

# ATTACHMENT 3



## AVIAN RESOURCES EVALUATION

**Date: September 22, 2014**

**Homeland Towers  
22 Shelter Rock Lane, Building C  
Danbury, Connecticut 06810**

**APT Project No.: CT283250**

**Re: CT Siting Council Docket 451  
Proposed Cheshire Facility – CT005  
1325 Cheshire Street  
Cheshire, Connecticut**

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Homeland Towers proposes to construct a new wireless telecommunications Facility ("Facility") at 1325 in Cheshire, Connecticut (the "host Property"), identified as Tax Assessor Parcel ID # 38/00/180. The host Property consists of 59 acres and is currently developed with the Cheshire Water Pollution Control Plant ("CWPCP") and Cheshire Quinnipiac Recreation Area. The proposed Facility is located within a cleared and graded upland area used as a storage yard by the Town of Cheshire and currently covered in vegetation characterized by grasses and Mugwort, fill piles, recreational field maintenance debris and sewer department materials/debris (e.g., manhole covers, pipes, etc.). Homeland Towers proposes to install a 170-foot tall monopole and ground equipment enclosure within a 62-foot by 75-foot gravel compound area surrounded with an 8-foot tall chain link fence at a ground elevation of approximately 116 feet above mean sea level ("AMSL"). AT&T will place ground equipment within the compound and install antenna at the top of the monopole. A 12-foot wide, approximately 140-foot long gravel access is proposed in order to gain admission to the Facility from the existing paved access to the CWPCP.

This evaluation is provided in response to *Pre-hearing Questions Set One* submitted by the Connecticut Siting Council (the "Council") for Docket No. 451, specifically:

- Question #15 – *Is the proposed site located within an "Important Bird Area" as designated by the National Audubon Society?*
- Question #16 – *Would Homeland's proposed facility comply 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

to 4 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.

## **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 behavior<sup>1</sup>. The closest IBA to the host Property is the Naugatuck State Forest in Naugatuck, Oxford, Beacon Falls, and Bethany located approximately 10 miles to the southwest. Naugatuck State Forest Preserve is a 3,542 acre forest with a mixture of habitat types ranging from conifer/deciduous forests to various streams, rivers, ponds, and lakes. The area is known as a particularly important area for bird species that require early successional habitats. Due to its distance from the site, this IBA would not experience an adverse impact resulting from the proposed development of the Facility.

## **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 concentrations<sup>2</sup> 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 is a palustrine floodplain forest area, denoted as the Quinnipiac River, Cheshire Floodplain Forest located approximately .85 mile to the north. Based on the distance separating this resource from the host Property and the design of the proposed Facility, no adverse impacts are anticipated.

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<sup>1</sup> [http://web4.audubon.org/bird/iba/iba\\_intro.html](http://web4.audubon.org/bird/iba/iba_intro.html)

<sup>2</sup> “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 host Property is the Southington Breeding Bird Survey Route (Route #18015) located approximately 3.6 miles to the northeast. This ±25-mile long bird survey route begins on East Street in Southington and generally winds its way north through Plainville, Farmington, Avon, and Canton before terminating in West Simsbury. 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. The nearest Hawk Watch Site, Taft School, is located in Watertown, approximately 13.8 miles to the northwest of the proposed Facility.

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 its design and hawk migration behavior occurring during the daytime under favorable weather conditions when thermals form.

## Bald Eagle Site

Bald Eagle Sites consist of locations of midwinter Bald Eagle counts from 1986 to 2005 with an update provided in 2008. 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. The nearest Bald Eagle Site survey route to the host Property is located along the Housatonic River approximately 18.7 miles southwest of the host Property.

Bald Eagle migration patterns are complex, dependent on age of the individual, climate (particularly during the winter) and availability of food.<sup>3</sup> 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.<sup>4</sup> Bald Eagle migration altitudes are estimated to average 1,500–3,050 m by ground observers.<sup>4</sup> 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).<sup>5</sup>

No adverse impacts to migrating Bald Eagle are anticipated with development of the Facility, based on the short (170-foot) height of the Facility and eagle migration patterns during the daytime under favorable weather conditions when thermals form.

## Flyways

The project area is located in New Haven County, approximately 18 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

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<sup>3</sup> 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].

<sup>4</sup> Harmata, A. R. 1984. Bald Eagles of the San Luis valley, Colorado: their winter ecology and spring migration. Phd Thesis. Montana State Univ. Bozeman.

<sup>5</sup> 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)<sup>6</sup> 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 Survey<sup>7</sup>), which consisted of collection of migratory bird data along the Connecticut River and the following major Connecticut River tributaries: Farmington, Hockanum, Scantic, Park, Mattabeset, Salmon, and Eight Mile Rivers. Of these potential flyways, the nearest to the host Property is the Connecticut River, located approximately 11 miles to the northeast. The Quinnipiac River riparian corridor is located 365 feet northwest of the host Property. Although the Quinnipiac River is not identified as a potential flyway, it potentially forms a secondary flyway as birds disperse from potential flyway riparian corridors during the spring migration. These larger riparian corridors, like the Quinnipiac River, may provide secondary flyways as they likely offer more food and protection than more exposed upland sites, particularly during the spring migration<sup>8</sup>.

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)<sup>9</sup>. The proposed Facility is not this type of tower, being an unlit, unguyed monopole structure only 170 feet in height. More recent studies of short communication towers (<300 feet) reveal that they rarely kill migratory birds<sup>10</sup>. 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)<sup>11</sup>.

Therefore, although the Facility will be in close proximity to the Quinnipiac River, no adverse impacts to migrating bird species are anticipated considering the short (170-foot) height of the unlit and unguyed tower.

## 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

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

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

<sup>8</sup> The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey. [http://www.science.smith.edu/stopoverbirds/Chapter5\\_Conclusions&Recommendations.html](http://www.science.smith.edu/stopoverbirds/Chapter5_Conclusions&Recommendations.html)

<sup>9</sup> 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 3<sup>rd</sup> 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.

<sup>10</sup> 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.

<sup>11</sup> 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.

Flyway. Connecticut contains several of these waterfowl focus areas. The nearest waterfowl focus area to the host Property is the New Haven Harbor Focus area, located approximately 5.8 miles to the southeast. 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 Cheshire. The nearest migratory waterfowl area (Durman Meadows State Wildlife Area) is located approximately 8.3 miles to the southeast of the proposed Facility. The associated species are identified as American black duck, bufflehead, mallard, green wing teal, and wood duck. Based on its distance to the host Property, no impacts to migratory waterfowl habitat are anticipated to result from development of the proposed Facility.

### **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. The proposed Facility is located within a NDDB buffer area.

No endangered, threatened or special concern avian species have been identified at the host Property. APT submitted a review request to the CTDEEP NDDB in December 4, 2013 with respect to this project. The CTDEEP responded in a letter (dated December 4, 2013) that, according to NDDB information, records exist in the vicinity of the host Property for State Special Concern Species Wood Turtle (*Glyptemys insculpta*) and Eastern Box Turtle (*Terrapene Carolina Carolina*). APT responded to this

determination with a management and protection program to mitigate potential temporary impacts to wood turtle and box turtle populations potentially existing in the vicinity of the proposed Facility during construction. The CTDEEP further stated that “by utilizing these protocols that the proposed activities will not have a long-term adverse impact on the wood turtle and box turtle populations that may occur in this area of Cheshire”. The turtle management and protection program would be incorporated into the Development and Management Plan should the proposed Facility be approved by the Council.

### **USFWS Communications Towers Compliance**

The U.S Fish and Wildlife Service (“USFWS”) prepared its *Interim Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers* (September 14, 2000), which recommends the 12 voluntary actions below be implemented in order to mitigate potential bird strikes that could result by the construction of telecommunications towers. With respect to Council’s question 16, APT offers the following responses for each of the recommended actions below.

1. *Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communications tower or other structure (e.g., billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.*

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.

2. *If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (e.g., use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Administration regulations permit.*

The proposed Facility would consist of a 170-foot monopole structure which requires neither guy wires nor lighting.

3. *If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.*

Multiple towers are not proposed as part of this project.



4. *If at all possible, new towers should be sited within existing “antenna farms” (clusters of towers). Towers should not be sited in or near wetlands, or other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.*

There are no existing “antenna farms” in the area. The proposed Facility is not within wetlands, known bird concentration area, migratory or daily movement flyway, or habitat of threatened/endangered species. Although the Facility is proposed in proximity to wetlands and the Quinnipiac River (potential secondary flyway), no adverse impacts to migrating bird species are anticipated considering the tower’s short (170-foot) height and design (it will be unlit and unguyed). Also, the Facility location is considered to provide marginal bird habitat since it is actively used by the Town of Cheshire as a cleared and graded storage yard with no trees or mature vegetation.

APT submitted a review request to the CTDEEP NDDDB in December 4, 2013 with respect to this project. No endangered, threatened or species of special concern with respect to migratory birds were identified by the agency.

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.

5. *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 proposed Facility height (170 feet AGL) is less than 199 feet and would not require any aviation safety lighting.

6. *Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major migratory bird movement routes or stopover sites, should have daytime visual markers 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.

7. *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 and disturbance, and to reduce above ground obstacles to birds in flight.*

The proposed 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 is proximate to existing development associated with a waste water treatment plant and recreation park in an existing cleared and maintained area currently dominated by common Mugwort (*Artemisia vulgaris*), an herbaceous invasive plant species. Due to the existing cleared

nature of the proposed Facility site and its proximity to other large, active developments, habitat fragmentation will not result from the proposed project.

8. *If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal; restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.*

Significant numbers of breeding, feeding, or roosting birds are not known to habitually use the proposed tower construction areas at the host Property.

9. *In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.*

The proposed Facility has been designed in accordance with this guidance, as it could accommodate a total of five antenna platform positions and the Town's emergency communications system antennas. The proposed, free-standing Facility would be neither lighted nor guyed.

10. *Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.*

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

11. *If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct, dead-bird searches, to place net catchments below the towers but above the ground, and to place 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 notification to Homeland Towers, USFWS personnel would be allowed access to the proposed Facility to conduct evaluations.

12. *Towers no longer in 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 or determined to be obsolete, it would be removed within 12 months of cessation of use.

## **Summary and Conclusions**

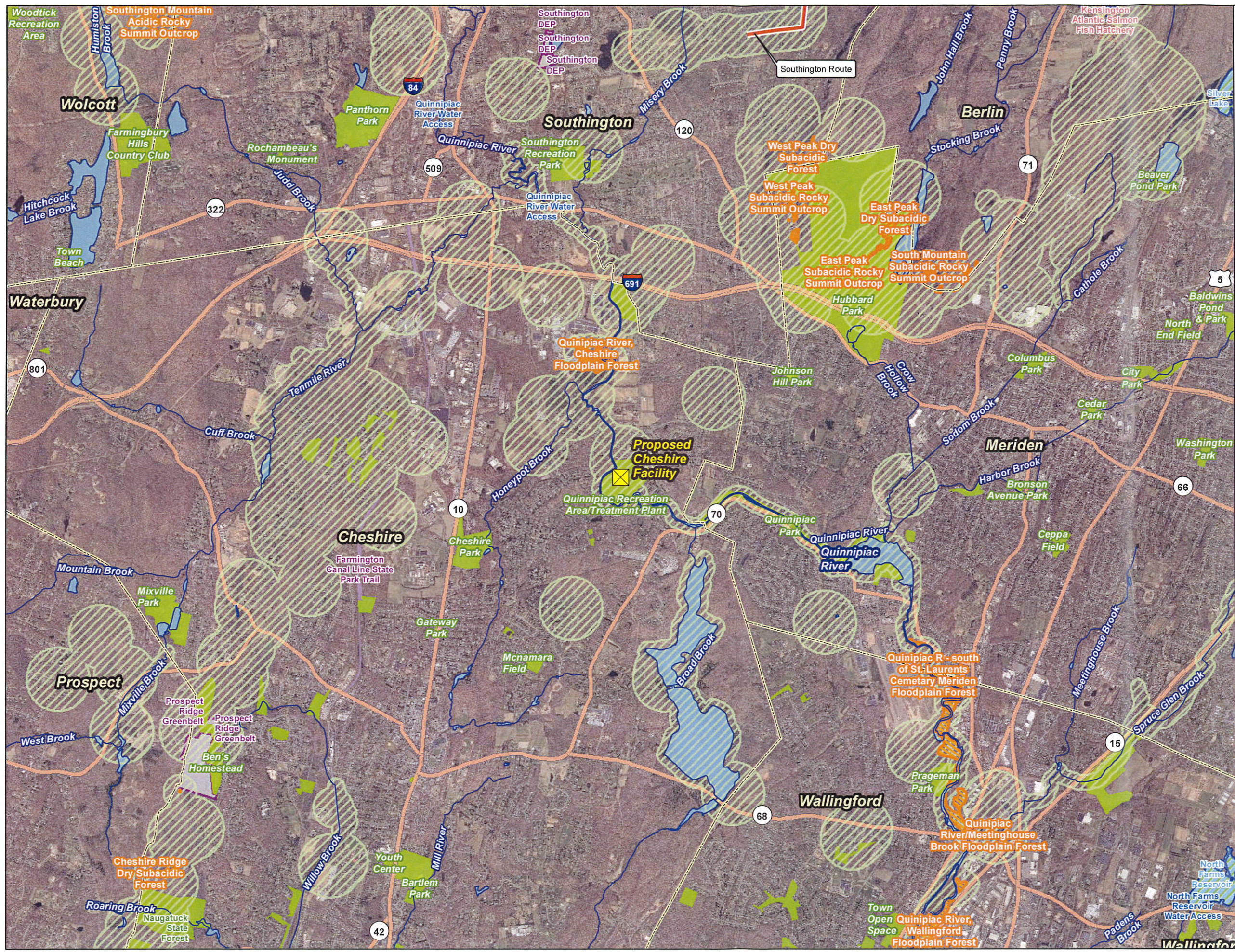
In response to the Council's inquiries with respect to avian-related concerns, APT has determined through this desk-top evaluation that the proposed Facility is not proximate to an Important Bird Area or other significant avian resource areas. In addition, as proposed the Facility would comply with the USFWS guidelines for minimizing the potential to adversely impact birds. As a result, no migratory bird species are anticipated to be impacted by Homeland Tower's proposed development.

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# Figures

- Avian Resources Map
- Connecticut Waterfowl Focus Areas Map





# Avian Resources Map

Proposed Wireless  
Telecommunications Facility  
Cheshire  
1325 Cheshire Street  
Cheshire, Connecticut

## Legend

- Proposed Facility
- Bald Eagle Site\*
- Hawk Watch Site\*
- Important Bird Site\*
- Important Bird Area
- Breeding Bird Survey Route
- Natural Diversity Database (CTDEEP, 6/2014)
- Critical Habitat (CTDEEP, 07/2009)
- Migratory Waterfowl (CTDEEP, 1999)\*
- Preserved Open Space (CTDEEP, 1997)
- Federal Open Space (CTDEEP, 2004)\*
- CT DEP 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 extents

**Avian Source Information:**  
 Bald Eagle Sites: U.S. Geological Survey, National Biological Information Infrastructure, 2009, Midwinter Bald Eagle Counts, 1986-2005 (update 2009).  
 Hawk Watch Sites: Hawk Migration Association of North America (HMANA), Hawk Count website: <http://hawkcount.org/sitesel.php?country=USA&stateprov=Connecticut>  
 Migratory Waterfowl: CTDEEP GIS, 1999  
 Important Bird Sites/Areas: National Audubon Society, Audubon Connecticut  
[http://ct.audubon.org/BirdSci\\_IBAs.html](http://ct.audubon.org/BirdSci_IBAs.html)  
 Breeding Bird Survey Routes: Patuxent Wildlife Research Center of the U.S. Geological Survey and the Canadian Wildlife Service's National Wildlife Research Center  
<http://www.nationalatlas.gov/mid/bbsrsl.html>

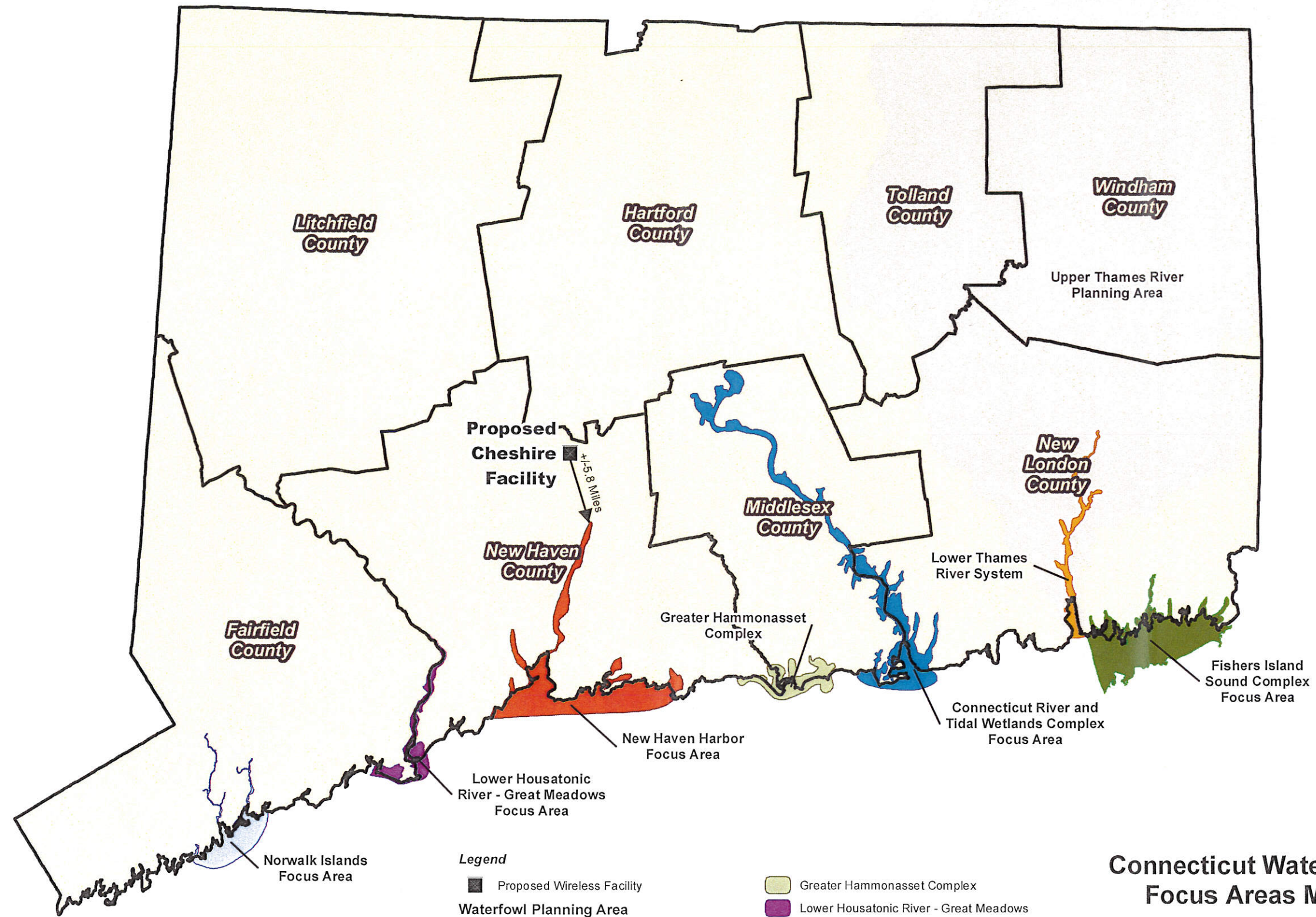
Base Map Source: 2012 aerial photograph (CTECO map service)  
 Map Date: September 2014



0.5 0.25 0 0.5 Miles







**Legend**

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

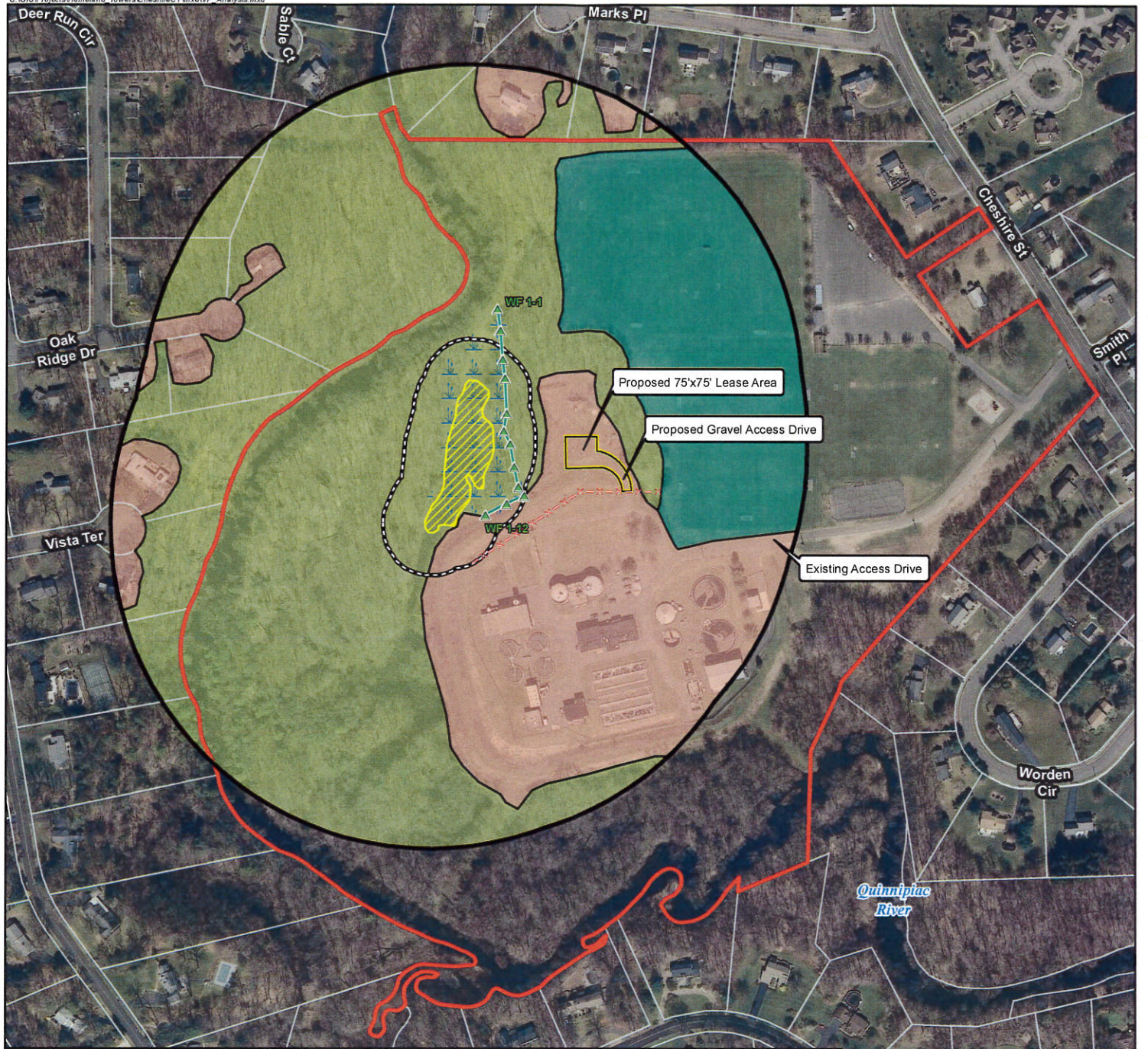
**Connecticut Waterfowl Focus Areas Map**

Proposed Wireless Telecommunications Facility  
 Cheshire  
 1325 Cheshire Street  
 Cheshire, Connecticut



# ATTACHMENT 4





Proposed Limits of Disturbance: ±8,842 sq. ft.

Total 100' Vernal Pool Envelope Area: ±3.39 acres

Total 100'-750' Critical Terrestrial Habitat Area: ±52.56 acres

**Critical Terrestrial Habitat Impact Areas:**

Developed	±8,842 sq. ft.	100%
Number of trees to be removed: 0		

**Existing 100' Vernal Pool Envelope Areas:**

Developed	±0.4 acre	11.80%
Forested	±2.99 acres	88.20%

**Existing Critical Terrestrial Habitat Areas:**

Developed	±13.70 acres	26.07%
Forested	±29.95 acres	56.98%
Recreation Fields (unsuitable habitat)	±8.91 acres	16.95%

**No Impact to 100' Vernal Pool Envelope Areas:**

Developed	±0.4 acre	11.80%
Forested	±2.99 acres	88.20%

**No Impact to Critical Terrestrial Habitat Areas:**

Developed	±13.70 acres	26.07%
Forested	±29.95 acres	56.98%
Recreation Fields (unsuitable habitat)	±8.91 acres	16.95%

**Legend**

- Proposed Facility Layout
- Approximate Subject Parcel Boundary
- Approximate Parcel Boundary (CTDEEP)
- Metal Fence
- Wetland Flag
- Wetland Boundary
- Wetland Area
- Vernal Pool
- 100' Vernal Pool Envelope
- 100'-750' Critical Terrestrial Habitat Area
- Critical Terrestrial Habitat Type**
- Developed
- Forested
- Recreation Field (unsuitable habitat)

**Vernal Pool Analysis Map**

Proposed Wireless  
Telecommunications Facility  
Cheshire  
1325 Cheshire Street  
Cheshire, Connecticut





# ATTACHMENT 5