STATE OF CONNECTICUT CONNECTICUT SITING COUNCIL

In Re:

SBA TOWERS III/NEW CINGULAR
WIRELESS PCS, LLC APPLICATION FOR A
CERTIFICATE OF ENVIRONMENTAL
COMPATIBILITY AND PUBLIC NEED
FOR A TELECOMMUNICATIONS FACILITY
LOCATED AT WEWAKA BROOK ROAD
BRIDGEWATER, CONNECTICUT

DOCKET NO. 412

March 30, 2011

SBA TOWERS III ("SBA") AND NEW CINGULAR WIRELESS PCS, LLC ("AT&T") RESPONSES TO TOWN OF BRIDGEWATER INTEROGATORIES

- Q1. What propagation model does the applicant employ to determine calculated coverage?
- A1. CRC Predict 2.0.
- Q2. What is the frequency band that is depicted in the coverage plots?
- A2. Cellular (850 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 shown in the chart included in Attachment 1.
- Q5. Were drive tests ("scan test") 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 was performed. A plot of this drive test is included in Attachment 2.
- Q6. Has the applicant performed continuous wave ("CW") tests from the proposed site or any other site either identified or considered?

- A6. The proposed site location is not currently accessible for the deployment of a test transmitter, so no CW test was performed.
- 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. Please see A4 and Attachment 1.
- 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. Yes. Please see plots included in Attachment 3 which depict coverage at lower heights.
- 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. The vast majority of alternatives reviewed were ultimately not available by property owners. In general, however, information regarding potential site locations, including coordinates and elevation, are reviewed by AT&T radio frequency engineers to determine the feasibility of using a given location to provide needed coverage. Sites are evaluated as to their ability in providing coverage to an identified area and to certain coverage objectives including populated areas and roads. Sites must also be made available by willing landlords. No formal studies were produced, though in some cases coverage maps have been produced subsequently. Two sites which were the subject of discussion during the municipal consultation process were the Town Garage and the Fire Department, neither of which would provide reliable service to the south along Route 133. Coverage maps of those alternatives are provided in Attachment 4.
- Q10. What antenna centerlines, antenna types and effective radiated power did the applicant assume to determine expected coverage from alternate sites indicated?
- A10. Centerline heights assumed ranged up to 170' AGL. Antenna types and effective radiated power assumptions are similar to the proposed candidate as provided in Attachment 1.
- Q11. Is there another combination of alternate sites that could be utilized to achieve the alleged coverage needs?
- A11. The Applicants have not identified a combination of multiple sites that can achieve the identified coverage needs.
- Q12. What alternate means of achieving the alleged coverage needs have been explored?
- A12. The area where service is needed in this application is a wide area of poor or no service. Microcells or repeaters are better suited to small areas for fill in use and/or commercial in building service. Repeaters offer no added capacity in the network, and require a line of site donor facility which can be difficult in the defining terrain of the area.

With respect to distributed antennas systems ("DAS"), we note that these are generally lower power, low gain systems used in high traffic areas (i.e. capacity demand) which rely on a combination of fiber optics, transmitting antenna sites and a base station facility. The service requirements in this area of Bridgewater relate to coverage on a macro level as opposed to a discrete system such as a DAS network. Given the foregoing, alternate technologies were not investigated due to the area of required coverage improvement

- 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 coverage issue?
- A13. Dropped and blocked calls are in the range of typical performance achieved in normally operating areas of AT&T's network where coverage is unreliable. While the specific data is considered proprietary by AT&T, poor coverage in the area is also indicated by benchmark data, including drive tests, and customer experience. The proposed site would greatly alleviate most if not all these drops and blocks experienced by customers in the area and improve the customer experience.

It is important to note that dropped call data is not necessarily a reliable indicator of an inadequate network for various reasons. Indeed:

- Many users become familiar with areas of poor coverage or no service and stop making calls in these areas or otherwise purposely discontinue calla before entering into an area of no or poor service;
- Since mobile communication is a two-way connection, if a site cannot "hear" a mobile unit (for example a handset), it will not register as a failure if that link is problematic; and
- Dropped calls are a partial indicator of quality sometimes you can hold a call but the person on the other end cannot hear you.

The type of spotty and unreliable coverage currently in this area is not acceptable for users of the AT&T network. Overall, reliable coverage relates directly to the customer experience and AT&T customers are highly mobile, making calls from their vehicles, their places of business and their homes. In addition, many customers are now substituting cell phones for their landline phone service as their only means of voice communications. To properly serve these customers, the service must be reliable, particularly since the service carries 911 calls.

- Q14. Are there other sites in Bridgewater at which the Applicant is considering developing wireless communications facilities? Please describe.
- A.14. A proposed AT&T facility identified as SR1252 is located in northern Bridgewater at 111 Second Hill Road. A technical report has been submitted to the Town of Bridgewater First Selectman and is being provided to the Siting Council for reference. Site 1860 on Dinglebrook Road in Newtown is on the air and serves a very small portion of southern Bridgewater at a

lower elevation. That is the extent of the current AT&T network plans for the Town of Bridgewater at this time.

- Q15. Please name all carriers with whom you have reason to believe will co-locate on the proposed facility.
- A15. AT&T cannot forecast the needs of other carriers in the market and SBA has not been contacted by other carriers to date. T-Mobile has indicated to the Council it does not plan on utilizing the facility in the foreseeable future. However, given the lack of existing telecommunications infrastructure in the area and the nature of the difficult terrain it is conceivable that other carriers will have a need for infrastructure to provide coverage in Bridgewater in the future.
- Q16. Please identify the size of the search ring and explain why that radius was chosen.
- A16. In an area such as Bridgewater AT&T begins with a ½ mile radius (1 mile diameter) search ring. This provides for a focused search of properties and locations which may be able to provide adequate coverage.
- Q17. What is the percent of dropped calls in the target area?
- A17. Please see A13.
- Q18. How many residential wireless customers will this facility serve?
- A18. AT&T's customer information is confidential. In general however, AT&T's coverage is intended to serve full-time residents as well as business visitors, tourists and others who come to the area.
- 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 the Decision and Order is that if the facility ceases 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. 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 Visual Resource Evaluation Report include in the Application behind Tab 7. In addition to topography and other data, the Visual Analysis includes a digital forest data layer. The digital forest layer is generated

though the incorporation of digital area photographs of the study area. Utilization of a series of constraints within the computer model provides estimates of visibility in various conditions.

- Q21. What studies did you undertake to eliminate alternate technologies from consideration given that they are of lesser impact to surrounding property uses? Who conducted the feasibility studies on alternate technologies?
- A21. No specific or formal studies were undertaken, but it is certainly not "given" that alternate technologies are automatically of lesser impact to the surrounding properties. The question, while not clear, presumably relates to distributed antenna systems (DAS).

Overall, such technologies are far better suited to small-scale systems inside commercial buildings, malls or tunnels. These low-tier systems cover a very limited distance from the network "nodes" and require equipment installations near any point requiring coverage. For an outdoor system serving large areas and large number of customers, the quantity of cable, antennas and various radio and control units required for this area would make this an entirely impractical method of network deployment.

In addition, new frequency bands (such as the current deployment of 700 MHz or AWS at 1700 to 2200 MHz) or new technologies (such as broadband UMTS or LTE) to a DAS system may require the complete change out of system components such as radios, network nodes, amplifiers, antennas, etc., resulting in significant disruption of service. With the current trends toward wireless as a landline replacement and source of E911 service, such lengthy disruptions pose an ever-increasing problem for wireless customers. Also, it is often impossible to install a low-tier system in areas with buried power lines and no telephone poles.

In light of the foregoing, the Applicants did not conduct feasibility studies on alternate technologies, but rather they were ruled out as not practicable or feasible for purposes of this facility in Bridgewater.

- Q22. Please provide the feasibility studies or data by which you determined the lack of feasibility?
- A22. Please see A21.
- Q23. Please provide any data collected in drive tests or other field tests of the signal strength from the wireless tower at Dinglebrook Road in Newtown, CT?
- A23. No drive test or other field test data of the referenced site as constructed is yet available. However, included as Attachment 5 please find a drive test analysis which was conducted prior to the construction of the Dinglebrook facility using a crane raised to 175' AGL (which is notably 25' above the 150' AGL height of the tower as constructed). This drive test data demonstrates that even at 175' AGL the Dinglebrook facility cannot provide coverage beyond a small portion of southern Bridgewater which lies at a lower elevation relative to the rest of the Town and the area of need.
- Q24. Is there a particular standard or decibel signal strength which you believe is necessary for adequate coverage for PCS (1900 MHz) service in the target area? For 850 MHz service? For 700 MHz.

- A24. AT&T designs its network based on 850 MHz. Overall, AT&T's analysis and experience in this part of Connecticut shows that -74 dBm for in-building coverage and -82 dBm for invehicle coverage are appropriate design parameters for reliable service.
- Q25. 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?
- A25. Please see A24.
- Q26. In the proposed coverage maps submitted by the Applicant , what loss margin was assumed in the modeling?
- A26. This information is considered proprietary and confidential by AT&T.
- Q27. For any signal strength predicted by your coverage modeling, what percent-of-locations is assumed for reliability? (e.g. 85% of locations, 95%?)
- A27. This information is considered proprietary and confidential by AT&T.
- Q28. 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?
- A28. This question as drafted calls for legal conclusions and as such can be objected to. In the spirit of question, AT&T's objective in building this site is to close a gap in its reliable service.

With respect to the Telecommunications Act of 1996, the first paragraph of the Act is:

An Act

To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.

Consumer demand has made it necessary for wireless carriers to provide higher levels of service in order to overcome the signal losses.

With more customers using wireless as their sole means of communication, the wireless operator must also achieve levels of coverage reliability commensurate with being the provider of E911 service.

Customers are also demanding high speed wireless data services and carriers must respond by equipping their networks with the increased signal coverage necessary to reliably provide this service.

All these factors have combined to raise the bar for wireless service and require more facilities to provide the capacity and coverage levels necessary to meet consumer demand.

- Q29. How many residences (as opposed to acres) will have year round views of the proposed towers? Seasonal views?
- A29. Information in this regard is provided in the Visual Resource Evaluation Report included in the Application behind Tab 7. Overall, VHB estimates that at least partial year-round views of the proposed Facility may be achieved from portions of approximately 17 residential properties

located within the Study Area. This includes two residences located along Skyline Ridge Road; one residence located along Route 133; eight residential properties located along an approximate 0.85-mile segment of Northrop Road; two residential properties located along Wewaka Brook Road; two residential properties along Stuart Road; and two residences located along Hut Hill Road. Overall however, the intervening topography and/or existing vegetation serve to significantly minimize the potential for year-round views of the proposed Facility from other locations within the Study Area.

Overall, areas of anticipated seasonal visibility are limited to the general vicinity of the Host Property as well as select portions of Wewaka Brook Road where seasonal views of the proposed Facility may be achieved from approximately four residential properties; Northrop Street where seasonal views may extend to approximately five residential properties; Skyline Ridge Road where approximately six residences may have leaf-off views of the proposed Facility; Route 133 where seasonal views may be achieved from one residential property; and Stuart Road where seasonal views may be achieved from approximately three residential properties.

Please note that the potential year-round or seasonal visibility described above is from portions of the properties noted above. This is a conservative analysis evaluating potential visibility on a "residential property" and does not necessarily mean that the property is developed with a home or that views would be achieved from within residential dwellings, exterior decks, porches or patios that might be located on such properties. Further, it may be possible to view the Facility from within portions of the shaded areas on the Viewshed Analysis indicating potential visibility, but not necessarily from all locations within those shaded areas.

- Q30. Please provide coverage maps the depict coverage from the proposed Wewaka, and Second Hill towers with the actual coverage from Dinglebrook (Newtown) wireless facility.
- A30. Network data is still being gathered regarding the performance of the Dinglebrook facility. As such no updated coverage mapping is available. Coverage maps provided in this Docket depict predicted coverage which is not expected to differ significantly from "on-air" conditions given prior drives tests of the Newtown facility.
- Q31. What is their percentage of dropped calls and ineffective attempts, as compared to the remainder of the Market Trading Area that includes Bridgewater?
- A31. Please see A13.
- Q32. What is the lowest height you can construct a tower to improve coverage (with and without co-located carriers)?
- A32. A 170-foot tower with antennas mounted at centerline at 167' AGL is required to provide reliable service in the area and provide adequate handoff to the network. While lower heights, even down to just above the tree line could technically make "an improvement", these elevations have been determined not to provide reliable service.
- Q33. Has the Applicant determined whether the area of the proposed facility is served by fiber optic cable?
- A33. It is not yet determined whether fiber optic cable would service this site. This information becomes available once a site is approved and a request for utility services is made for a site being constructed. Long term reliable and high speed be needed at all sites.
- Q34. Please identify how many other future sites will be necessary, at a minimum to accomplish adequate coverage for Bridgewater.

- A34. One other site is planned to the north at 111 Second Hill Road (SR1252). While technology, frequency and demand can always change the need for sites, that is the extent of AT&T's current and foreseeable build out plan for Bridgewater.
- Q35. 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 Bridgewater area (Bridgewater and adjacent towns)?
- A35. Another site is planned to the north on Second Hill Road. AT&T is also conducting a search process for a site in the town of Roxbury (SR1876).
- Q36. Will construction practices for the proposed facility conform to local building and zoning ordinances and regulations?
- A36. Construction practices will conform to state building codes and regulations. An analysis of the proposed facility's compliance with local zoning regulations is provided in the Application.
- Q37. 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 heights 10 through 40 feet lower than that proposed?
- A37. Plastic overlays showing the combined existing and proposed coverage with the proposed site at 10, 20, 30 and 40 feet below the requested height are being provided separately. Attachment 3 provides paper copies of same. Four (4) sets of overlays are being filed with the Siting Council as well.
- Q38. Would an increased height or other configuration change at the proposed Second Hill tower provide an opportunity to reduce the height and visual impact of the Wewaka Brook Road Tower? Please provide any data or studies you rely upon in formulating your response.
- A39. No. AT&T has conducted that analysis up to 190' AGL which indicates that a higher tower at Second Hill Road would not impact the analysis of the Wewaka Brook Road facility. Notably, above 200' AGL, the tower must be lighted, possibly with a high-intensity strobe light, so AT&T assumes that towers at or above 200' are not desired by the Town. A comparative coverage map is provided in Attachment 6.
- 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. The in-building and in-vehicle thresholds used by AT&T, as noted in A24, provides sufficient handover margin.
- Q40. What are the coordinates, antenna heights, antenna types, orientations, tilt, EIRP for all of the Applicant's wireless facilities in Bridgewater and adjacent towns?
- A40. Please see A4 and Attachment 1.
- Q41. With regard to the Applicant's coverage maps, was existing coverage depicted using actual on-air coverage for the Dinglebrook tower which only recently was placed into active service? If not, could the coverage maps be updated to include actual on-air coverage for Dinglebrook?

- A41. The coverage maps provided depict predicted coverage and actual on-air data is still in the process of being gathered for this recently activated site. Accordingly, no updates are available at this time. However, the drive test data provided in Attachment 5 correlates well.
- Q42. Could the Dinglebrook facility be re-configured (e.g.: increased power, different antennas) to provide more coverage to the north into Bridgewater thereby allowing for the Wewaka Brook tower to be made shorter?
- A42. No. Local terrain and topography, maps of which are included in the Application behind Tab 1, limit the extent to which service can be provided to the north. Included in Attachment 5 is a drive test analysis conducted prior to the construction of the Dinglebrook facility which used a crane at the site raised to 175' AGL (which is notably 25' above the 150' AGL height of the tower as constructed). This drive test data demonstrates that even at 175' AGL the Dinglebrook facility cannot provide coverage beyond a small portion of southern Bridgewater which lies at a lower elevation relative to the rest of the Town and the area of need.

CERTIFICATE OF SERVICE

This is to certify that a true copy of the foregoing was sent electronically and by overnight delivery to the Connecticut Siting Council on this 30th day of March, 2011 with copy to:

Keith R. Ainsworth, Esq. for Town of Bridgewater Evans Feldman & Ainswoth, LLC 261 Bradley Street P.O. Box 1694 New Haven, CT 06507-1594 krainsworth@snet.net

Daniel M. Laub

cc: Hollis Redding, SBA

Michele Briggs, AT&T

RADIO FREQUENCY SITE DATA OF PROPOSED SITE (SR1252) AND NEARBY NEW CINGULAR WIRELESS SITES

Site ID	Antenn Centerline		ower	Antenna	Antenna	Antenna Town	Address
	a ID Height (fe	-	RP dBm)			Tilt	
SR1252	1	157	51	7770_00_00_850	90	0 Bridgewater	111 Second Hill Rd
SR1252	2	157	53	777000_850_00T	175	0 Bridgewater	111 Second Hill Rd
SR1252	3	157	51.022	777000_850_00T	310	0 Bridgewater	111 Second Hill Rd
CT1172	1	124	50.872	7770_00_00_850	30	0 Woodbury	Good Hill Road
CT1172	2	124	50.872	7770_00_04_850	150	0 Woodbury	Good Hill Road
CT1172	3	124	50.872	7770_00_00_850	270	0 Woodbury	Good Hill Road
CT2006	1	140	51.872	777000_850_00T	30	0 New Fairfield	29 Bogus Hill Road
CT2006	2	140	51.872	777000_850_00T	150	0 New Fairfield	29 Bogus Hill Road
CT2006	3	140	51.872	777000_850_00T	270	0 New Fairfield	29 Bogus Hill Road
CT2089	1	133	50	7770_00_00_850	263	0 Roxbury	35 Lower County Road
CT2089	2	133	50	7770_00_00_850	23	0 Roxbury	35 Lower County Road
CT2089	6	133	50	7770_00_00_850	143	0 Roxbury	35 Lower County Road
CT2260	1	175	50.302	777000_850_00T	270	0 NEW MILFORD	100 Old Town Park Rd
CT2260	2	175	50.802	777000_850_00T	30	0 NEW MILFORD	100 Old Town Park Rd
CT2260	6	175	50.802	777000_850_00T	150	0 NEW MILFORD	100 Old Town Park Rd
SR2040	1	147	51.022	7770_00_00_850	263	0 Woodbury	316 Perkins Road
SR2040	2	147	51.522	7770_00_00_850	23	0 Woodbury	316 Perkins Road
SR2040	3	147	51.022	7770_00_00_850	143	0 Woodbury	316 Perkins Road
SR1876	1	167	51.022	777000_850_00T	270	0 Roxbury	126 Transylvania Road
SR1876	2	167	51.522	777000_850_00T	30	0 Roxbury	126 Transylvania Road
SR1876	3	167	51.022	777000_850_00T	150	0 Roxbury	126 Transylvania Road
SR2039	1	167	51.022	7770_00_00_850	90	0 Bridgewater	Wewaka Brook Road
SR2039	2	167	51.522	7770_00_00_850	210	-5 Bridgewater	Wewaka Brook Road
SR2039	3	167	51.022	7770_00_00_850	330	0 Bridgewater	Wewaka Brook Road
CT2066	1	140	51.022	DUO1417-8686-0c	263	0 Woodbury	103 Great Hollow Road
CT2066	2	140	51.522	DUO1417-8686-0c	23	0 Woodbury	103 Great Hollow Road
CT2066	6	140	51.022	DUO1417-8686-0c	143	0 Woodbury	103 Great Hollow Road
CT2086	1	185	50	MB96RR900200	143	-2 Southbury	231 Kettletown Road
CT2086	2	185	50	MB96RR900200	23	0 Southbury	231 Kettletown Road
CT2086	6	185	50	MB96RR900200	263	0 Southbury	231 Kettletown Road
CT2126	1	154	50	MB96RR900200	135	0 Southbury	Horse Fence Hill Rd
CT2126	2	154	50	MB96RR900200	258	0 Southbury	Horse Fence Hill Rd

RADIO FREQUENCY SITE DATA OF PROPOSED SITE (SR1252) AND NEARBY NEW CINGULAR WIRELESS SITES

CT2126	3	154	50	MB96RR900200	17	0 Southbury	Horse Fence Hill Rd
CT5183	2	131	51.152 2	1_0850-MHz_M45po	50	0 Southbury	98 RUSSIAN VILLAGE ROAD
CT5183	3	131	51.152 2	1_0850-MHz_M45po	170	0 Southbury	98 RUSSIAN VILLAGE ROAD
CT5183	4	131	51.152 2	1_0850-MHz_M45po	290	0 Southbury	98 RUSSIAN VILLAGE ROAD
SR1860	2	150	51.522	777000_850_00T	30	0 Woodbury	24 Dinglebrook Lane
SR1860	3	150	51.022	777000_850_00T	150	0 Woodbury	24 Dinglebrook Lane
CT2070	1	135	50.922	DUO1417-8686-0c	143	0 New Fairfield	302 Ballpond RD
CT2070	2	135	50.922	DUO1417-8686-0c	23	0 New Fairfield	302 Ballpond RD
CT2070	3	135	54.422	DUO1417-8686-0c	263	0 New Fairfield	302 Ballpond RD
SR1860	1	150	51.022	777000_850_00T	270	0 Woodbury	24 Dinglebrook Lane
CT2185	1	97	50.572	777000_850_00T	240	0 Brookfield	761 Federal Rd.
CT2185	2	97	50.572	777000_850_00T	0	0 Brookfield	761 Federal Rd.
CT2185	4	97	50.572	777000_850_04T	120	0 Brookfield	761 Federal Rd.
CT5902	1	79	50	7250.02	20	-2 Brookfield	33 1/2 Carmen Hill Road

















