

STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

IN RE:

APPLICATION OF NEW CINGULAR WIRELESS  
PCS, LLC (AT&T) FOR A CERTIFICATE OF  
ENVIRONMENTAL COMPATIBILITY AND PUBLIC  
NEED FOR THE CONSTRUCTION, MAINTENANCE  
AND OPERATION OF A TELECOMMUNICATIONS  
TOWER FACILITY ON PROPERTY LOCATED AT  
560 WEST HILL ROAD IN THE CITY OF  
STAMFORD, CONNECTICUT

DOCKET NO. 447

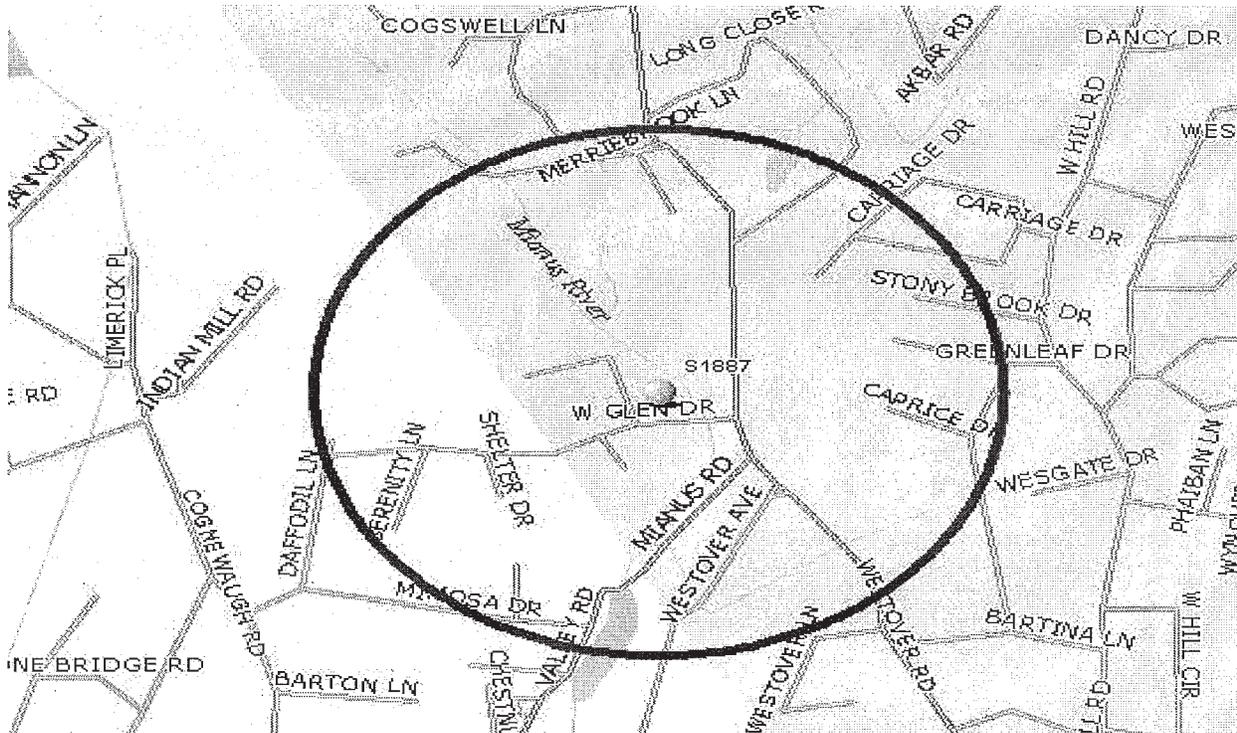
April 24, 2014

NEW CINGULAR WIRELESS, PCS LLC (AT&T) RESPONSES TO CONNECTICUT  
SITING COUNCIL PRE-HEARING QUESTIONS SET I

- Q1. Of the letters sent to abutting property owners, how many certified mail receipts were received? If any receipts were not returned, which owners did not receive their notice? Were any additional attempts made to contact those property owners?
- A1. *All certified mail receipts were received for the notice of filing letters sent to abutting property owners.*
- Q2. Provide an affidavit of publication from the *Stamford Advocate* to certify the publication date(s) of AT&T's notice. Is the *Stamford Advocate* a daily or weekly publication?
- A2. *Please see affidavit of publication from the Stamford Advocate included as Attachment 1. The Stamford Advocate is a daily publication.*
- Q3. Provide the status of the Connecticut State Historic Preservation Office review.
- A3. *AT&T's consultants are awaiting correspondence from SHPO on this project.*
- Q4. Pursuant to CGS §16-50o, please submit a copy of the lease for the proposed site.
- A4. *A copy of the lease for the proposed site was submitted under separate cover to the Siting Council and intervenor WHET electronically and by overnight delivery on April 9, 2014.*

Q5. Provide the size and shape of the search ring. Also provide the longitude and latitude coordinates of the center of the search ring.

A5. *The subject search ring as issued in 2008 was approximately ½ mile in radius.*



*The ring center was located at latitude 41-4-30.72 and longitude -73-34-35.4.*

Q6. Would the tower setback radius encroach on any adjoining properties? If so, state the distance of the encroachment and who owns these properties? Could the proposed tower be designed with a yield point to ensure that the tower setback radius remains within the boundaries of the subject property?

A6. *The tower and compound do not encroach directly onto adjoining properties. A 120' tower in the location proposed is setback less than one times the height of the tower to the following adjoining property lines as follows:*

- *Property n/f owned by Paul B. Lynch, Jr. Trustee 56'*
- *Property n/f owned by David H. & Laura J. Karvosky, 56'*
- *Property n/f owned by Congregation Agulath Sholom Cemetery Association, 115'.*

*Yes, the tower could be designed with a yield point.*

Q7. Quantify the amounts of cut and fill (in cubic yards) that would be required to develop the proposed facility.

A7. *The amount of site work to develop the site is minimal since an existing road is being used and the compound area is already flat. The filling associated with this site is the result of resurfacing the existing road with 3" of gravel and installing a gravel compound surface, which results in 181 CY of fill. The required cutting is a result of skimming topsoil off of the compound surface and the short piece of new road and results in 99 CY of cutting.*

Q8. Would any blasting be required to develop the site?

A8. *The presence of ledge will be confirmed upon completion of a geotechnical investigation. If ledge is encountered, removal by mechanical means is first attempted. If mechanical removal methods are unsuccessful, blasting will be utilized as required to remove the ledge.*

Q9. Is the proposed site located within a 100-year or 500-year flood zone?

A9. *No. The site is located in flood zone X, which is defined as being outside 0.2% annual chance floodplain.*

Q10. What is the tower design wind speed for this area (Fairfield County)?

A10. *105 mph basic wind speed for Stamford per the Connecticut building code.*

Q11. Would the tower be designed to be expandable in height? If yes, indicate how much taller the tower could be expanded in height.

A11. *The tower is not being designed to be expandable in height.*

Q12. Would the monopole or "tree trunk" have a galvanized gray finish? If approved, could the monopole have a brown finish if requested?

A12. *The "monopine" typically comes from vendors with a standard gray galvanized finish, but it can be ordered with a brown finish.*

Q13. Would the tree branch material extend above the top of 120-foot tower or would it be a "flat top" tree design with the tree branch material approximately flush with the top of the tower? If the tree branch material is expected to extend above the top of the tower, indicate by how much in feet.

A13. *At present the monopine is designed with a flat top not extending above the 120' level. Adding additional branching to provide a tapered crown top would add approximately five (5) feet in height.*

Q14. What type of antenna mount will be used for the proposed antennas, e.g. low-profile platform? Would there be three sectors or four?

A14. *This monopine will be designed for a low profile platform mount with three sectors.*

Q15. Are all of the proposed panel antennas approximately eight feet tall?

A15. *All of the proposed antennas are approximately eight feet tall.*

Q16. Would flush-mounted antennas or antennas attached to the tower at the proposed height via T-arms provide the required coverage? Would either configuration result in reduced coverage and/or necessitate greater antenna height with multiple levels of antennas? Explain.

A16. *A flush mount configuration would result in reduced operational effectiveness or necessitate greater antenna height while hindering future technological upgrades. "Flush" mounting to a tower generally refers to close contact attachment of antennas directly to the tower without use of a platform or T-arms to offset antennas from a tower for mounting. When used on a tower structure, flush mounting usually only allows three to six antennas to be installed at one level (i.e. same height AGL). A carrier must then mount sets of three antennas at multiple levels on a tower. To achieve reliable service without compromising capacity or performance the lowest level would be at the minimum height necessary with additional levels installed above that minimum level on the tower. For example, an installation of twelve antennas on a tower would require the mounting of antennas at four levels (3 antennas per level) beginning at the minimum required height required. By comparison, platforms or t-arms would entail mounting of antennas at one level.*

*In general, because flush mounting requires the use of multiple levels on a tower by a single carrier, it limits the ability for other carriers to co-locate on that tower. A flush mount configuration also limits the space available for any additional equipment such as remote radio head units (RRH's), surge arrestors and other associated equipment carriers typically install along with its antennas for LTE as a function of network data throughput speed. Flush mounting limits the space available on a given tower and it is conceivable such limits could inhibit future technological upgrades. It should also be noted that in many instances flush mounting can inhibit the ability of a carrier to tilt and angle antennas to maximally optimize performance and achieve the best coverage at a given height and location. While certainly possible, AT&T usually reserves flush mounting, or internal antenna usage to cases where it cannot meet federal regulatory requirements, cannot obtain a real property interest or it is determined by the Council as a necessity to address a significant environmental effect that is documented as part of the hearing process and consideration of Section 16-50p of the General Statutes.*

*AT&T respectfully submits that a flush mount configuration is not warranted in this instance given the proposed monopine stealthing and the operational and collocation effects such a configuration would result in.*

Q17. Under a maintenance or equipment swap scenario, describe the accessibility to antennas that are flush-mounted or T-arm mounted compared to a platform mount design.

A17. *Flush mounting entails some operational limitations as noted above in A16. As for equipment maintenance and swapping, antennas and tower mounted equipment that are flush mounted or attached to T-Arm mounts often require use of a crane for access while platforms can more readily allow access by tower climbing without need for a crane.*

Q18. Identify distances and directions to the adjacent sites with which the proposed facility would hand off signals. Include addresses of these sites, tower/structure types (e.g. monopole or building), AT&T's antenna centerline heights, and tower/structure heights.

A18. *This information is being assembled and finalized in order to be responsive to this questions and should follow under separate cover in a few business days.*

Q19. Would the proposed site be needed for coverage, capacity, or both? Explain.

A19. *As detailed in the RF Report included in Tab 1 of AT&T's Application, the proposed Facility is needed to principally address a gap in reliable wireless coverage in this area of Stamford.*

Q20. Are all frequencies used to transmit voice and data?

A20. *Ultimately yes, all frequencies will be used for voice and data.*

Q21. Would AT&T provide both cellular and PCS services initially or cellular first and PCS in the future? When would LTE service be provided, if applicable? Explain.

A21. *AT&T will initially provide UMTS services over its cellular and PCS frequencies and LTE services over its 700 MHz frequencies when the site is placed into service. At some point in the future, AT&T will also provide LTE services over its PCS frequencies.*

Q22. What is the lowest height at which AT&T's antennas could achieve its coverage objectives from [the proposed site]? Submit propagation maps showing the coverage at ten and twenty feet below these heights for cellular, PCS, and LTE, as applicable, based on the same scale already provided.

A22. *The required antennas centerline is 116' AGL. Plots are being finalized in order to be responsive to this question and will follow under separate cover in the next few business days.*

Q23. What is the signal strength for which AT&T designs its system? For in-vehicle coverage? For in-building coverage? If in-building coverage and in-vehicle coverage are not applicable to certain frequency bands, include other signal strength objectives.

A23. *AT&T's network has historically served customers on 850 and 1900 MHz using GSM and UMTS technologies. For this use and technology, the design criteria has been -74 dBm for in-building reliable service and -82dBm for in-vehicle reliable service. As the network moves toward LTE technology, and to meet the demands of faster data use, which equates to customer experienced speed and reliability, AT&T now uses the following design thresholds for the LTE (4G) network:*

- *-83 and -93dBm for 700Mhz LTE (base platform)*
- *-86 and -96dBm for 1900MHz LTE (capacity off-load for the 700MHz LTE)*

*Currently, many customers remain on UMTS on 850 and 1900 bands. Those customers will need to continue to be supported as they are migrated from 3/3.5G to 4G service so AT&T continues to consider UMTS (3G) as an important service to provide, during the evolutionary period to LTE (4G)*

Q24. What is the existing signal strength within the area AT&T is seeking to cover from this site?

A24. *The existing signal strength in the areas that would be covered by the proposed Facility at 850 MHz range from -74 dBm (small areas on hills) to down to -120 dBm (noise floor), which does not constitute reliable coverage. Similar for 700 MHz and LTE.*

Q25. Does AT&T have any statistics on dropped calls and/or ineffective attempts in the vicinity of the proposed facility? If so, provide this data. What does it indicate? Does AT&T have any other indicators of substandard service in this area?

A25. *AT&T's dropped call data for the area where reliable service is needed, while proprietary, indicates elevated voice and data drops. In addition, data testing indicates that substandard or nonexistent data service is provided within the area identified as a need for this site. AT&T is preparing a further response to this question and will supplement its response.*

Q26. List the major roads and the lengths of the individual coverage gaps on these roads that AT&T is seeking to cover from the proposed site at cellular frequencies? At PCS frequencies? At LTE frequencies?

- A26. *This data is being finalized by AT&T and will follow under separate cover in the following few business days.*
- Q27. Provide similar data as requested in question 26 for secondary roads. However, the total sum of the gaps on secondary roads may be provided in lieu of the individual gaps by road.
- A27. *This data is being finalized by AT&T and will follow under separate cover in the following few business days.*
- Q28. Provide the lengths of the proposed coverage of any major roads that AT&T seeks to provide coverage to based on the tower's proposed height, as well as ten and twenty feet shorter for cellular, PCS, and LTE frequencies as applicable. Provide similar data for secondary roads; however, the total sum of the coverage lengths of secondary roads may be provided in lieu of individual coverage lengths by road.
- A28. *This data is being finalized by AT&T and will follow under separate cover in the following few business days.*
- Q29. What are the predicted coverage footprints from the proposed site (in square miles), for cellular, PCS, and LTE as applicable? Also, provide this data for antenna heights ten and twenty feet shorter.
- A29. *This data is being finalized by AT&T and will follow under separate cover in the following few business days.*
- Q30. Using the same scale as the LTE coverage plots submitted in the Application, provide existing coverage plots for cellular and PCS, as applicable. Also include cellular and PCS coverage plots depicting the existing and proposed coverage.
- A30. *This data is being finalized by AT&T and will follow under separate cover in the following few business days.*
- Q31. Identify the safety standards and/or codes by which equipment, machinery, or technology would be used or operated at the proposed facility.
- A31. *OSHA and ET docket 93-62 and 47 CFR parts 1,2,15,42 and 97 as well as OET Bulletin 65, Edition 97-01.*
- Q32. What measures are proposed for the site to ensure security and deter vandalism
- A32. *AT&T proposes an eight (8) foot fenced in compound with a secured entry. The equipment shelter also has a secured entry.*

Q33. What type(s) of outdoor lighting would be installed on the equipment shelter, if any? When would the lighting operate?

A33. *The prefabricated shelter has a halogen lamp light next to the access door. This light is only activated by a motion sensor.*

Q34. What is the fuel source for the backup generator? What is the size of the generator in kilowatts? What would be the approximate run time for the backup generator before it would need to be refueled, assuming that it is operating at full load? If the proposed generator is diesel, include the estimated full-load run time for a propane generator or vice versa.

A34. *It is anticipated AT&T would install a 50 KW, diesel powered generator. The estimated run time is approximately 48 hours based upon a 100% load and 200 gallons of fuel available. At a 50% load, run time would be approximately 86 hours.*

Q35. Explain the air emissions permit process for emergency backup generators.

A35. *An emergency generator such as the 50kW set AT&T typically deploys is exempt from emissions permitting under RCOSA Section 22a-174-3b. A larger generator such as mentioned in Q39 requires permitting and fee payment pursuant to RCOSA Section 22a-174-3b.*

Q36. Could the proposed generator be shared by other carriers that may locate at the proposed facility? What effect would a shared generator have on the run time of the generator if at full load?

A36. *AT&T's proposed back-up emergency generator is sized for AT&T's use only. AT&T can design the compound to provide future flexibility for the possible deployment of a larger shared generator should another carrier (or future tower site owner) decide to deploy one in the future.*

Q37. Would there be any interruption in service between the time power goes out and the generator comes online? For example, would AT&T provide battery backup to prevent a reboot condition and provide seamless power until the generator starts? If AT&T has a battery backup system, how many hours could it supply power in the event that the generator fails to start?

A37. *AT&T will have a battery backup required to prevent the facility from experiencing a "re-boot" condition during the generator start-up delay period thus allowing for continued or "seamless" provision of service where signal levels allow. The battery backup system provides power to the facility for approximately 4 to 6 hours.*

Q38. Has AT&T considered using a fuel cell as a backup power source for the proposed site? Explain.

A38. *No. As set forth in the Siting Council's Feasibility Study in Docket 432 (Feasibility study of backup power requirements for telecommunications towers and antennas pursuant to Public Act 12-148), the type of backup power chosen for use at a facility is determined by facility constraints (such as space, weight restrictions, lease arrangements, zoning codes), environmental limitations and liabilities, capital and operating/maintenance costs, network functionality and fuel availability. Costs and fuel sources (including lack of reliable distribution channels in some cases) have generally led AT&T to exclude them from its business plan.*

Q39. Would a shared approximately 200 kW backup generator fit within the proposed equipment shelter? If no, what size concrete pad or equivalent would be needed to accommodate an approximately 200 kW shared backup generator?

A39. *A 200kW generator (11'-4" x 4'-6") will not fit in the shelter. An approximately 12'-0" x 5'-0" pad would be required.*

Q40. Please provide the cost of a 50kW backup generator or the proposed size generator if different. Please provide the cost of an approximately 200 kW shared backup generator.

A40. *The current estimated cost of a 50kW generator is approximately \$17,750. The current estimated cost of a 200kW generator is approximately \$51,000. These costs are generator costs only and do not include additional electrical equipment that may be required for a shared generator, or shipping costs, installation costs, additional fuel costs or added long term maintenance. A 200kW generator would also likely require an additional permitting requirement and fee by the Connecticut Department of Energy and Environmental Protection pursuant to RCSA Section 22a-174-3a.<sup>1</sup>*

Q41. Is the proposed site near an "Important Bird Area" as designated by the National Audubon Society?

A41. *No. The proposed site is located approximately 3.5 miles northwest of the nearest "Important Bird Area", identified as Cove Island Park in Stamford. Please refer to the Avian Resources Evaluation provide in Attachment 2.*

Q42. Would AT&T'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?

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<sup>1</sup> For the Council's information, please note that the cost of a 50kW propane emergency back-up generator is approximately \$25,000. The cost of a 200kW propane emergency back-up is approximately \$70,000, not including other associated costs.

- A42. *Yes. Please refer to the Avian Resources Evaluation provide in Attachment 2*
- Q43. Is the site located within the shaded area of the State of Connecticut Department of Energy and Environmental Protection Natural Diversity Database? Explain.
- A43. *No, the site is not located within a Natural Diversity Data Base ("NDDDB") Area. The nearest NDDDB Area is located approximately 3,000 feet southwest of the site associated with the Mianus River riparian corridor. A NDDDB Map is provided in Attachment 3.*
- Q44. Would the tower be visible from any hiking trails within the two-mile radius area used for the visibility analysis? If yes, identify the location and distance and direction from the proposed tower, and indicate if such views would be seasonal or year-round.
- A44. *No. No views are anticipated from trails within the Mianus River Park which are depicted within the western portion of the two-mile Study Area in the visibility analysis.*
- Q45. Estimate the number of homes with year-round visibility of the tower and seasonal visibility of the tower.
- A45. *It is estimated that up to 25 residential properties may have views of at least a portion of the tower on a year-round basis. Approximately 70 additional residential properties could have obstructed views of a portion of the monopine tower through the trees during "leaf-off" conditions. Field verification activities during the balloon float are restricted to publicly accessible areas, so AT&T's consultants rely on the computer model to compile a comprehensive list of residential properties that could have views of the tower. The model also has its limitations because it is designed to answer a very simple yes-no question: can at least the top of the tower be seen from any point within a 2-mile radius (Study Area), given the intervening topography and vegetation. Theoretically, if one inch of the tower is detected from any given point in the Study Area, it is considered visible, although in real world conditions the tower might not be discernable to the human eye.*

*Therefore, the calculations tend to over-predict visibility. This is a conservative analysis that evaluates potential visibility from a residential property by interpreting if a property falls within shaded areas of potential visibility on the Viewshed Maps presented in Tab 5 of the Application. It does not necessarily mean that views would be achieved from within homes, exterior decks, porches or patios that might be located on such properties. It may be possible to view the tower from within portions of shaded areas on the Viewshed Maps, but not necessarily from all locations within those shaded areas.*

Q46. What, if any, stealth tower design options besides the proposed tree tower would be feasible to employ at this site?

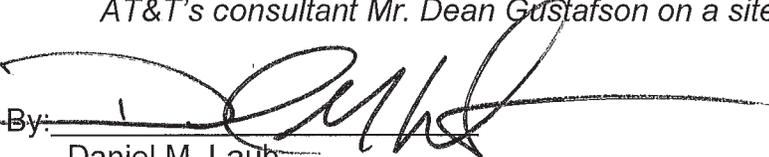
A46. *From an aesthetic standpoint the tree tower, designed to resemble a pine tree, was selected because of the tower's relatively short height and the site's setting within an area that is surrounded by woods. A unipole with close-contact arrays or internal antennas might serve to minimize visibility, however, this presents technical challenges for radio frequency engineering and collocation limitations.*

Q47. What is the expected cumulative noise level at the nearest property line from the proposed facility assuming the generator and air conditioning units are running at the same time? Provide a similar analysis only taking into account the air conditioning units.

A47. *The cumulative noise level at the nearest property line for 2 ac units is 70dbA and for 2 ac units and the generator is 71dbA, see calculations included in Attachment 4.. The cumulative noise level for the 2 AC units exceeds state limits of 55dbA during the day and 45 dbA at night. This theoretical noise level would be dropped by approximately 25dbA to comply with state requirements through the use of noise blankets around the AC units, see Attachment 4. It should be noted that the 2 units do not run simultaneously as part of routine site operation.*

Q48. Provide Functions and Values assessments of Wetland 1 and Wetland 2.

A48. *This assessment is currently ongoing in addition to a vernal pool study, the results of which will have a bearing on the evaluation of certain wetland functions. As such a wetland functions and values assessment report will be completed with the vernal pool study. Once completed this information will be provided to the Council and the Intervenor WHET. In the meantime please note that the wetlands consultant for Intervenor WHET, Dr. Danzer, accompanied AT&T's consultant Mr. Dean Gustafson on a site walk the week of April 14th.*

By: 

Daniel M. Laub  
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ATTACHMENT 1

# The ADVOCATE

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P.O. Box 4910  
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## NOTICE

Notice is hereby given, pursuant to Section 16-50I(b) of the Connecticut General Statutes and Section 16-50I-1(e) of the Regulations of Connecticut State Agencies of an Application to be filed with the Connecticut Siting Council ("Siting Council") on or after February 28, 2014 by New Cingular Wireless PCS, LLC ("AT&T" or the "Applicant") for a certificate of environmental compatibility and public need for the construction and maintenance of a wireless telecommunications facility in Stamford, Connecticut.

The proposed facility is located at 560 West Hill Road which is identified as Map 1, Parcel 1379 by the Stamford Tax Assessor. The proposed facility is located in the northeastern portion of a 3.2 acre parcel of land adjacent to a cemetery and is proposed as a 120' AGL monopole with antennas and appurtenances designed as an evergreen tree. The tower, antennas and ground equipment will be located within a 3,017 square foot fenced equipment compound area. Vehicle access to the facility would be provided by an existing gravel drive in addition to a new gravel drive extension 12' in width.

The Facility is being proposed to allow AT&T to provide wireless services in the Westover/Roxbury area of the City of Stamford. The Application explains the need, purpose and benefits of the facility and also describes the environmental impacts of the proposed facility. The facility will be available for co-location by other wireless carriers. The location, height and other features of the proposed Facility are subject to review and potential change under provisions of the Connecticut General Statutes Sections 16-50g et. seq.

A balloon, representative of the proposed height of the facility, will be flown at the proposed site on the first day of the Siting Council public hearing on the Application, or such other date specified by the Siting Council and a time to be determined by the Siting Council, but anticipated to be between the hours of 12pm and 5pm. The Siting Council's public hearing will be scheduled at a later date and will take place in the City of Stamford. The public is also invited to review the Application during normal business hours after February 28, 2014 at any of the

## THE ADVOCATE CERTIFICATE OF PUBLICATION

I, Suzanne Husey  
Being duly sworn, depose and say that I am a Representative in the employ of SOUTHERN CONNECTICUT NEWSPAPERS, INC., Publisher of *The Advocate* and *Greenwich Time*, that a LEGAL NOTICE as stated below was published in THE ADVOCATE.

Subscribed and sworn to before me on this 25th Day of March, A.D. 2014.

Pamela E. Caluori  
Pamela Caluori/Notary Public

My commission expires on  
January 2018

PO Number

Publication

Stamford Advocate

Ad Number

0001959681-01

Ad Caption

NOTICE Notice is hereby given,

Publication Schedule

2/20/2014, 2/21/2014

ATTACHMENT 2



## AVIAN RESOURCES EVALUATION

**Date: April 23, 2014**

**Mr. Tim Burks  
Site Acquisitions, Inc.  
500 Enterprise Drive, Suite 3A  
Rocky Hill, CT 06067**

**APT Project No.: CT193950**

**Re: Connecticut Siting Council Docket 447  
Proposed Stamford Facility – SR 1887  
560 West Hill Road  
Stamford, Connecticut**

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New Cingular Wireless PCS, LLC (“AT&T”) proposes to construct a new wireless telecommunications Facility (“Facility”) at 560 West Hill Road in Stamford, Connecticut (the “host Property”). The host Property consists of 3.04 acres and is currently developed with a residence. The proposed Facility is located within a relatively young successional upland forest that consists of fill material near a disturbed forested wetland; a portion of the fill area is used for vehicle parking by the residence located on the host Property. AT&T proposes to install a 120-foot tall monopine and ground equipment enclosure within a 40-foot by 70-foot gravel compound area surrounded with an 8-foot tall chain link fence with green privacy slats. The existing gravel driveway will be improved to provide access to the Facility.

This evaluation is provided in response to *Pre-hearing Questions Set One* submitted by the Connecticut Siting Council (the “Council”) for Docket No. 447, specifically:

- Question #41 – *Is the proposed site near an “Important Bird Area” as designated by the National Audubon Society?*
- Question #42 – *Would AT&T’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 2-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

**ALL-POINTS TECHNOLOGY CORPORATION, P.C.**

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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 Cove Island Park in Stamford located approximately 3.5 miles to the southeast. The 83-acre park, owned by the City of Stamford, contains a diversity of habitats that is rare in the Stamford area. The park provides important habitat for migratory birds along the Connecticut coastal migratory flyway, resulting in an exceptional concentration of migratory landbirds during the spring and fall migrations. 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 estuarine beachshore area, denoted as the Cove Island Park located approximately 4 miles to the southeast. Based on the distance separating this resource from the proposed Facility, no adverse impacts are anticipated.

## **Avian Survey Routes and Points**

Breeding bird survey routes and points monitor the status and trends of various bird populations. A relative abundance index for bird species is generally produced from these surveys as complete counting data of breeding bird populations is not collected. The results of these surveys are valuable in evaluating the increasing and decreasing range of bird populations which can be a key point to bird conservation

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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

efforts. These survey routes and points likely do not identify concentrations of bird populations but may provide an indication of migratory flyways, particularly for the raptor 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 Greenwich Breeding Bird Survey Route (Route #18010) located approximately 2.8 miles to the west. This ±23-mile long bird survey route begins on North Street in Greenwich and generally winds its way northeast through Stamford and New Canaan before terminating in Wilton. 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, Quaker Ridge, is located in Greenwich, approximately 6.4 miles to the west of the proposed Facility.

### **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 (Survey Site No. 2) is located approximately 29 miles northeast of the host Property, beginning in Brookfield at the State Route 133 Bridge spanning the Housatonic River and extending south along the river to the Stevenson Dam in Monroe.

## Flyways

The project area is located in Fairfield County, approximately 3 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 Project (Stokowski, 2002)<sup>3</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>4</sup>), which consisted of collection of migratory bird data along the Connecticut River and the following major Connecticut River tributaries: Farmington, Hockanum, Scantic, Park, Mattabesset, Salmon, and Eight Mile Rivers. Of these potential flyways, the nearest to the host Property is the Housatonic River, located approximately 25 miles to the east. The Mianus River riparian corridor is located 0.7 miles west of the host Property. Although the Mianus River is not identified as a potential flyway, it potentially forms a secondary flyway as birds move northward from Long Island Sound during the spring migration. These major riparian corridors may provide secondary flyways as they likely offer more food and protection than more exposed upland sites, particularly during the spring migration<sup>5</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>6</sup>. The proposed Facility is not this type of tower, being an unlit, unguyed monopole structure only 120 feet in height. More recent studies of short communication towers (<300 feet) reveal that they rarely kill migratory birds<sup>7</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>8</sup>.

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<sup>3</sup> Stokowski, J.T. 2002. Migratory Bird Stopover Habitat Project Finishes First Year. Connecticut Wildlife, November/December 2002. P.4.

<sup>4</sup> The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey <http://www.science.smith.edu/stopoverbirds/index.html>

<sup>5</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>6</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>7</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>8</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.

No adverse impacts to migrating bird species are anticipated with the Project, based on the distances separating the host Property from both the Housatonic and Mianus River potential flyway corridors and the short (120-foot) height of the unlit and unguyed Facility.

## **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 host Property is the Norwalk Islands area, located approximately 6 miles to the east. 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.

The nearest migratory waterfowl area (Holly Pond in Darien, CT) is located approximately 3.5 miles to the southeast of the proposed Facility. The associated species are identified as American wigeon, American black duck, bufflehead, canvasback, mallard, hooded merganser, and Canadian goose. 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.

According to NDDDB maps updated in December 2013, no known extant populations of State or Federal Endangered, Threatened or Special Concern species are located at or near the host Property; the nearest NDDDB area is located  $\pm 3,000$  feet to the southwest. In response to a NDDDB review request, a July 29, 2013 letter from the CTDEEP stated that there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur in the vicinity of the host Property.

## **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 42, 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 120-foot monopine 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.*

### **ALL-POINTS TECHNOLOGY CORPORATION, P.C.**

3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935

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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 proposed Facility is located in close proximity to wetlands, existing disturbances within and along the wetland edge, evidence of invasive wetland plants, and habitat fragmentation and high level of human activity due to the surrounding suburban development has diminished the ecological integrity of this wetland area and as a result diminished its wildlife habitat value. As a result, the nearby wetland system is not anticipated to support bird concentrations. According to NDDDB maps updated in December 2013, no known extant populations of state or federal endangered, threatened or special concern avian species at or near the host Property; the nearest NDDDB area is located  $\pm 3,000$  feet to the southwest. In response to a NDDDB review request, a July 29, 2013 letter from the CTDEEP stated that there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur in the vicinity of the host Property.

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 (120 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 site is located proximate to existing development associated with a residential dwelling and access drive. The surrounding suburban development has resulted in fragmentation of wetland and terrestrial habitats. The proposed development will not significantly increase the existing habitat fragmentation.

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.*

The proposed tower construction area is located within a relatively young successional upland forest that consists of fill material and is used for vehicle parking by the residence located on the host Property. Past disturbances, the existing level of human activity and habitat fragmentation due to the surrounding suburban development has diminished the ecological integrity of this habitat and as a result diminished its wildlife habitat value. Therefore, the host Property is not anticipated to support significant numbers of breeding, feeding, or roosting birds. However, the host Property is located adjacent to a forested wetland corridor that has the potential to support some forest-dwelling avian species, including migratory Neotropical species; the lack of high quality habitat could place emphasis on the remaining habitat even though it is a relatively small patch. Therefore, the following recommendations are provided to avoid potential disturbance during periods of high bird activity: if construction activities should occur during the peak nesting period of April 15 through July 15<sup>9</sup>, tree clearing work shall be completed prior to April 15<sup>th</sup>; or, if construction activities should occur during the peak nesting period but tree clearing work has not been completed by April 15<sup>th</sup>, an avian survey shall be conducted to determine if breeding birds would be disturbed and the Migratory Bird Treaty Act violated by tree clearing activities. If the avian survey concludes that breeding birds could be disturbed, construction activities would be restricted from the April 15 through July 15 peak nesting period.

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 four 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*

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<sup>9</sup> USFWS identifies the peak avian nesting season as April 15 through July 15 and recommends clearing activities be performed before this period in order to comply with the Migratory Bird Treaty Act, personal communication with Maria Tur, USFWS New England Field Office, February 27, 2014.

*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 AT&T, 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.

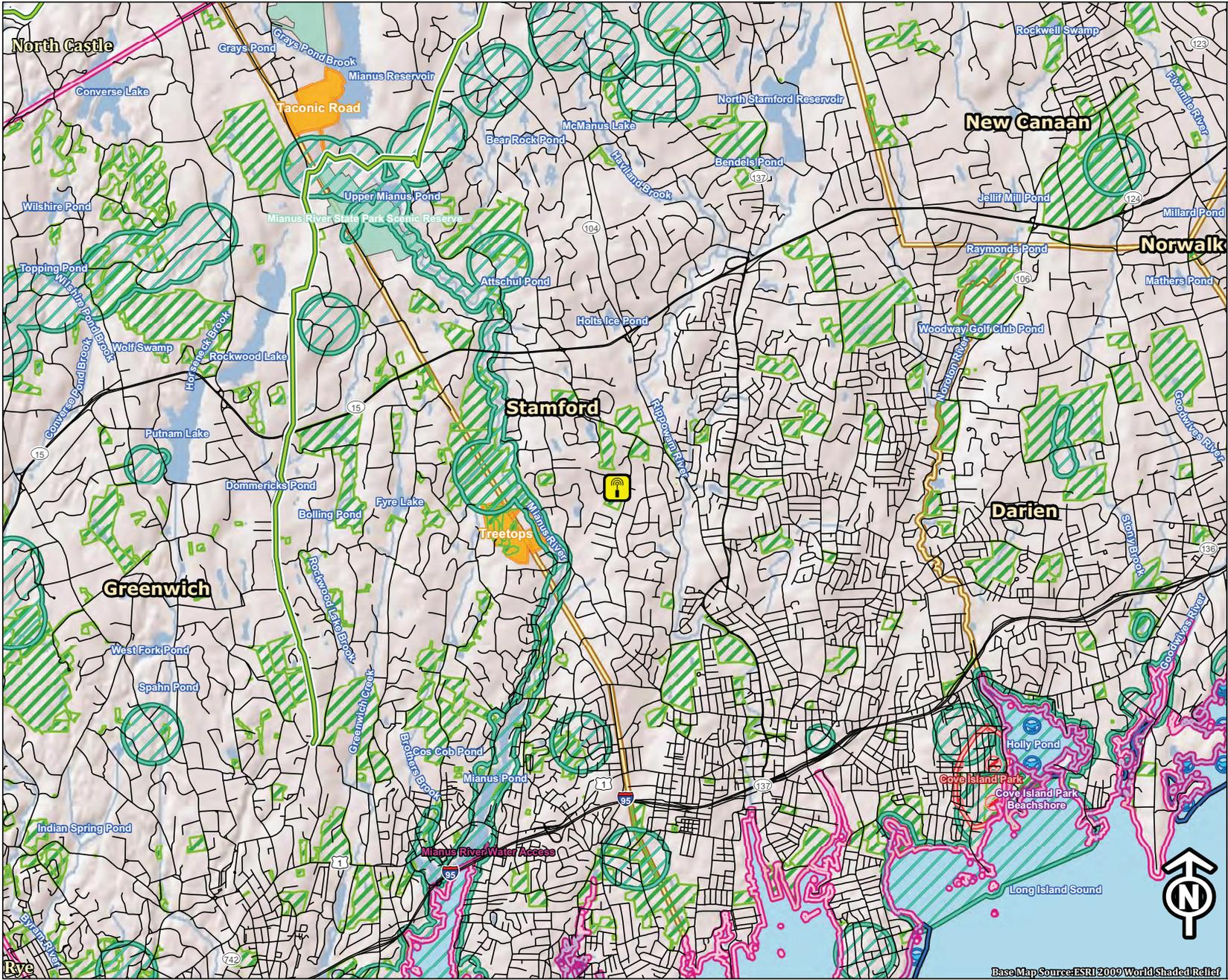
## **Summary and Conclusions**

Based on the results of this desk-top evaluation, no migratory bird species are anticipated to be impacted by AT&T'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 the seasonal restriction recommendations.

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# Figures

- Avian Resources Map
- Connecticut Waterfowl Focus Areas Map



# Avian Resources Map

Proposed AT&T Wireless Communications Facility

560 West Hill Road  
Stamford, Connecticut

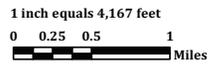
### Legend

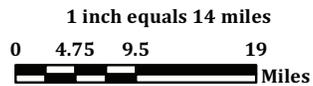
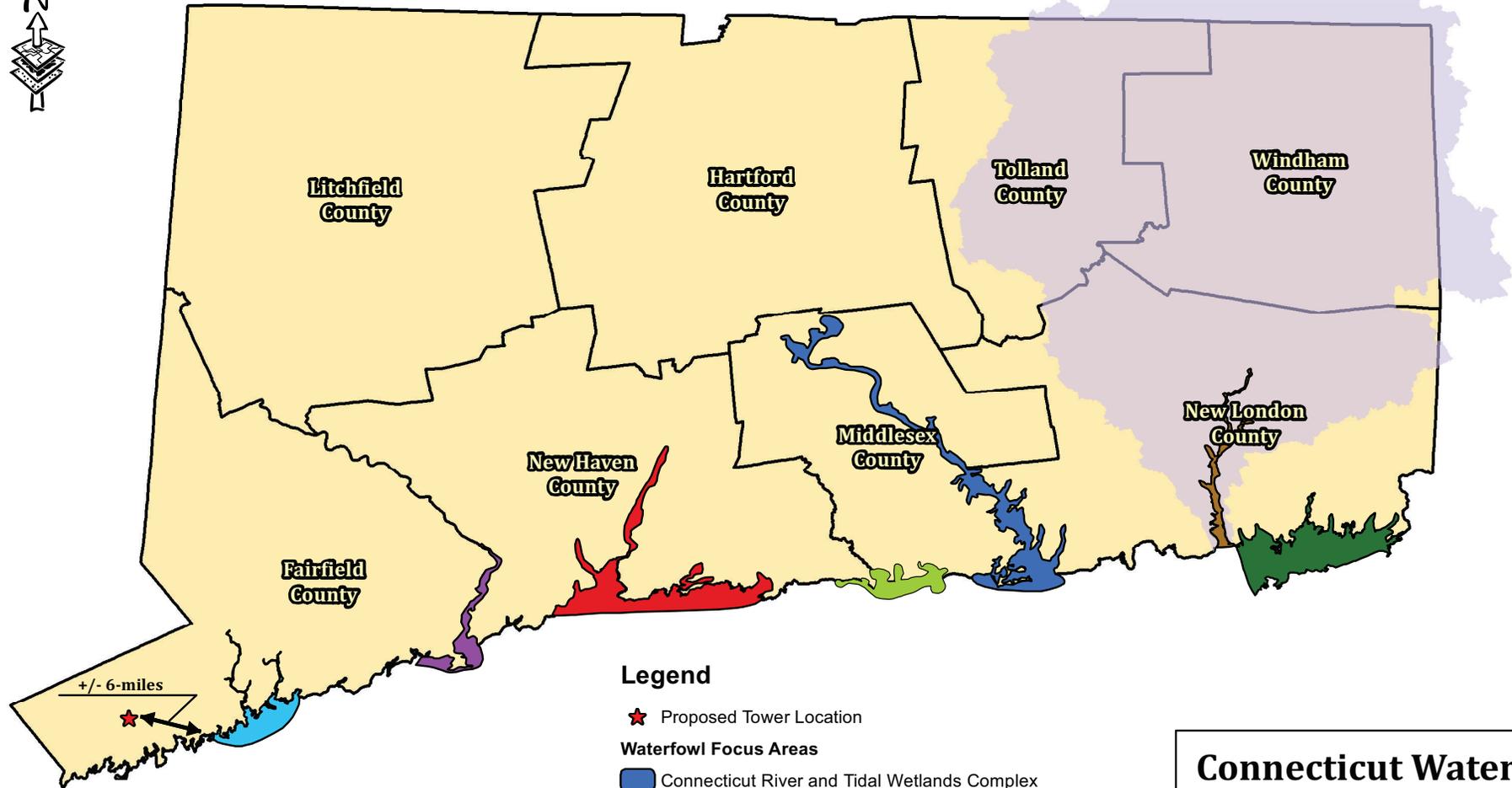
- Proposed Tower Location
- Hawk Watch Site\*
- Bald Eagle Watch Site\*
- Important Bird Site\*
- Bald Eagle Survey Route\*
- Breeding Bird Survey Route
- Important Bird Area
- Migratory Waterfowl (CT DEEP, 1999)
- Natural Diversity Database Area (CT DEEP, 12/2013)
- Critical Habitat (CT DEEP, 07/2009)
- Federal Property (CT DEEP, 2004)
- Municipal and Private Open Space (CT DEEP, 1997)
- DEP Property (CT DEEP, 2010)\***
  - State Forest\*
  - State Park\*
  - State Park Scenic Reserve
  - State Park Trail\*
  - Natural Area Preserve\*
  - Wildlife Area\*
  - Wildlife Sanctuary\*
  - Historic Preserve\*
  - Flood Control\*
  - Fish Hatchery\*
  - DEP Owned Waterbody\*
  - Water Access
  - Other
  - Waterbody
- Town Boundary
- State Boundary
- Road

\*None within mapped extents

Last Updated Saturday, April 19, 2014

Avian Source Information:  
 Bald Eagle Sites: Midwinter Bald Eagle Count Survey website  
[http://ocid.nacse.org/nbi/eagles/state.php?php\\_screen=first&stateIn=Connecticut](http://ocid.nacse.org/nbi/eagles/state.php?php_screen=first&stateIn=Connecticut)  
 Hawk Watch Sites: Hawk Migration Association of North America (HMANA), Hawk Count website:  
<http://hawkcount.org/sites.php?country=USA&state=prov=Connecticut>  
 Migratory Waterfowl: CTDEP 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 Centre  
<http://www.nationalatlas.gov/mid/bbsrsl.html>





### Legend

★ Proposed Tower Location

#### 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

#### Waterfowl Planning Area

Upper Thames River

## Connecticut Waterfowl Focus Areas Map

Proposed AT&T Wireless Telecommunications Tower

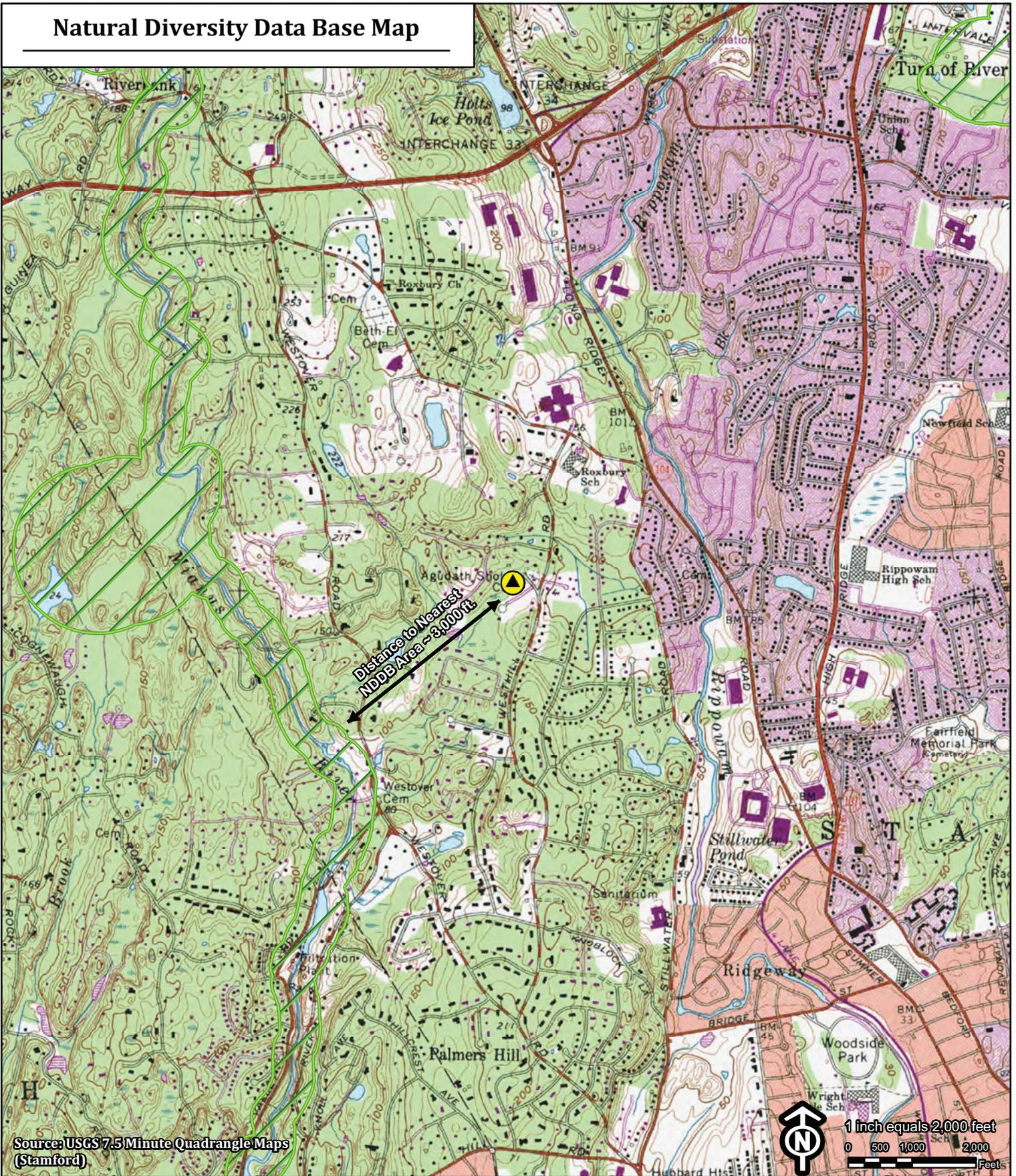
560 West Hill Road  
Stamford, Connecticut



Waterfowl Focus Areas Developed  
by the Atlantic Coast Joint Venture Partnership

ATTACHMENT 3

# Natural Diversity Data Base Map



Source: USGS 7.5 Minute Quadrangle Maps (Stamford)

## Proposed AT&T Telecommunications Tower 560 West Hill Road Stamford, Connecticut

### Legend

-  Proposed Tower Location
-  Natural Diversity Database Area (updated 12/13)

April 22, 2013



ATTACHMENT 4

By:	PAL		Project No.:	18301.1041.43000		
Project Name:	AT&T Stamford		Sheet:	1	of	1
Project Location:	Stamford, CT		Date:	April 18, 2014		
Subject:	NOISE LEVEL AT PROPERTY LINE BASED ON TWO AC UNITS AND GENERATOR					

**Calculation to Determine Noise Level At Nearest Property Line:**

**Data:**

Equipment:

	Item:	Noise Level (dbA)	Distance to Initial Noise Level, D <sub>1</sub> (ft)	Distance to Property Line, D <sub>2</sub> (ft)
Noise Source 1:	Air Conditioning Unit 1	73	23	41
Noise Source 2:	Air Conditioning Unit 2	73	23	48
Noise Source 3:	Generator	71	23	40
Noise Source 4:	NA	0	0	0

Length of Vegetation Buffer Between Noise Source and Property Line = 15 ft

**Drop in Noise Level Based on Distance:**

Drop in Noise Level =  $20 \times \log_{10} (D_1/D_2)$

D<sub>1</sub> = Distance 1

D<sub>2</sub> = Distance 2

	Drop in Noise Level (dbA)	Noise Level at D <sub>2</sub> (dbA)
Noise Source 1:	-5.02	67.98
Noise Source 2:	-6.39	66.61
Noise Source 3:	-4.81	66.19
Noise Source 4:	0.00	0.00

Alternatively, everytime the distance from the noise source is doubled, the level drops by 6dba.

**Cumulative Noise Level at D<sub>2</sub>:**

When adding noise levels, the following guidelines will be followed:

$L_{Total} = 10 \log_{10} (\sum 10^{L_i/10})$

L<sub>Total</sub> = Total Noise Level

L<sub>i</sub> = Noise Level of Each Piece of Equipment

L <sub>Total</sub> No Tree Buffer =	72	dba
-------------------------------------	----	-----

Alternatively, the following procedure can be used to add sound levels. Sound levels must be added in pairs of two until a final noise level is achieved.

- 3 db(A) if level differs by 0 to 1 db(A)
- 2 db(A) if level differs by 2 to 3 db(A)
- 1 db(A) if level differs by 4 to 9 db(A)
- 0 db(A) if level differs by 10db(A) or more

This procedure is not utilized but it yields the same result.

**Drop in Noise Level at D<sub>2</sub> Due to Tree Buffer:**

Tree Buffer: 3 to 5 dbA drop per every 100 feet of vegetation  
 Be conservative and use a drop of 3 dbA per 100 ft of vegetation  
 Drop due to vegetation = -0.45 dbA

L <sub>Total</sub> Including Tree Buffer =	71	dba
--	----	-----

Source Documentation:

AC Unit Specifications  
 AC Unit Specifications  
 Generator Specifications  
 Generator Specifications

mcsquared.com

mcsquared.com

OSHA.gov Noise and Hearing Appendix I

OSHA.gov Noise and Hearing Appendix I

fhwa.dot.gov  
 Noise Compatible Planning Federal Approach for Audible Landscape

By:	PAL		Project No.:	18301.1041.43000		
Project Name:	AT&T Stamford		Sheet:	1	of	2
Project Location:	Stamford, CT		Date:	April 18, 2014		
Subject:	NOISE LEVEL AT PROPERTY LINE BASED ON TWO AC UNITS					

**Calculation to Determine Noise Level At Nearest Property Line:**

**Data:**

Equipment:

	Item:	Noise Level (dbA)	Distance to Initial Noise Level, D <sub>1</sub> (ft)	Distance to Property Line, D <sub>2</sub> (ft)
Noise Source 1:	Air Conditioning Unit 1	73	23	41
Noise Source 2:	Air Conditioning Unit 2	73	23	48
Noise Source 3:	None	0	0	0

Length of Vegetation Buffer Between Noise Source and Property Line = 15 ft  
 Tower Facility Class (A-Residential, B-Commercial, C-Industrial) = B  
 Adjacent Property Class = A

**Drop in Noise Level Based on Distance:**

Drop in Noise Level =  $20 \times \log_{10} (D_1/D_2)$

D<sub>1</sub> = Distance 1

D<sub>2</sub> = Distance 2

	Drop in Noise Level (dbA)	Noise Level at D <sub>2</sub> (dbA)
Noise Source 1:	-5.02	67.98
Noise Source 2:	-6.39	66.61
Noise Source 3:	0.00	0.00

Alternatively, everytime the distance from the noise source is doubled, the level drops by 6dbA.

**Cumulative Noise Level at D<sub>2</sub>:**

When adding noise levels, the following guidelines will be followed:

$L_{Total} = 10 \log_{10} (\sum 10^{L_i/10})$

L<sub>Total</sub> = Total Noise Level

L<sub>i</sub> = Noise Level of Each Piece of Equipment

L <sub>Total</sub> No Tree Buffer =	70	dbA
-------------------------------------	----	-----

Alternatively, the following procedure can be used to add sound levels. Sound levels must be added in pairs of two until a final noise level is achieved.

- 3 db(A) if level differs by 0 to 1 db(A)
- 2 db(A) if level differs by 2 to 3 db(A)
- 1 db(A) if level differs by 4 to 9 db(A)
- 0 db(A) if level differs by 10db(A) or more

This procedure is not utilized but it yields the same result.

**Drop in Noise Level at D<sub>2</sub> Due to Tree Buffer:**

Tree Buffer: 3 to 5 dbA drop per every 100 feet of vegetation  
 Be conservative and use a drop of 3 dbA per 100 ft of vegetation  
 Drop due to vegetation = -0.45 dbA

L <sub>Total</sub> Including Tree Buffer =	70	dbA
--	----	-----

Source Documentation:

AC Unit Specifications  
 AC Unit Specifications

mcsquared.com

mcsquared.com

OSHA.gov Noise and Hearing Appendix I

OSHA.gov Noise and Hearing Appendix I

fhwa.dot.gov  
 Noise Compatible Planning Federal Approach for Audible Landscape

By:	PAL		Project No.:	18301.1041.43000		
Project Name:	AT&T Stamford		Sheet:	2	of	2
Project Location:	Stamford, CT		Date:	April 18, 2014		
Subject:	NOISE LEVEL AT PROPERTY LINE BASED ON TWO AC UNITS					

Check if Noise Level at D, Is Within State Regulations:

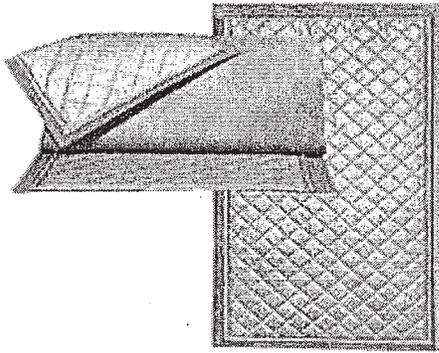
	C	B	A	A
	(dba)	(dba)	Day (dba)	Night (dba)
Class C (industrial) Emitter to	70	66	61	51
Class B (commercial) Emitter to	62	62	55	45
Class A (residential) Emitter to	62	55	55	45

	Limit (dba)	Actual (dba)	Difference	Complies?
Day	55	69.91	14.91	NO
Night	45	69.91	24.91	NO

PROVIDE NOISE BARRIER TO REDUCE NOISE LEVELS

CT DEEP Noise  
Regulations  
22a-69-1 through  
22a-69-7

### ABBC-13 EXT AUDIOSEAL™ EXTERIOR COMBINATION BLANKET



#### DESCRIPTION

The ABBC-13 acoustical blanket consists of a vinyl-coated-polyester-cloth facing encapsulating a 1" quilted fiberglass that is bonded to a reinforced 1-lb per square foot mass loaded vinyl barrier.

These sound attenuation blankets are constructed with environmentally sustainable fiberglass filling with grommets across the top and Velcro® along the vertical edges of the blankets.

The exterior grade ABBC-13EXT is great for use in outdoor environments where an extended lifespan is needed for the blankets.

All AudioSeal™ acoustical blankets can be made to custom sizes.

#### TECHNICAL CHARACTERISTICS

Weight 1.5 lb per Square Foot  
 Nominal Thickness 1.08 Inches  
 Temperature Range 20° to 180° F

#### FEATURES

- STC 30-38 rating, NRC .65 - .75
- Standard width 54"
- Roll length 25'
- Available facing colors: Grey, Black, Tan or Olive Drab

#### APPLICATIONS

- Exterior applications

ABBC-13EXT AudioSeal™ Exterior Combination Blanket								
Octave Band Frequencies		125	250	500	1000	2000	4000	AVE
Noise Reduction Coefficient (NRC)	EXT-R	.12	.47	.85	.84	.64	.62	.70
	EXT-R-2"	.07	.27	.96	1.13	1.08	.99	.85
	EXT 2lb-2"	.07	.27	.96	1.13	1.08	.99	.85
Sounds Transmission Coefficient (STC)	EXT-R	11	16	24	30	35	35	27
	EXT-2-2"	13	20	29	40	50	55	32
	EXT 2lb-2"	19	25	33	46	53	58	37

