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 AT 560 WEST HILL ROAD, STAMFORD, CONNECTICUT

DOCKET NO. 447

April 24, 2014

NEW CINGULAR WIRELESS PCS, LLC RESPONSES TO WHET INTERROGATORIES

Q1. What propagation model does the Applicant employ to determine calculated coverage?

A1. The standard propagation model in use by AT&T within the Forsk Atoll tool is the Okumura-Hata model, which is further tuned by AT&T with drive testing in this market area.

Q2. What is the frequency band that is depicted in the coverage plots submitted with the Application?

A2. 700 MHz

Q3. What clutter model and what terrain data base were utilized in these calculations?

A3. Clutter and Terrain databases are provided by the United States Geological Survey (USGS).

Q4. What effective radiated power and antenna type along with beam tilt, if applicable, were utilized in these calculations?

A4. The RF parameters of existing and proposed sites are being assembled and reviewed in order to be responsive to this question and will be provided in the next few business days.

Q5. Were drive tests ("scan tests") that would verify the results of the calculated plots conducted? If so, please provide the data sets which were generated by the tests and note whether the data needs to be corrected for variables including, but not limited to, antenna position, gain and line loss.

A5. A drive test of existing coverage for purposes of verifying the modeling was not specifically performed by AT&T in this part of Stamford. Drive testing of existing coverage is periodically performed by AT&T and confirms significant gaps in coverage in this area of Stamford.

Q6. Has the Applicant performed continuous wave ("CW") tests from the proposed site or any other site either identified or considered?

A6. No.

Q7. In calculating the expected coverage from the proposed site, what antenna centerlines, antenna types and effective radiated power did the Applicant assume would be put in use?

A7. This information is being confirmed and will be provided under separate cover in the next few business days.

Q8. Has the Applicant performed a minimum height analysis to determine the minimum antenna centerline that it requires to meet its alleged coverage needs?

A8. The proposed mounting elevation was identified by AT&T as the lowest height in meeting its coverage objectives.

Q9. By what method was it determined that identified alternate sites did not meet the needs of the Applicant? If studies were conducted to confirm the utility of the alternate sites, please provide copies of those studies?

A9. AT&T's Radio Frequency ("RF") Engineers perform desktop propagation analyses to determine if a particular alternative location will satisfy the coverage objectives in a particular area, however, no written studies or reports are produced.

Q10. What antenna centerlines, antenna types and effective radiated power did the Applicant assume to determine expected coverage from alternate sites indicated?

A10. AT&T's screening of sites that may be provided by real estate consultants to RF engineers for initial analyses (i.e. desktop reviews) is typically a threshold analysis using a standardized set of parameters for the market.

Q11. Is there another combination of alternate sites that could be utilized to achieve the alleged coverage needs?

A11. Hypothetically. Please see A24 below regarding prior siting attempts in the area. The Applicant submits that one single tower structure at a relatively lower height such as the site proposed in this Docket at 120' AGL that can accommodate multiple commercial wireless carriers to serve the Westover area of Stamford is

warranted, particularly given the lack of other available properties for facility siting in a large geographic area with a significant population.

Q12. What alternate means of achieving the alleged coverage needs have been explored?

A12. Please see the summaries regarding site searches included in Attachment 2 of the Application and the Application narrative that includes descriptions of the Applicant's site searches.

Q13. Does the Applicant possess any data that support either dropped calls, customer complaints or other switch based or customer service representative based information that supports its claim of lack of service in the entire area that it claims it has a coverage issue?

A13. Yes. AT&T's radio frequency engineers have drive data, lost call statistics and customer complaints from various sources including its "Mark the Spot" app.

Q14. Are there other sites in the community that is the subject of these proceedings at which the Applicant is considering developing wireless communications facilities? Please describe.

A14. Yes. There are multiple search rings in Stamford currently. AT&T's RF report lists some of the proposed sites which are shown on the coverage plots provided in the Application behind Tab 2. Due to the City's geographic size, varying topography and relative population density, the vast majority of these new sites are unrelated technically to the site proposed in this Application. Of note, several sites proposed in Stamford are in areas where coverage has never been reliably provided by the wireless industry and others are in areas of the City where network traffic and growth require new sites for reliable services to be provided, particularly for 4G LTE.

Q15. Please name all carriers with whom you have reason to believe will co-locate on the proposed facility.

A15. While AT&T is not privy to the specific needs of other carriers in the market, it reasonably believes that other carriers such as Verizon and T-Mobile are likely to collocate at the facility at some point in the future.

Q16. Please state whether your site search considered nearby commercial properties at 408 Long Hill Road, 270 Long Hill Road and 120 Long Hill Road? If not, why did AT&T choose a residential neighborhood for its industrial facility?

A16. Long Hill Drive is a single family residential street located off of Stillwater Avenue. As such, the Applicant presumes the question refers to addresses along Long Ridge Road, which are in the Bull's Head area of Stamford. The 408, 270 and 120 designations appear to be office or otherwise commercial use buildings. This area of Stamford is already serviced by an existing rooftop facility

located at 3001-3003 Summer Street approximately 1000' south-southwest of 408 Long Ridge Road.

AT&T is a leader in the telecommunications sector. The proposed facility is not an industrial facility as no manufacturing or other production will take place and the use is unmanned and produces no wastewater. The facility is regulated as a public utility facility for purposes of Section 16-50i of the General Statutes and is needed for wireless services to residents and visitors to the Westover area of Stamford. The facility is proposed in the area of need which is the residential areas of Westover.

Q17. What is the percent of dropped calls in the target area?

A17. AT&T's UMTS network data is being reviewed and a supplemental response will be provided to this question. Of note, dropped call data is not necessarily a reliable indicator of an inadequate network for various reasons. With the migration to LTE, dropped calls are less and less a meaningful metric for a carrier in assessing network performance. Particularly in AT&T's LTE network which is data centric at this point in time. Overall, reliable service relates directly to the customer experience and AT&T customers are highly mobile, making calls and using data where lack of signal strength in the network and the ability to provide circuit switched voice or packet delivered data seamlessly, reliably and with speed are an issue for the customer.

Q18. How many residential wireless customers will this facility serve?

A18. The Application notes that the coverage footprint of the site includes a residential population of over 5,200. This question would need further clarification by WHET as to the data sought, but the Applicants note that in communities like Stamford, most households have some form of wireless communication and often multiple device subscriptions.

Q19. What surety does the Applicant propose to do to ensure the proper decommissioning of the facility once it is no longer needed or in use? And will the Applicant provide a bond to ensure decommissioning?

A19. Any approved facility will be subject to a final decision and order by the Connecticut Siting Council. A standard condition of a CSC Decision and Order for a tower facility includes a provision that, should the facility cease to provide wireless services for a period of one year, the Decision and Order is void and the Certificate Holder must dismantle the tower and remove all associated equipment or otherwise reapply to the Siting Council for continued use. The Certificate holder is subject to such conditions and no other surety or bond is proposed by the Applicants.

Q20. Please describe the methods used by your visual impact consultant to calculate seasonal visibility.

A20. The methods employed by the visual consultants are set forth in the report included in Application Attachment 5. Information used in their computer model included LiDAR-based digital elevation data and customized land use data layers developed specifically for this analysis. The LiDAR-based Digital Elevation Model (DEM) represents topographic information for the state of Connecticut and has a horizontal resolution of ten (10) feet. In addition, multiple land use data layers were created from aerial photography (1-foot resolution, flown in 2012). Image processing tools developed light reflective classes defined by statistical analysis of individual pixels, which were then grouped based on common reflective values so that distinctions could be made automatically between deciduous and coniferous tree species, as well as grassland, impervious surface areas, surface water and other distinct land use features. These layers were subsequently entered into the model.

First, only topography (based on the DEM) was used to evaluate potential visibility with no intervening vegetative screening. The model was queried to determine where at least the top of the Facility may be seen from any point(s) within the two-mile Study Area, given the intervening existing topography. The initial omission of the forest cover data layer exaggerated areas of visibility because it assumed unobstructed sight lines everywhere but in those locations where intervening topography rises above the height of the proposed Facility. However, this technique provided initial identification of direct sight lines, useful for evaluating potential seasonal views when the leaves are not on the trees.

Secondly, a conservative set of values was then incorporated into the model, including the assumptions that each tree is simply a vertical pole with no distinct branching pattern and no understory is present. The Study Area includes mature vegetation with a unique composition and density of woodlands, with mast or pole timber and branching providing the majority of screening in leafless conditions. Beyond the density of woodlands found within the Study Area, each individual tree has its own unique trunk, pole timber and branching pattern characteristics that provide varying degrees of screening in leafless conditions which cannot be adequately modeled. Because tree spacing, dimensions and branching patterns as well as the understory differ greatly over even small areas, the Study Area has its own discrete forest characteristics. With these conservative assumptions, the modeling results in an over-prediction of visibility in "leaf-off" conditions.

Third, field verification assisted in cross-checking the model's results. Using both the topography-only map and a second iteration (incorporating a 50-foot tall average tree canopy height) during the balloon float, we visually surveyed the Study Area in an attempt to determine the extent of seasonal visibility. However, because the leaves were still on the trees at the time of the balloon float, no significant edits were made to the model with respect to seasonal variations

Finally, an average tree canopy height of 65 feet was incorporated into the final version of the visibility mapping, with all the model assumptions described above held constant.

Q21. What studies did you undertake to eliminate alternate technologies from consideration given that they are of lesser impact to surrounding property uses?

A21. The premise of the question that alternate technologies have a "lesser impact to surrounding property uses" has no foundation or evidentiary support. To the extent WHET is referring to outdoor distributed antenna system (DAS) the Application notes beginning on page 10 that such technology was ruled out as not practicable or feasible for purposes of this facility in Stamford. WHET is referred to various PURA decisions which, coupled with terrain in Stamford, effectively rule out use of DAS as a threshold consideration.

Q22. Who conducted the feasibility studies on alternate technologies?

A22. Please see A21 generally and specifically, Chris Fagas, Director, DAS Engineering, AT&T Antenna Solutions Group was consulted.

Q23. Please provide the feasibility studies or data by which you determined the lack of feasibility?

A23. Please see A21.

Q24. Have you considered using a combination of two shorter towers just above tree line to cover the target area?

A24. Yes. AT&T has considered a combination of shorter towers in the area. As noted in the Application, AT&T investigated the installation of a "flagpole" style facility at Fort Stamford on property owned by the City of Stamford however the City would not lease space to AT&T. AT&T also pursued a Petition for a facility atop a water tank in the Mianus section of Greenwich which would have provided some service to a small portion of western Stamford, but not obviated the need for a site in Stamford. AT&T also indicated an interest to the City in exploring West Hill High School or other properties for a tower site, none of which have been made available to AT&T. AT&T also did a hypothetical analysis which indicated that in lieu of the proposed site, three new tower sites would be needed "just above the tree line" somewhere in areas around the proposed site in the Westover area of the City and which would not be particularly suitable for co-location by other carriers. At this point in time, AT&T is not aware of practical or feasible alternatives tower sites in this part of Stamford.

Q25. Is there a particular standard or decibel signal strength which you believe is necessary for adequate coverage for PCS (1900MHz) service in the target coverage area? For 850MHz service? For 700 MHz?

A25. AT&T's network in this part of Connecticut 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 for faster data throughput which equates to customer experienced speed and reliability, AT&T 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 LTE service so AT&T continues to consider UMTS (3G) as an important service to provide, during the evolutionary period to LTE (4G)

Q26. What particular dBm signal strength do you believe is necessary for in-vehicle coverage for PCS (1900MHz), 700 MHz and 850MHz in the target area?

A26. Please See A25.

Q27. In the proposed coverage maps submitted by the Applicant, what loss margin was assumed in the modeling?

A27. This specific information as it relates to the noise floor and network design is considered proprietary and confidential by AT&T. As noted on the coverage maps though, incorporated into the design is a 10 dBm threshold difference being used by AT&T to indicate areas of greater reliability and throughput in the LTE network.

Q28. For any signal strength predicted by your coverage modeling, what percent-of-locations is assumed for reliability? (e.g: 85% of locations, 95%?)

A28. This specific information is considered proprietary and confidential by AT&T, but noted to be consistent with industry standards.

Q29. Are you assuming that your target coverage is 'reliable service' or "adequate coverage"? Do these two terms differ? How do you define these two terms for the purposes of meeting the goals of the Telecommunications Act of 1996?

A29. The Telecommunications Act of 1996 (the "Act") as relevant to this proceeding includes a requirement that state and local governments allow all wireless carriers to provide "service". See 47 U.S.C. 332(c)(7). In the area intended to be served by a tower facility in this Application, the service is not reliable or adequate for customers within the general understanding of what those terms mean to the customer for purposes of current and future demands on the network.

Q30. Will the Applicant voluntarily provide reasonable access to the site by Intervenor's wetlands expert to perform a wetlands assessment, provided he is able to provide an insurance certificate?

A30. The Intervenor's wetlands consultant visited the site on the morning of April 17, 2014 accompanied by Mr. Gustafson of APT.

Q31. Given that the Application indicates that the Applicant has performed some analysis of onsite wetlands systems, please provide copies of the field log books or notes made by your consultants regarding any site visit prior and up to the hearing in this matter.

A31. Field notes collected during the June 22, 2013 wetland delineation field visit are included as Attachment 1. A vernal pool study is currently being performed. All field notes collected as part of this ongoing investigation will be provided in the vernal pool evaluation report upon completion of all field work.

Q32. What is the percentage of dropped calls and ineffective attempts, as compared to the remainder of the Market Trading Area for the Stamford area?

A32. Please see Attachment A13 and A17.

Q33. What is the lowest height you can construct a tower to improve coverage (with and without co-located carriers)?

A33. Coverage "improvement" could in theory be gained by a transmitter at any height above ground level. The Applicants submit that a 120 foot tower would allow for AT&T, and other wireless carriers to provide reliable services in an area that currently experiences a lack of coverage in current 3G and 4G LTE networks. Lower heights will impact co-location, coverage, speed and reliability of service to the Westover area.

Q34. Has the Applicant considered utilizing cedar fencing and equipment enclosures with an architectural vernacular in keeping with the residential nature of the surrounding neighborhood?

A34. The Siting Council often requires modifications to a facility as a condition of any approval. AT&T would incorporate fencing modifications and architectural treatment of the equipment shelters as required by the Siting Council.

Q35. Please identify how many other future sites will be necessary, at a minimum to accomplish adequate coverage for the target municipality.

A35. Stamford is a geographically diverse City with varied topography and a large population which still does not have adequate wireless coverage regardless of carrier, network or technology. To simply provide a basic level of service for voice calls in a 3G environment, numerous additional sites are required in the City, particularly in places similar to Westover like residential areas of North Stamford where infrastructure has yet to be deployed by the wireless sector. Major wireless carriers are also currently deploying LTE as a fourth generation of service which requires additional sites in order to provide reliable service. While

there is no precise answer to this question, wireless network planning requires the deployment of a substantial number of additional sites in Stamford to serve the City and its residents.

Q36. Please identify any sites in addition to the Proposed Facility on which the Applicant intends to seek permission from the Siting Council to construct or modify a facility in the Stamford area (Stamford and Greenwich and New Canaan)?

A36. Please See A35. There are a significant number of sites that AT&T has recently received, is currently processing or planning to seek regulatory approvals for in Stamford, Greenwich and New Canaan. Some of these sites are or will be subject to municipal approvals (e.g. lease of municipal land or rooftop antenna sites) and others rooftop towers or at grade facilities as defined by Council statutes and regulations.

Q37. Will construction practices for the proposed facility conform completely to local building and zoning ordinances and regulations? If not, in what way will this facility not comply?

A37. Construction practices will conform to state building codes and regulations. An analysis of the proposed facility's conformance with local zoning regulations is provided in the Application starting on page 16.

Q38. Can you provide coverage propagation maps and isolated propagation maps for the proposed facility on clear plastic overlays using a scale that matches that of the Application at 4 dBm intervals?

A38. This information is being finalized by AT&T and will be provided under separate cover in the following few business days.

Q39. What is the minimum dBm signal strength to accomplish hand off of a call to an adjacent cell for 700Mhz, 850 MHz and 1900 Mhz?

A39. Please see A25, as well as responsive comments on the evolution to data-driven service. Voice service historically was circuit service which required "hand offs" or handovers. A data service (or a voice service over data, such as VoLTE) is a packet service where traditional handovers do not take place but packets are sent, checked and either discarded (if corrupt) or used (if sound). Therefore, signal strength for "hand off" is not a meaningful concept in a 4G LTE environment.

Q40. What are the coordinates, antenna heights, antenna types, orientations, tilt, EIRP for all of the Applicant's wireless facilities in Stamford and adjacent towns?

A40. AT&T is endeavoring to be responsive to this question and this information is being finalized. It will be provided under separate cover in the following few business days.

Q41. Who are the members of New Cingular Wireless PCS, LLC and where do they reside?

A41. New Cingular Wireless PCS, LLC is a limited liability company incorporated in 1999 and maintains local offices in Rocky Hill, Connecticut. New Cingular Wireless PCS, LLC operates as a subsidiary of New Cingular Wireless Services, Inc., itself a subsidiary of AT&T Inc., a publicly traded company listed on the New York Stock Exchange (T). The Rocky Hill address for New Cingular Wireless PCS, LLC is included in the Application and further information included in its lease filed with the Council pursuant to Sec. 16-50g et. seq. of the Connecticut General Statutes.

By: _____

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ATTACHMENT 1

6/22/13 560 WEST HILL RD.
STAMFORD, CT
on site: 10:30 AM
weather: Sunny, mid 90's

WETLAND 1 PFO / disturbed
WF 1-01 to 1-27
red maple, spicebush, multiflora, winged euonymous, virginia creeper, garlic mustard, A. bittersweet, privite, poison ivy, phrag, winterberry, N. arrowwood, Cin fern, pepperbush, bebb willow, skunk, typha lat., jewelweed,

PUP area near proposed tower
PUP / cryptic south end wtl.

UPA
maint. lawn, quaking aspen, Mugwort, red maple, weeping willow, J. knotweed, multiflora, J. barberry

WTL 2 = PFO / drainage
ditch along west side of gravel driveway
WF 2-01 to 2-15

red maple, multiflora, spicebush, jewelweed

PUP areas inundated 3-5"
depths in deepest areas
no tadpoles / invertes obs.
OFF site / PM