cooper & Sons Excavating, New Windsor, NY
- Assisted in installation of septic systems, footing drains, and landscaping
- Operated heavy equipment

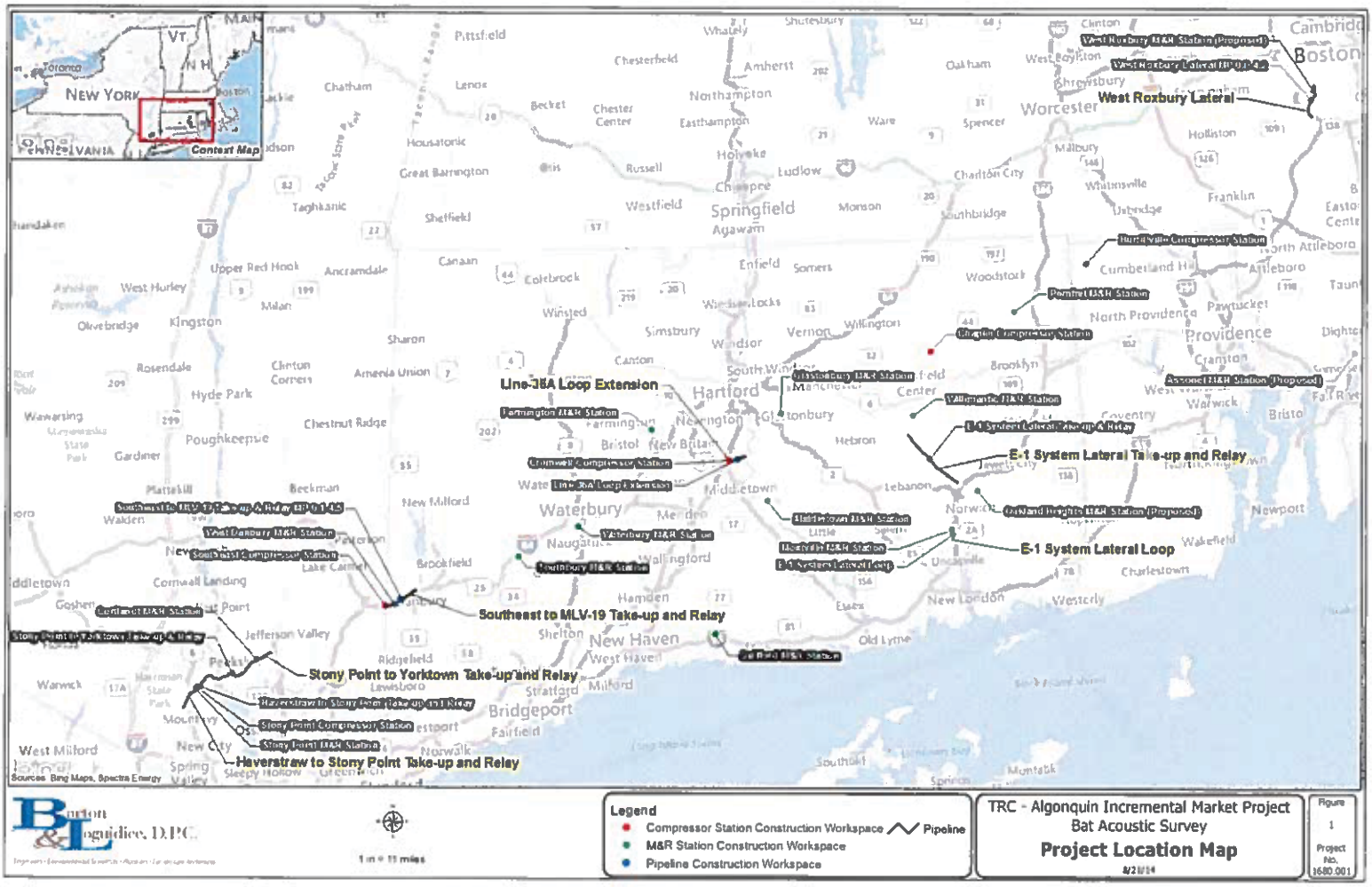
OTHER SKILLS:
- Proficient in Microsoft Word, Excel, PowerPoint, and Access; WordPerfect; and GIS software (ArcMap, GPS Utility)
- Proficient in the use of hand-held GPS
- Experienced in the operation of standard transmission 4WD vehicles, large equipment (i.e.: backhoe, excavator, tractor, etc.), chainsaws, brush-whackers, ATV's, motorboats and trailers, canoes, and kayaks
- Excellent orienteering skills with map and compass
- Able to identify North American bird species by sight and sound
- Able to work cheerfully in adverse field conditions
- Experienced working independently and in group settings

EDUCATION:
B.T. Wildlife Management, May 2006
A.A.S. Fisheries and Wildlife Technology, May 2004
State University of New York at Cobleskill

AWARDS:
- Senior Scholarship Award, 2004 & 2006
- Academic All-American, 2005

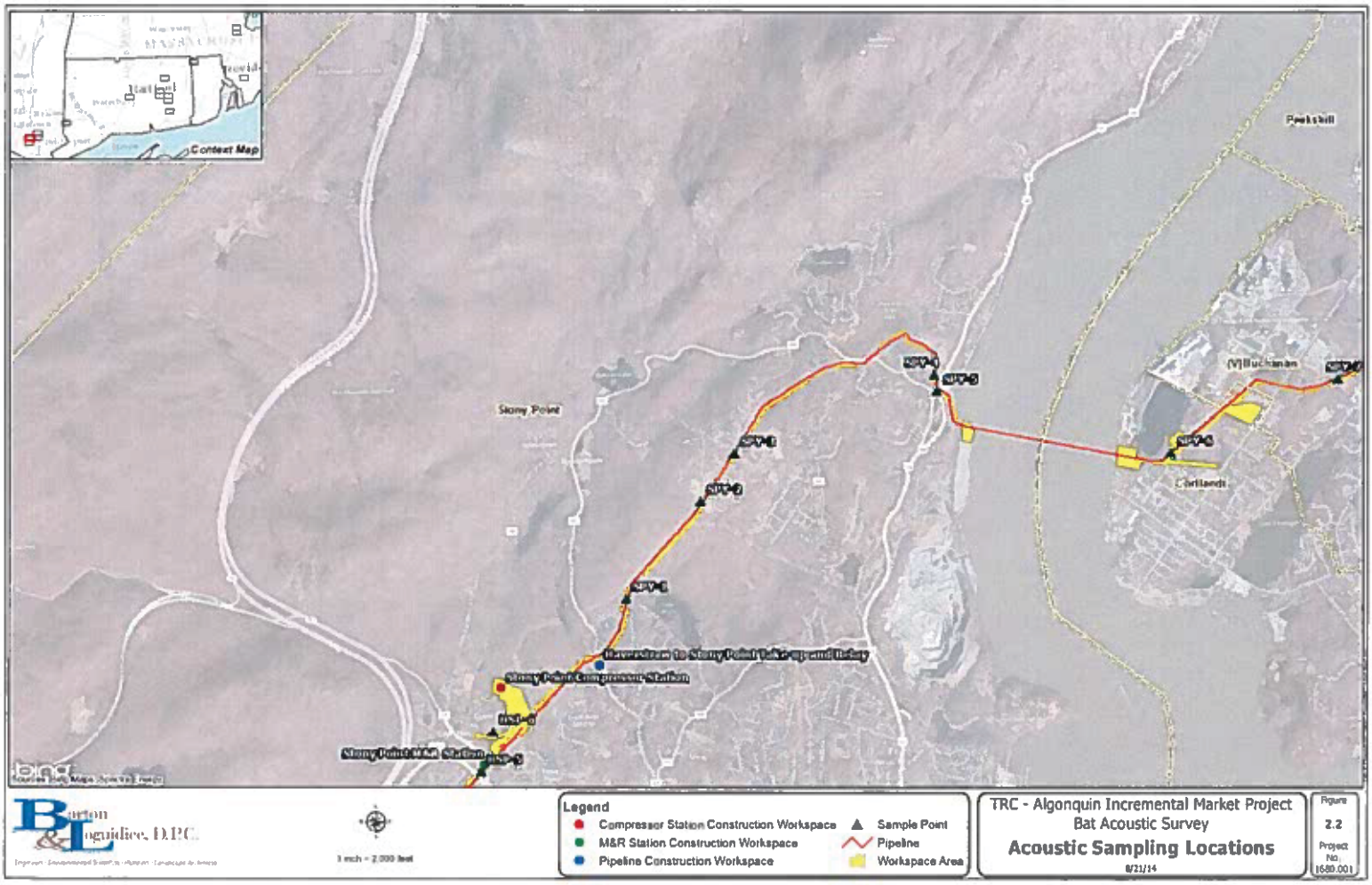
Figure 1

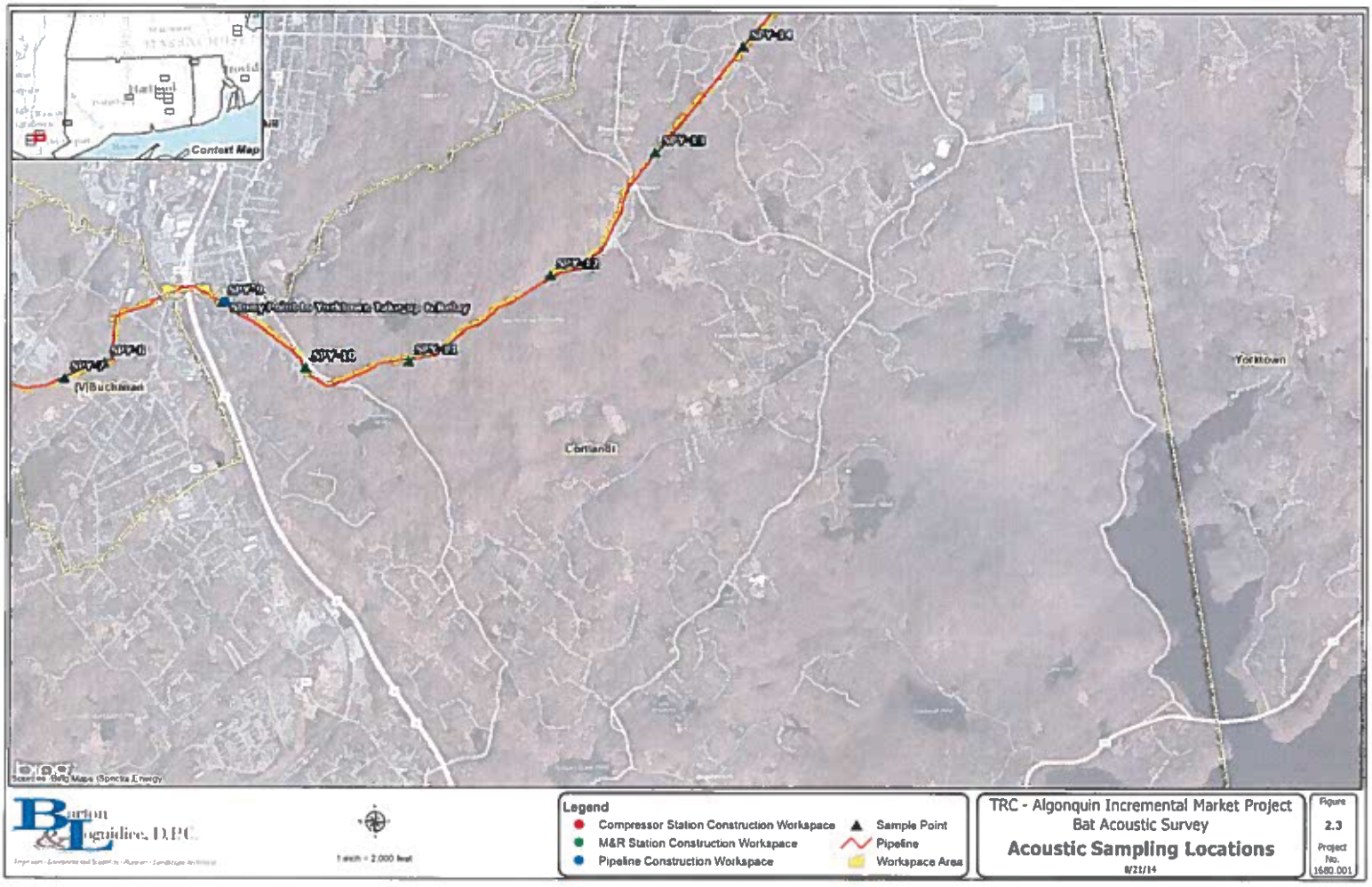
Project Location Map


Context Map
West Roxbury Lateral
Line-36A Loop Extension
Southeast to MLV-19 Take-up and Relay
Stony Point to Yorktown Take-up and Relay
Haverstraw to Stony Point Take-up and Relay
E-1 System Lateral Take-up and Relay
E-1 System Lateral Loop
Sources: Bing Maps, Spectra Energy
1 in = 11 miles
Legend
Compressor Station Construction Workspace
Pipeline
M&R Station Construction Workspace
Pipeline Construction Workspace
TRC - Algonquin Incremental Market Project
Bat Acoustic Survey
Project Location Map
8/21/14
Figure
1
Project No. 1680.001

Figures 2.1 – 2.16

Acoustic Sampling Locations


Context Map
Stony Point
Peekskill
Cortlandt
Stony Point Compressor Station
Stony Point M&R Station
Legend
Compressor Station Construction Workspace
M&R Station Construction Workspace
Pipeline Construction Workspace
Sample Point
Pipeline
Workspace Area
TRC - Algonquin Incremental Market Project
Bat Acoustic Survey
Acoustic Sampling Locations
8/21/14
Figure
2.2
Project No.
1680.001



Burton & Loguidice, D.P.C.

1 inch = 2,000 feet

Legend

- Compressor Station Construction Workspace
- M&R Station Construction Workspace
- Pipeline Construction Workspace
- Sample Point
- Pipeline
- Workspace Area

TRC - Algonquin Incremental Market Project
Bat Acoustic Survey

Acoustic Sampling Locations

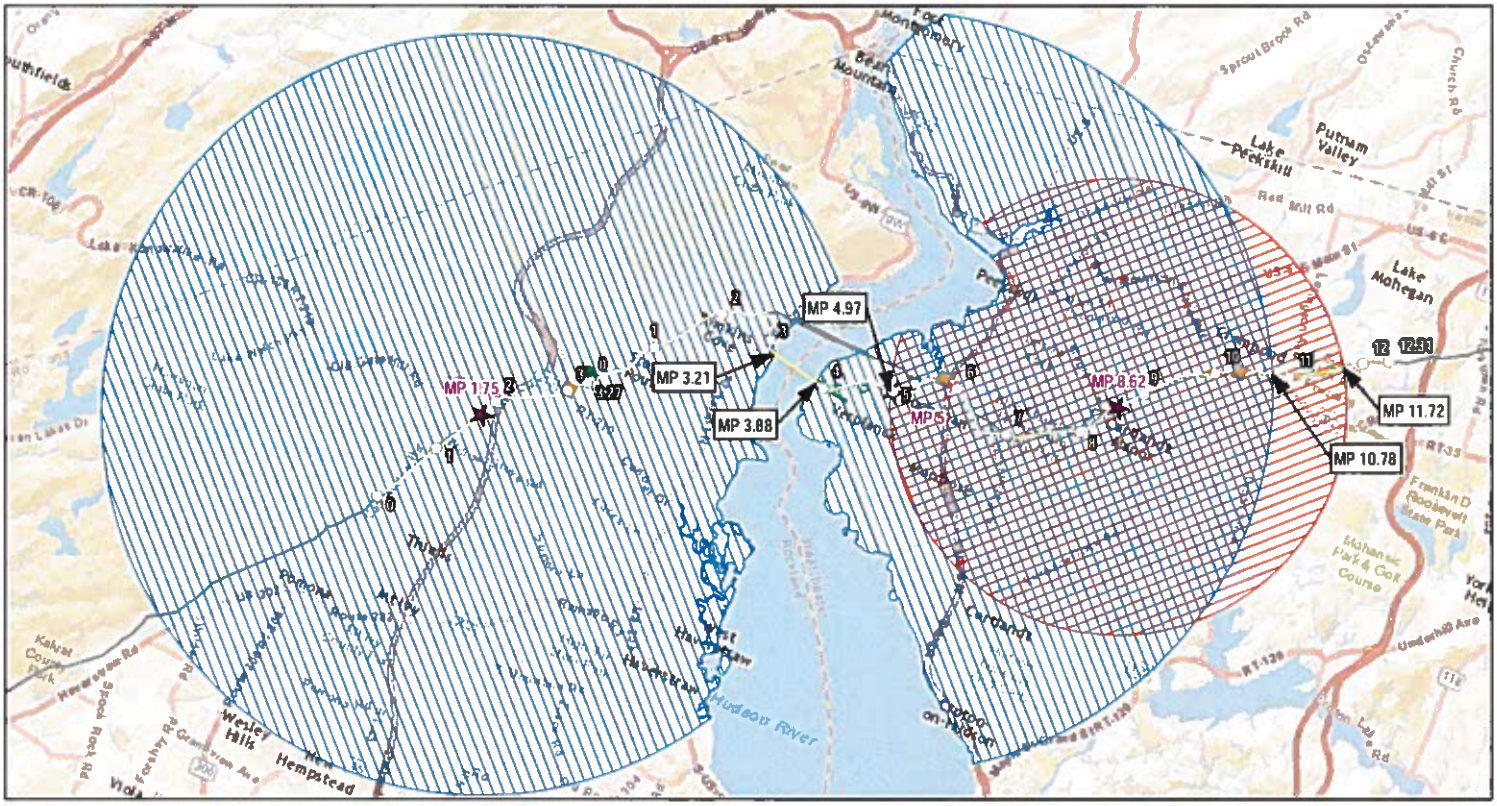
8/21/14

Figure 2.3

Project No. 1680.001

Figure 3

Potential Bat Detection Locations



- Approximate Milepost
- Existing Meter Station
- Proposed Meter Station
- AIM Pipeline Facility
- Construction Workspace
- Existing Algonquin Natural Gas Pipelines
- Bat Detection Points
- 3 Mile Buffer
- 5 Mile Buffer

Note: Clearing of roost trees within the shaded area will occur between October 1 to March 31

N

0 2.5 Miles

Sources: BING, ESRI, SPECTRA, NY GIS, USGS

Projection: NAD83, UTM Zone 18N US Survey Feet, Grid North.

Spectra Energy Partners

Algonquin Gas Transmission, LLC

AIM Project

Figure 3

Potential Bat Detection Locations

Stony Point to Yorktown Take-up & Relay

New York

Created: 8/22/2014