STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
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APPLICATION OF SBA TOWER II, LLC FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A TELECOMMUNICATIONS FACILITY AT 49 BRAINERD ROAD, NIANTIC (EAST LYME), CONNECTICUT	:	DOCKET NO. 396
	:	FEBRUARY 16, 2010

RESPONSES OF CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS TO CONNECTICUT SITING COUNCIL PRE-HEARING INTERROGATORIES

On January 29, 2010, the Connecticut Siting Council ("Council") issued Pre-Hearing Interrogatories to Intervenor, Cellco Partnership d/b/a Verizon Wireless ("Cellco"), relating to the above-captioned docket. Below are Cellco's responses.

Question No. 1

What is Cellco Partnership d/b/a Verizon Wireless' (Cellco) existing signal strength in the area that would be covered by the proposed facility?

Response

Cellco's signal strength in the area to be covered by the proposed facility ranges from -86 dBm to -98 dBm.

Question No. 2

What is the minimum signal level Cellco would consider acceptable for service in the vicinity of the proposed site?

Response

Cellco's minimum signal strength for reliable service is -85 dBm throughout its wireless

network.

Question No. 3

What is the minimum signal level that Cellco requires in order to provide adequate in-vehicle coverage? What is the minimum signal level that Cellco requires in order to provide adequate in-building coverage?

Response

Cellco's coverage thresholds are -85 dBm for reliable in-vehicle service and -75 dBm for reliable in-building service.

Question No. 4

At what height would Cellco center its antennas on the proposed tower? How many antennas would be installed? How would the antennas be mounted, e.g. T-arm, low-profile platform, etc.?

Response

Cellco is proposing the installation of twelve (12) panel-type antennas at a centerline height of 147 feet above-ground level on the proposed SBA tower. Cellco would prefer to attach its antennas to a low-profile platform for ease of antenna maintenance but, if required, could install its antennas on T-arms. Under either scenario, Cellco would be able to install all twelve (12) of its antennas at the same height on the proposed tower. Attached behind Tab 1 is a schematic showing of the differences between a "standard" antenna platform, a "low profile" antenna platform and "T-Arms".

Question No. 5

Provide the distance and direction from the proposed site to the existing (or proposed) sites that the proposed tower would interact with. Also include the addresses, tower heights,

antenna heights and tower types (e.g. monopole).

Response

East Lyme – 93 Roxbury Road, East Lyme, CT. This existing 150-foot lattice tower is located approximately 1.98 miles to the north of the proposed SBA tower site. Cellco antennas are located at a centerline height of 148 feet.

Old Lyme – 36 Hatchetts Hill Road, Old Lyme, CT. This existing 190-foot monopole tower is located approximately 2.36 miles to the west of the proposed SBA tower site. Cellco antennas are located at a centerline height of 175 feet.

Waterford South – 51 Daniels Avenue, Waterford, CT. This existing 180-foot lattice tower is located approximately 3.37 miles east of the proposed SBA tower site. Cellco antennas are located at a centerline height of 140 feet.

Question No. 6

Would flush-mounted or T-arm-mounted antennas provide the required coverage? Would either configuration result in reduced coverage and/or necessitate greater antenna height? Explain.

Response

The installation of antennas on T-arms would allow Cellco to install its full array of twelve (12) antennas at the 147-foot level on the proposed tower. (See Tab 1 – Antenna mounting schematic). Cellco intends to operate all three of its licensed operating frequencies (cellular – 850 MHz; PCS – 1900 MHz; and LTE – 700 MHz) at the proposed 49 Brainerd Road facility. If Cellco were required to use flush-mounted antennas at this site, it would be required to install three sets of three (3) flush-mounted antennas, one for each of the three operating frequencies, at three different antenna centerline heights on the tower.

Operating antennas in a flush-mounted configuration results in an overall loss of two to three db of coverage, thereby shrinking of the coverage footprint from a particular site. Typically, Cellco could make up for this loss by increasing the height of its antennas by 10 feet. Under this scenario, Cellco would require flush-mounted antenna locations at the 157-foot, 167-foot and 177-foot levels on the Brainerd Road tower in order to provide coverage in all three frequency ranges, comparable to that achievable from a full array of antennas (on a low-profile platform or T-Arms) at the 147-foot level. Requiring the use of flush-mounted antennas would significantly reduce the co-location potential of the tower and would result in an increase in height of the structure.

Question No. 7

Provide existing and proposed coverage plots assuming Cellco's antennas are centered at their proposed height, ten feet lower, and twenty feet lower, respectively.

Response

The coverage plots requested are included behind Tab 2. The Brainerd Road site is identified by Cellco as its "Rocky Neck" cell site. For reference purposes, Cellco has labeled each coverage map as follows:

Map 1 – Existing Cellular coverage
Map 2 – Existing PCS coverage
Map 3 – Existing and Proposed coverage at 147' – Cellular
Map 4 – Existing and Proposed coverage at 147' – PCS
Map 5 – Existing and Proposed coverage at 137' – Cellular
Map 6 – Existing and Proposed coverage at 137' – PCS
Map 7 – Existing and Proposed coverage at 127' – Cellular
Map 8 – Existing and Proposed coverage at 127' – PCS

Question No. 8

Provide the individual lengths of the coverage gaps (in miles) for the roads that Cellco seeks to provide coverage to. Describe criteria and parameters in determining the lengths of the

road.

Response

Cellco currently experiences a 0.25 mile gap in cellular coverage and a 2.4 mile gap in PCS coverage along State Route 156, between its existing Old Lyme, East Lyme and Waterford South cell sites. These represent the gaps in reliable service, where Cellco's signal strength drops below -85 dBm. Signal strength from the adjacent sites is measured on a monthly basis through baseline drive tests. In addition to coverage along Route 156 and generally in this southerly portion of East Lyme, the proposed facility will provide service along Amtrak's Acela and Shoreline East rail line.

Question No. 9

Provide the individual lengths of coverage (in miles) that would be provided by the proposed facility on the roads that Cellco seeks to provide coverage to. Provide similar data assuming the antennas are ten feet lower and twenty feet lower than the proposed height, respectively.

Response

Antenna Height	Acela Coverage Cellular (Miles)	Acela Coverage PCS (Miles)	Route 156 Coverage Cellular (Miles)	Route 156 Coverage PCS (Miles)	Route 156 Coverage LTE (Miles)
147'*	2.58	2.45	1.84	1.79	2.09
137'	2.36	2.10	1.65	1.60	1.89
127'	2.30	1.91	1.59	1.50	1.77

*Proposed Antenna height in Docket No. 391 Application

Question No. 10

Provide the areas (in square miles) that would be covered by this facility assuming that Cellco's antennas are centered at the proposed height, ten feet lower, and twenty feet lower, respectively.

Response

Antenna Height	Total Coverage Cellular (Sq. Miles)	Total Coverage PCS (Sq. Miles)	Total Coverage LTE (Sq. Miles)
147'*	16.29	8.19	18.42
137'	15.79	7.75	17.12
127'	15.21	6.64	16.34

*Proposed Antenna height in Docket No. 396 Application

The Council may note that the coverage footprint figures provided in the table above are higher than typically seen for similar installations. Because the proposed tower is located proximate to the Long Island Sound, the coverage footprint that extends over the open water of Long Island Sound to the south. Over water, with nothing to block the signal from the proposed tower, coverage from this site extends further to the south than in any other direction.

Question No. 11

Provide the following information: number of channels per sector for each antenna system that would be installed on the proposed tower, ERP per channel for each antenna system, and frequency at which each antenna system would operate. Also, provide a power density analysis of Cellco's proposed antennas to determine the worst-case percent maximum permissible exposure at the tower base.

Response

PCS Antennas

Alpha Sector – 147 ft.	**Beta Sector – 147 ft.**	**Gamma Sector – 147 ft.**
Antenna Type: BXA – 185063/8CF (1)	Antenna Type: BXA – 185063/12CF (1)	Antenna Type: BXA – 185063/8CF (1)
Frequency: Tx: 1965-1980,1945-1950 MHz; Rx: 1885-1900,1865-1870 MHz	Frequency: Tx: 1965-1980,1945-1950 MHz; Rx: 1885-1900,1865-1870 MHz	Frequency: Tx: 1965-1980,1945-1950 MHz; Rx: 1885-1900,1865-1870 MHz
No. Channels: 3	No. Channels: 3	No. Channels: 3
ERP/Channel: 380.29 W Max	ERP/Channel: 478.36 W Max	ERP/Channel: 380.29 W Max

Cellular Antennas

Alpha Sector – 147 ft.	**Beta Sector – 147 ft.**	**Gamma Sector – 147 ft.**
Antenna Type: LPA-80080/4CF_5 (2)	Antenna Type: LPA – 4019 (2)	Antenna Type: LPA-80080/6CF (2)
Frequency: Tx: 869-880,890-891.5 MHz; Rx: 824-835, 845-846.5 MHz	Frequency: Tx: 869-880,890-891.5 MHz; Rx: 824-835, 845-846.5 MHz	Frequency: Tx: 869-880,890-891.5 MHz; Rx: 824-835, 845-846.5 MHz
No. Channels: 9	No. Channels: 9	No. Channels: 9
ERP/Channel: 251.79 W Max	ERP/Channel: 1124.68 W Max	ERP/Channel: 355.66 W Max

LTE Antennas

Alpha Sector – 147 ft.	**Beta Sector – 147 ft.**	**Gamma Sector – 147 ft.**
Antenna Type: BXA–70063/6CF_2 (1)	Antenna Type: BXA–70063/6CF_2 (1)	Antenna Type: BXA–70063/6CF_2 (1)
Frequency: Tx:746 – 757 MHz; Rx: 776-787 MHz	Frequency: Tx:746 – 757 MHz; Rx: 776-787 MHz	Frequency: Tx:746 – 757 MHz; Rx: 776-787 MHz
No. Channels: 1	No. Channels: 1	No. Channels: 1
ERP/Channel: 816.70 W Max	ERP/Channel: 816.70 W Max	ERP/Channel: 816.70W Max

Specifications for the antennas listed above are attached behind Tab 3. Attached behind Tab 4 is a Cumulative Worst Case Power Density Table for Cellco's antennas.

Question No. 12

Is Cellco familiar with the proposed SBA Towers II LLC facility at 14 Cross Lane, Old Lyme? If Cellco co-located at this facility, could it provide adequate coverage to the target area that Cellco seeks to cover via the 49 Brainerd Road, Niantic tower site? Explain.

Response

Yes. Cellco was contacted by SBA Towers II LLC regarding a proposed facility at 14 Cross Lane in Old Lyme. RF engineers determined that a tower at 14 Cross Lane is located too far to the west to satisfy Cellco's East Lyme (Rocky Neck) objectives. That said, based on information obtained during the Council's hearing on Docket No. 391, the Cross Lane tower is no longer being pursued by SBA.

Question No. 13

Has Cellco considered the Pondcliff Condominium property at 97 West Main Street, Niantic as a possible tower site? Could such tower site provide adequate coverage to the target area that Cellco seeks to cover via the 49 Brainerd Road, Niantic site?

Response

The Pondcliff Condominium property is located approximately 1.25 miles to the north of the proposed SBA tower site. Cellco ran its coverage modeling up to a height of 199' at the Pondcliff property and could not satisfy the objectives of its Rocky Neck search area.

Question No. 14

Has Cellco considered the Nebelung Farms, LLC property at 138 North Bridebrook Road, Niantic as a possible tower site? Could such tower site provide adequate coverage to the target

area that Cellco seeks to cover via the 49 Brainerd Road, Niantic site?

Response

The Nebelung Farm property is located approximately 1.98 miles to the northwest of the proposed SBA tower site. Cellco ran its coverage modeling up to a height of 199' at the Nebelung Farm property and could not satisfy the objectives of its Rocky Neck search area.

Question No. 15

T-Mobile Northeast, LLC proposes three new towers in Old Lyme: 232 Shore Road; 387 Shore Road; and 61-1 Buttonball Road. Could any of these tower sites provide adequate coverage to the target area that Cellco seeks to cover via the 49 Brainerd Road, Niantic site?

Response

No. Cellco investigated these three T-Mobile sites and decided to intervene only in Docket No. 391 (232 Shore Road). Cellco intends to share the 232 Shore Road tower site if approved by the Council. The 232 Shore Road facility is located too far to the west to satisfy Cellco's Rocky Neck coverage objectives.

Question No. 16

Would Cellco have backup power at its tower site? How would backup power be provided, e.g. battery, diesel generator, etc.? Has Cellco considered using a fuel cell as a backup power source for the proposed facility? Explain.

Response

Cellco would provide back-up power at the proposed tower site, as it does with all of its wireless facility installations. A propane-fueled generator would be installed in a segregated 10' x 12' generator room within the 12' x 30' equipment shelter. A 1,000 gallon propane tank would be installed within the fenced compound, adjacent to Cellco's shelter. Cellco is not considering

the use of a fuel cell to provide back-up power to any of its facilities in Connecticut at this time.

Question No. 17

If a generator or fuel cell is to be used as a backup power source, would Cellco meet all applicable noise standards at the subject property boundaries? What are the expected noise levels at the compound fence perimeter and nearest property boundary?

Response

Yes. Based on operational experience with similar propane generator units, Cellco expects noise levels to be 44 dBA at the nearest property line approximately, 160 to the west of the equipment shelter. State noise standards permit maximum noise levels of 55 dBA during the day and 45 dBA at night. State noise standards do not apply at the compound fence line. It is also important to remember that, under normal operating conditions, the generator will only run for a period of 20 to 30 minutes, once a week, for testing purposes. Testing occurs only during daytime hours.

Question No. 18

Provide the estimated costs of Cellco's antennas and radio equipment for the proposed tower site.

Response

Below is a listing of all of Cellco's costs associated with the proposed SBA facility in East Lyme.

Cell Site Radio Equipment	$450,000
Platform, Antennas and Coax	$70,000

Power Systems (including generator and propane tank)	$50,000
Equipment Building	$50,000
Miscellaneous Site Costs (site preparation and restoration within facility compound)	$7,500

CERTIFICATE OF SERVICE

I hereby certify that on the 16th day of February, 2010, a copy of the foregoing was sent via electronic mail to:

Carrie L. Larson, Esq.
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702
clarson@pullcom.com

Russell L. Brown (via e-mail)
41 Brainerd Road
Niantic, CT 06357
rds@businessbookpress.com

Edward B. O'Connell, Esq.
Tracy M. Collins, Esq.
Waller, Smith & Palmer, P.C.
52 Eugene O'Neill Drive
P.O. Box 88
New London, CT 06320
eboconnell@waleersmithpalmer.com
tmcollins@waleersmithpalmer.com

Daniel M. Laub, Esq.
Christopher B. Fisher, Esq.
Cuddy & Feder LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601
cfisher@cuddyfeder.com
dlaub@cuddyfeder.com

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

Joseph Raia
97 West Main Street, Unit 9
Niantic, CT 06357
Raia.joseph@sbcglobal.net

Representative Ed Jutila
Assistant Majority Leader
Vice Chair, Public Safety and Security Committee
Connecticut General Assembly
37th Assembly District
23 Brainard Road
Niantic, CT 06357
Ed.Jutila@cga.ct.gov

Kenneth C. Baldwin