



AVIAN RESOURCES EVALUATION

Date: February 3, 2015

**North Atlantic Towers, LLC
1001 3rd Avenue West, Suite 420
Bradenton, FL 34205**

APT Project No.: CT407100

**Re: Proposed CT1155C Bethel Facility
62 & 64 Codfish Hill Road
Bethel, Connecticut 06801**

North Atlantic Towers, LLC (“NAT”) proposes to construct a new wireless telecommunications Facility (“Facility”) at 62 & 64 Codfish Hill Road in Bethel, Connecticut (the “host Property”). The host Property consists of 50 acres and is currently primarily undeveloped land consisting of complexes of upland forest, open field, and scrub/shrub habitats and forested wetland areas. The host Property maintains a residency along frontage to Codfish Hill Road with existing maintained dirt roads accessing the northern reaches of the property. Two alternate proposed Facility locations are proposed, both generally located in mature upland forested areas in the northeast (Site 1) and central (Site 2) portions of the host Property. Site 1 is located approximately 725 feet east of Site 2. NAT proposes to install a 150-foot tall (Site 1) or 170-foot tall (Site 2) ungued monopole tower and ground equipment enclosure within a 75-foot by 75-foot gravel compound area surrounded with an 8-foot tall chain link fence. A 12-foot wide gravel access is proposed in order to gain admission to either facility.

The purpose of this evaluation is to document the proposed Facility’s proximity to avian resource areas and its compliance with recommended guidelines of the United States Fish and Wildlife Service for minimizing the potential for telecommunications towers to impact bird species.

All-Points Technology Corporation, P.C. (“APT”) reviewed several publicly-available sources of avian data for the state of Connecticut to provide the following information with respect to potential impacts on migratory birds associated with the proposed development. This desktop analysis and attached graphics identify avian resources and their proximities to the host Property. Information within an approximate 3-mile radius of the host Property is graphically depicted on the attached Avian Resources Map. Some of the avian data referenced herein are not located in proximity to the project area and are therefore not visible on the referenced map due to its scale. However, in those cases the distances separating the host Property from the resources are identified in the discussions below. Note that the distances herein refer to the nearest alternate site location, representing the closest potential development to the resource (“Facility”).

Proximity to Important Bird Areas

The National Audubon Society has identified 27 Important Bird Areas (“IBAs”) in the state of Connecticut. IBAs are sites that provide essential habitat for breeding, wintering, and/or migrating birds. The IBA must support species of conservation concern, restricted-range species, species vulnerable due to concentration in one general habitat type or biome, or species vulnerable due to their occurrence at high densities as a result of their congregatory behavior¹. The closest IBA to the proposed Facility (Site 2) is The Nature Conservancy’s Devil’s Den Preserve in Weston and Redding located approximately 6.8 miles to the southwest. This preserve is The Nature Conservancy’s largest contiguous preserve in Connecticut, and is part of the largest tract of protected land in densely developed Fairfield County. Devil’s Den supports large populations of all of Connecticut’s forest interior nesting bird species. Due to its distance from the proposed Facility, this IBA would not experience an adverse impact resulting from the proposed NAT development.

Supporting Migratory Bird Data

Beyond Audubon’s IBAs, the following analysis and attached graphics also identify several additional avian resources and their proximities to the host Property. Although these data sources may not represent habitat indicative of important bird areas, they may indicate possible bird concentrations² or migratory pathways.

Critical Habitat

Connecticut Critical Habitats depict the classification and distribution of 25 rare and specialized wildlife habitats in the state. It represents a compilation of ecological information collected over many years by state agencies, conservation organizations and individuals. Critical habitats range in size from areas less than one acre to areas that are tens of acres in extent. The Connecticut Critical Habitats information can serve to highlight ecologically significant areas and to target areas of species diversity for land conservation and protection but may not necessarily be indicative of habitat for bird species. The nearest Critical Habitat to the proposed Facility (Site 2) is a palustrine floodplain forest area, denoted as the Limekiln Brook floodplain forest located approximately 2.25 miles to the northwest. Based on the distance separating this resource from the proposed Facility, no adverse impacts are anticipated.

¹ http://web4.audubon.org/bird/iba/iba_intro.html

² “bird concentrations” is related to the USFWS *Interim Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers* (September 14, 2000) analysis provided at the end of this document

Avian Survey Routes and Points

Breeding Bird Survey Route

The North American Breeding Bird Survey is a cooperative effort between various agencies and volunteer groups to monitor the status and trends of North American bird populations. Routes are randomly located to sample habitats that are representative of an entire region. Each year during the height of the avian breeding season (June for most of the United States) participants skilled in avian identification collect bird population data along roadside survey routes. Each survey route is approximately 24.5 miles long and contains 50 stops located at 0.5-mile intervals. At each stop, a three-minute count is conducted. During each count, every bird seen or heard within a 0.25-mile radius is recorded. The resulting data is used by conservation managers, scientists, and the general public to estimate population trends and relative abundances and to assess bird conservation priorities. The nearest survey route to the Facility (Site 1) is the Long Hill Breeding Bird Survey Route (Route #18013) located approximately 4.5 miles to the southeast. This ± 25 -mile long bird survey route begins on the Easton/Trumbull town line and generally winds its way north through Monroe, Newtown, and Southbury before terminating in Roxbury. Since bird survey routes represent randomly selected data collection areas, they do not necessarily represent a potential restriction to development projects, including the proposed Facility.

Hawk Watch Site

The Hawk Migration Association of North America (“HMANA”) is a membership-based organization committed to the conservation of raptors through the scientific study, enjoyment and appreciation of raptor migration. HMANA collects hawk count data from almost 200 affiliated raptor monitoring sites throughout the United States, Canada and Mexico, identified as “Hawk Watch Sites.” In Connecticut, Hawk Watch Sites are typically situated on prominent hills and mountains that tend to concentrate migrating raptors and may be an indicator of secondary migratory routes that connect to the Atlantic Flyway. The nearest Hawk Watch Site, Huntington State Park, is located in Redding, approximately 2.9 miles to the south of the proposed Facility (Site 1 & 2). Based on the distance separating this possible raptor migratory route from the proposed Facility, no adverse impacts are anticipated.

Most hawks migrate during the day (diurnal) to take advantage of two theorized benefits: (1) diurnal migration allows for the use of updrafts or rising columns of air called thermals to gain lift without flapping thereby reducing energy loss; and, (2) day migrants can search for prey and forage as they migrate. Therefore, no adverse impacts to migrating hawks are anticipated with development of the Facility, based on the separation distance to a migrating raptor concentration and hawk migration behavior occurring during the daytime under favorable weather conditions when thermals form.

Bald Eagle Survey Route

Bald Eagle survey routes consist of locations of midwinter Bald Eagle counts from 1986 to 2005 with an update provided in 2008 along major river systems and water bodies in Connecticut. This survey was initiated in 1979 by the National Wildlife Federation. This database includes information on statewide, regional and national trends. Survey routes are included in the database only if they were surveyed consistently in at least four years and where at least four eagles were counted in a single year. A Bald Eagle survey route generally encompasses the shoreline of Candlewood Lake in the City of Danbury approximately 5.3 miles northwest of the proposed Facility.

Bald Eagle migration patterns are complex, dependent on age of the individual, climate (particularly during the winter) and availability of food.³ Adult birds typically migrate alone and generally as needed when food becomes unavailable, although concentrations of migrants can occur at communal feeding and roost sites. Migration typically occurs during the middle of day (10:30–17:00) as thermals provide for opportunities to soar up with limited energetic expense; Bald Eagle migration altitudes are estimated to average 1,500–3,050 m by ground observers.⁴ Four adults tracked by fixed-wing aircraft in Montana averaged 98 km/d during spring migration and migrated at 200–600 m above ground (McClelland et al. 1996).⁵

No adverse impacts to migrating Bald Eagle are anticipated with development of the Facility, based on its relatively short (150-foot or 170-foot) height of the Facility, distance separating the host Property from Candlewood Lake and eagle migrate patterns during the daytime under favorable weather conditions when thermals form.

Flyways

The project area is located in Fairfield County, approximately 17.5 miles north of Long Island Sound. The Connecticut coast lies within the Atlantic Flyway, one of four generally recognized regional primary migratory bird flyways (Mississippi, Central and Pacific being the others). This regional flyway is used by migratory birds travelling to and from summering and wintering grounds. The Atlantic Flyway is particularly important for many species of migratory waterfowl and shorebirds, and Connecticut's coast serves as vital stopover habitat. Migratory land birds also stop along coastal habitats before making their way inland. Smaller inland migratory flyways ("secondary flyways") are often concentrated along major riparian areas as birds use these valuable stopover habitats to rest and refuel as they make their way further inland to their preferred breeding habitats. The Connecticut Migratory Bird Stopover Habitat

³ Buehler, David A. 2000. Bald Eagle (*Haliaeetus leucocephalus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/506> [Accessed 09/09/13].

⁴ Harmata, A. R. 1984. Bald Eagles of the San Luis valley, Colorado: their winter ecology and spring migration. Ph.D. Thesis. Montana State Univ. Bozeman.

⁵ McClelland, B. R., P. T. McClelland, R. E. Yates, E. L. Caton, and M. E. McFadden. 1996. Fledging and migration of juvenile Bald Eagles from Glacier National Park, Montana. *J. Raptor Res.* 30:79-89.

Project (Stokowski, 2002)⁶ identified potential flyways along the Housatonic, Naugatuck, Thames, and Connecticut Rivers. This study paralleled a similar earlier study conducted by the Silvio O. Conte National Fish & Wildlife Refuge (Neotropical Migrant Bird Stopover Habitat Survey⁷), which consisted of collection of migratory bird data along the Connecticut River and the Farmington River, considered a major Connecticut River tributary. Of these potential flyways, the nearest to the Facility (Site 1 & 2) is the Housatonic River, located approximately 6 miles to the northeast. The Saugatuck River riparian corridor is located 4.3 miles southwest of the Facility (Site 2). Although the Saugatuck River is not identified as a potential flyway, it potentially forms a secondary flyway as birds travel along more significant riparian corridors and disperse into species-preferred habitats using these secondary flyways during the spring migration. These riparian corridors may provide secondary flyways as they likely offer more food and protection than more exposed upland sites, particularly during the spring migration⁸.

Siting of tower structures within flyways can be a concern, particularly for tall towers and even more particularly for tall towers with guy wires and lighting. The majority of studies on bird mortality due to towers focuses on very tall towers (greater than 1000 feet), illuminated with non-flashing lights, and guyed. These types of towers, particularly if sited in major migratory pathways, do result in significant bird mortality (Manville, 2005)⁹. The proposed Facility is not this type of tower, being an unlit, unguyed monopole structure only 150 feet (Site 1) or 170 feet (Site 2) in height. More recent studies of short communication towers (<300 feet) reveal that they rarely kill migratory birds¹⁰. Studies of mean flight altitude of migrating birds reveal flight altitudes of 410 meters (1350 feet), with flight altitudes on nights with bad weather between 200 and 300 meters above ground level (656 to 984 feet)¹¹.

No adverse impacts to migrating bird species are anticipated with the Project, based on the significant distance separating the Facility from both the Housatonic River and Saugatuck River potential flyway corridors and the short (150-foot or 170-foot) height of the unlit and unguyed Facility.

⁶ Stokowski, J.T. 2002. Migratory Bird Stopover Habitat Project Finishes First Year. Connecticut Wildlife, November/December 2002. P.4.

⁷ The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey <http://www.science.smith.edu/stopoverbirds/index.html>

⁸ The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey. http://www.science.smith.edu/stopoverbirds/Chapter5_Conclusions&Recommendations.html

⁹ Manville, A.M. II. 2005. Bird strikes and electrocutions at power lines, communications towers, and wind turbines: state of the art and state of the science - next steps toward mitigation. Bird Conservation Implementation in the Americas: Proceedings 3rd International Partners in Flight Conference 2002. C.J. Ralph and T.D. Rich, editors. USDA Forest Service General Technical Report PSW-GTR-191. Pacific Southwest Research Station, Albany CA. pp. 1-51-1064.

¹⁰ Kerlinger, P. 2000. Avian Mortality at Communication Towers: A Review of Recent Literature, Research, and Methodology. Prepared for U.S. Fish and Wildlife Service Office of Migratory Bird Management.

¹¹ Mabee, T.J., B.A. Cooper, J.H. Plissner, D.P. Young. 2006. Nocturnal bird migration over an Appalachian ridge at a proposed wind power project. Wildlife Society Bulletin 34:682-690.

Waterfowl Focus Areas

The Atlantic Coast Joint Venture (“ACJV”) is an affiliation of federal, state, regional and local partners working together to address bird conservation planning along the Atlantic Flyway. The ACJV has identified waterfowl focus areas recognizing the most important habitats for waterfowl along the Atlantic Flyway. Connecticut contains several of these waterfowl focus areas. The nearest waterfowl focus area to the Facility (Site 1 & 2) is the Norwalk Islands area, located approximately 12 miles to the southwest. Please refer to the attached Connecticut Waterfowl Focus Areas Map. Based on the distance of these resources to the project area, no direct impacts would occur from development of the proposed Facility.

CTDEEP Migratory Waterfowl Data

The Connecticut Department of Energy and Environmental Protection (“CTDEEP”) created a Geographic Information System (“GIS”) data layer in 1999 identifying concentration areas of migratory waterfowl at specific locations in Connecticut. The intent of this data layer is to assist in the identification of migratory waterfowl resource areas in the event of an oil spill or other condition that might be a threat to waterfowl species. This data layer identifies conditions at a particular point in time and has not been updated since 1999.

No migratory waterfowl areas are located within the Town of Bethel. The nearest migratory waterfowl area (Ash Creek in Bridgeport and Fairfield) is located approximately 16.6 miles to the southeast of the proposed Facility (Site 1 & 2). The associated species are identified as American black duck, gadwall, mallard, and green wing teal. Based on its distance to the proposed Facility, no impacts to migratory waterfowl habitat are anticipated to result from the NAT development.

CTDEEP Natural Diversity Data Base

CTDEEP’s Natural Diversity Data Base (“NDDB”) program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state listed species and to help landowners conserve the state’s biodiversity. State agencies are required to ensure that any activity authorized, funded or performed by a state agency does not threaten the continued existence of endangered or threatened species. Maps have been developed to serve as a pre-screening tool to help applicants determine if there is a potential impact to state listed species.

The NDDB maps represent approximate locations of endangered, threatened and special concern species and significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by CTDEEP staff, scientists, conservation groups, and landowners. In some cases an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded areas on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowner’s rights whenever species occur on private property.

APT has also consulted with the Connecticut Department of Energy and Environmental Protection's ("DEEP") Natural Diversity Data Base regarding Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife and records exist in the vicinity of the proposed Facility for a State-listed Special Concern Species: *Terrapene carolina carolina* (eastern box turtle) and *Glyptemys insculpta* (wood turtle)¹². North Atlantic Towers has committed to implementing protective measures during construction as recommended by APT and approved by CTDEEP to avoid impacts to these non-avian species.

USFWS Communications Towers Compliance

In 2013, the U.S Fish and Wildlife Service ("USFWS") prepared its *Revised Voluntary Guidelines for communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning*¹³ which recommends the 13 voluntary guidelines below. These voluntary guidelines are designed to assist tower companies in developing their communication systems in a way which minimizes the risk to migratory birds and threatened and endangered species. APT offers the following responses to each of the USFWS recommendations which are abridged from the original document.

1. *Collocation of the communications equipment on an existing communication tower or other structure (e.g., billboard, water and transmission tower, distribution pole, or building mount) is strongly recommended. Depending on tower load factors and communication needs, from 6 to 10 providers should collocate on an existing tower or structure.*

Collocation opportunities on existing towers, buildings or non-tower structures are not available in the area while achieving the required radio frequency ("RF") coverage objectives of AT&T. The proposed facility would be capable of multiple service provider collocations.

2. *If collocation is not feasible and a new tower or towers are to be constructed, it is strongly recommended that the new tower(s) should be not more than 199 feet above ground level ("AGL"), and that construction techniques should not require wires. Such towers should be unlighted if Federal Administration ("FAA") regulations and lighting standards permit. If lighting is required, no red-steady lights should be used. USFWS considers towers that are unlit, unguyed, monopole or lattice, and less than 200 feet AGL to be the environmentally preferred "gold standard".*

The proposed Facility would consist of a 150-foot (Site 1) or 170-foot (Site 2) monopole structure which requires neither guy wires nor lighting and is therefore consistent with USFWS' environmentally preferred "gold standard" design.

¹² DEEP NDDB letter, June 16, 2014, NDDB #201405645

¹³ Manville, A.M., Ph.D., C.W.B. Suggestions Based on Previous USFWS Recommendations to FCC Regarding WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on Migratory Birds" (2007), Docket No. 08-61, FCC's Antenna Structure Registration Program (2011), Service 2012 Wind Energy Guidelines, and Service 2013 Eagle Conservation Plan Guidance. September 27, 2013.

3. *If constructing multiple towers, the cumulative impacts of all the towers to migratory birds – especially to Birds of Conservation Concern¹⁴ and threatened and endangered species, as well as the impacts of each individual tower, should be considered during development of a project.*

Multiple towers are not proposed as part of this project. One Facility is proposed at either Site 1 or Site 2 location.

4. *The topography of the proposed tower site and surrounding habitat should be clearly noted, especially in regard to surrounding hills, mountains, mountain passes, ridge lines, rivers, lakes, wetlands, and other habitat types used by raptors, Birds of Conservation Concern, and state and federally listed species, and other birds of concern. Active raptor nests, especially those of Bald Eagles, should be noted, including known or suspected distances from proposed tower sites to nest locations.*

The topography of the proposed tower site and surrounding habitat is provided on the attached Avian Resources Map. No Bald Eagle nests, foraging areas or roost sites are known to be located within 660 feet of the proposed tower site.¹⁵

5. *If at all possible, new towers should be sited within existing “antenna farms” (i.e., clusters of towers), in degraded areas (e.g., strip mines or other heavily industrialized areas), in commercial agricultural lands, in Superfund sites, or other areas where bird habitat is poor or marginal. Towers should not be sited in or near wetlands, or other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries, and Important Bird Areas), in known migratory or daily movement flyways, areas of breeding concentration, in habitat of threatened or endangered species, or key habitats for Birds of Conservation Concern. Additionally, towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.*

There are no existing “antenna farms”, degraded or commercial areas in the vicinity of the proposed tower site that would satisfy the RF coverage objectives. The proposed Facility is not within wetlands, known bird concentration area, migratory or daily movement flyway, habitat of threatened/endangered avian species or key habitats for Birds of Conservation Concern. According to the available NDDDB maps, the proposed Facility (both Site 1 and Site 2) is not located within a shaded NDDDB area. APT submitted a review request to the CTDEEP NDDDB to determine what, if any, species occur on the host Property. The CTDEEP responded that NDDDB records reveal two State-listed Special Concern Species occur in the vicinity of the host Property: *Terrapene carolina carolina* (eastern box turtle) and *Glyptemys insculpta* (wood turtle). NAT has committed to implementing protective measures during construction to avoid impacts to these two non-avian rare species.

In Connecticut, seasonal atmospheric conditions can occasionally produce fog, mist and/or low ceilings. However, high incidences of these meteorological conditions, relative to the region, are not known to exist in the vicinity of the host Property.

¹⁴ U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, VA. 85 pp. <http://www.fws.gov/migratorybirds/>

¹⁵ U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. United States Department of Interior, Fish and Wildlife Service, 23 pp. <http://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf>

6. *If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. The use of solid (non-flashing) warning lights at night should be avoided to minimize bird fatalities.*

The proposed Facility height (150 feet [Site 1] or 170 feet [Site 2] AGL) is less than 199 feet and would not require any aviation safety lighting.

7. *Tower designs using guy wires for support, which are proposed to be located in known raptor or waterbird concentration areas, daily movement routes, major diurnal migratory bird movement routes, staging areas, or stopover sites, should have daytime visual markers or bird deterrent devices installed on the wires to prevent collisions by these diurnally moving species.*

The proposed Facility would be free-standing and would not require guy wires or visual marking.

8. *Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint." However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation, disturbance, and the creation of barriers, and to reduce above ground obstacles to birds in flight.*

The Facility is sited, designed, and would be constructed to accommodate proposed equipment and to allow for future collocations within the smallest footprint possible. The proposed Facility location (both Site 1 and Site 2) is at the edge of open fields with access following an existing farming road. Therefore, the proposed development would not result in habitat fragmentation.

9. *If, prior to tower design, siting and construction, it has been determined that a significant number of breeding, feeding, or roosting birds, especially of Birds of Conservation Concern, state or federally-listed bird species, and eagles are known to habitually use the proposed tower construction area, relocation to an alternate site is highly recommended. If this is not an option, seasonal; restrictions on construction may be advisable in order to avoid disturbance, site and nest abandonment, especially during breeding, rearing and other periods of high bird activity.*

Significant numbers of breeding, feeding, or roosting Birds of Conservation Concern, state or federally-listed bird species, or eagles are not known to habitually use either proposed tower construction areas at the host Property.

10. *Security lighting for on-ground facilities, equipment and infrastructure should be motion- or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination, but still allow for safe nighttime access to the site.¹⁶¹⁷*

Security lighting for on-ground facilities would be down-shielded using Dark Sky compliant fixtures set on motion sensor with timer to eliminate constant nighttime illumination.

¹⁶ Manville, A.M., II. 2011. Comments of the U.S. Fish and Wildlife Service's Division of Migratory Bird Management Filed Electronically on WT Docket No. 08-61 and WT Docket No. 03-187, Regarding the Environmental Effects of the Federal Communication's Antenna Structure Registration Program. January 14, 2011. 12 pp.

¹⁷ U.S. Fish and Wildlife Service. 2012. U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines. March, 82 pp.

11. *Representatives from the USFWS or researchers from the Research Subcommittee of the Communication Tower Working Group (“CTWG”) should be allowed access to the site to evaluate bird use; conduct dead-bird searches; place above ground net catchments below the towers; and to perform studies using radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment, as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.*

With prior written notification to and approval by NAT, USFWS or CTWG research personnel would be allowed access to the proposed Facility to conduct evaluations.

12. *Towers no longer in use, not re-licensed by the FCC for use, or determined to be obsolete should be removed within 12 months of cessation of use.*

If the proposed Facility was no longer in use, not re-licenses by the FCC for use, or determined to be obsolete, it would be removed within 12 months of cessation of use.

13. *In order to obtain information on the usefulness of these guidelines in preventing bird strikes and better understanding impacts from habitat fragmentation, please advise USFWS personnel of the final location and specifications of the proposed tower, and which measures recommended in these guidelines were implemented.*

The final location and specification of the proposed tower have been provided in this report and accompanying maps. A detailed review of implemented measures recommended in the *Revised Voluntary Guidance for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning* (September 27, 2013) are provided herein. The proposed Facility is not proximate to an Important Bird Area and would comply with the USFWS guidelines for minimizing the potential impacts to birds being an unlit, unguyed monopole structure only 150 feet (Site 1) or 170 feet (Site 2) in height. APT recommends that a copy of this report be submitted to USFWS if the proposed Facility is constructed.

Summary and Conclusions

Based on the results of this desk-top evaluation, no migratory bird species are anticipated to be impacted by North Atlantic Tower’s proposed development. The proposed Facility is not proximate to an Important Bird Area and would comply with the USFWS guidelines for minimizing the potential impacts to birds. With NAT’s commitment to implement eastern box turtle and wood turtle protective measures during construction, no impact to populations of these State Special Concern species would occur.

Figures

- Avian Resources Map
- Connecticut Waterfowl Focus Areas Map

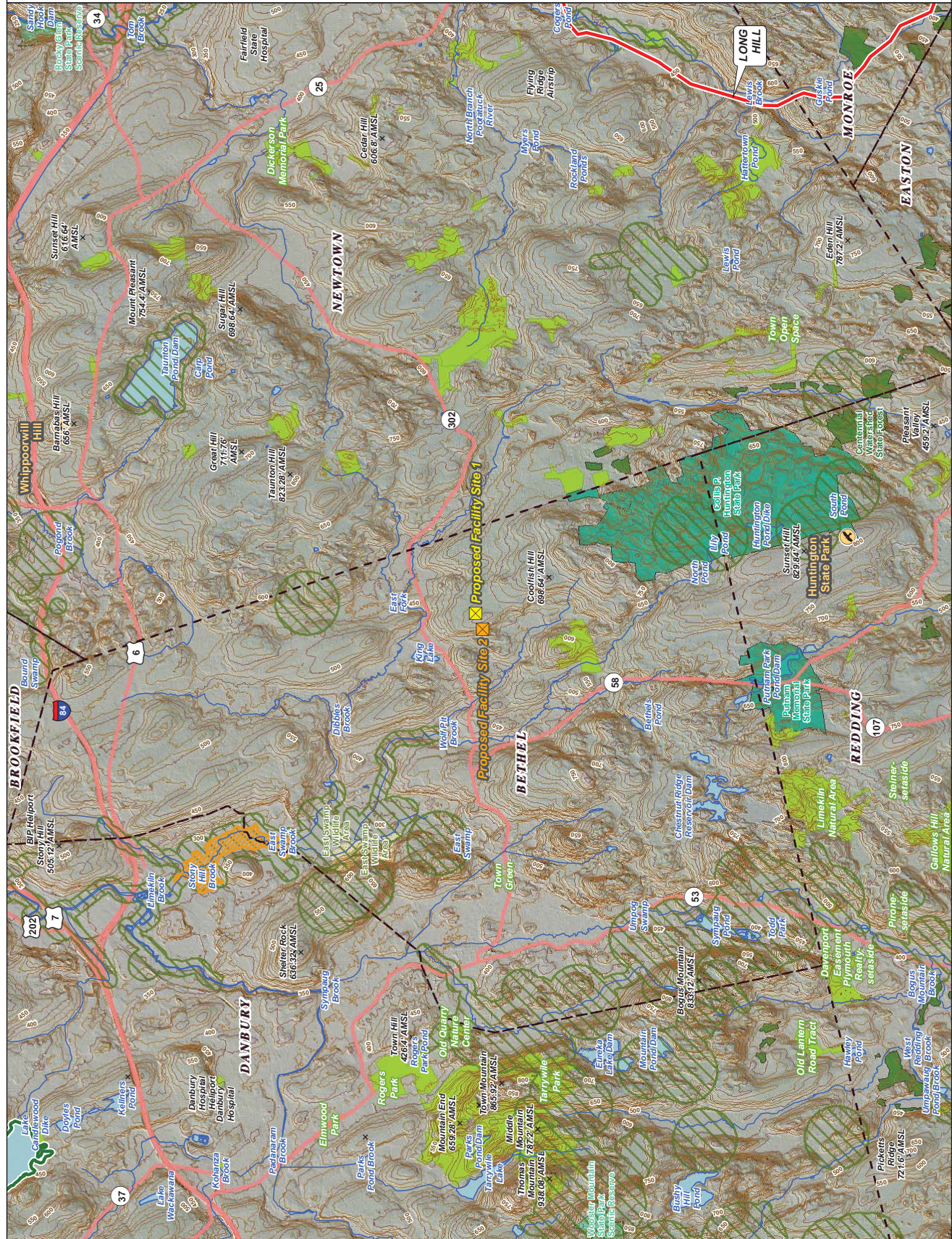
Avian Resources Map

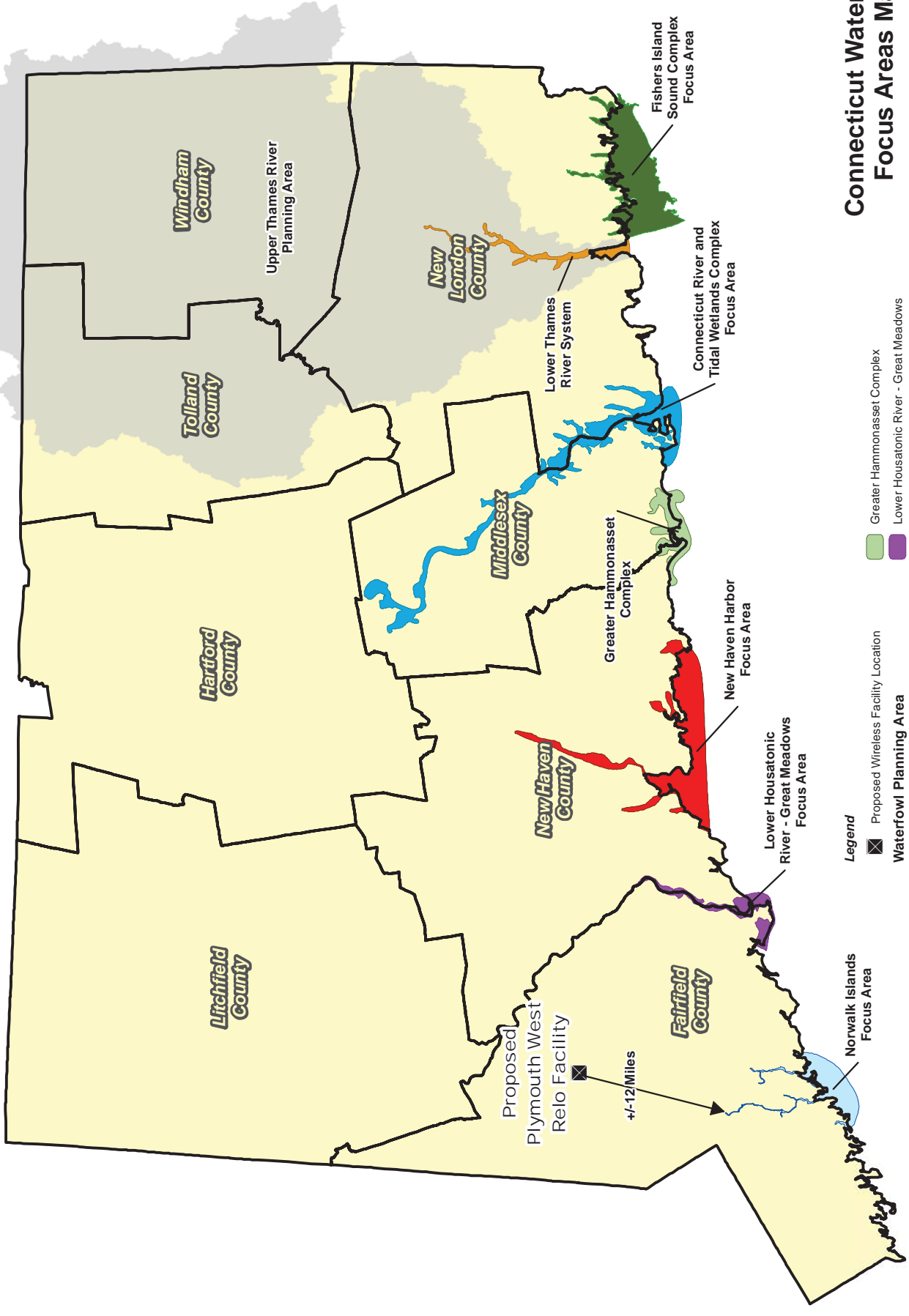
Proposed Wireless
Telecommunications Facility
CT1155C Bethel
62/64 Codfish Hill Road
Bethel, Connecticut

Legend

- Proposed Facility Site 1
- Proposed Facility Site 2
- Hawk Watch Site
- Important Bird Area*
- Bald Eagle Survey Route
- Breeding Bird Survey Route
- Natural Diversity Database (CTDEEP, 12/2014)
- Critical Habitat (CTDEEP, 07/2009)
- Migratory Waterfowl (CTDEEP, 1989)
- Preserved Open Space (CTDEEP, 1997)
- Federal Open Space (CTDEEP, 2004)*
- CT DEEP Property (CT DEEP, 12/2010)
- State Forest
- State Park
- DEP Owned Waterbody*
- State Park Scenic Reserve
- Historic Preserve*
- Natural Area Preserve*
- Fish Hatchery*
- Flood Control*
- State Park Trail*
- Water Access*
- Wildlife Area
- Wildlife Sanctuary*
- Other*
- Open Water
- Town Boundary

*None within mapped extent
Avian Source Information:
Bird Eagle Sites: U.S. Geological Survey, National Biological Information Service (http://www.fws.gov/birds/birds.html)
Hawk Watch Sites: Hawk Migration Association of North America (http://www.hawkwatch.org)
Important Bird Areas: U.S. Department of the Interior, Bureau of Land Management (http://www.blm.gov)
Migratory Waterfowl: CTDEEP GIS, 1989
Natural Diversity Database: National Audubon Society, Audubon Connecticut
Preserved Open Space: (Data from Wildlife Research Center of the U.S. Geological Survey and the Connecticut Wildlife Services) (http://www.naturaldiversity.gov/naturaldiversity.html)
Base Map: Source: 2012 aerial photograph (CT EDO map service)
Map Date: January 2015





Connecticut Waterfowl Focus Areas Map

Proposed Wireless
Telecommunications Facility
CT1155C Bethel
62/64 Codfish Hill Road
Bethel, Connecticut

- Legend**
- ☒ Proposed Wireless Facility Location
 - Waterfowl Planning Area**
 - Upper Thames River
 - Waterfowl Focus Areas**
 - Greater Hammonasset Complex
 - Lower Housatonic River - Great Meadows
 - Lower Thames River System
 - New Haven Harbor
 - Connecticut River and Tidal Wetlands Complex
 - Fishers Island Sound Complex

