

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE: :
: :
APPLICATION OF CELLCO PARTNERSHIP : DOCKET NO. 448
D/B/A VERIZON WIRELESS FOR A :
CERTIFICATE OF ENVIRONMENTAL :
COMPATIBILITY AND PUBLIC NEED FOR :
THE CONSTRUCTION OF A WIRELESS :
TELECOMMUNICATIONS FACILITY AT :
831 DERBY MILFORD ROAD, ORANGE, :
CONNECTICUT : JULY 8, 2014

PRE-FILED TESTIMONY OF JAMIE L. LAREDO, JR.

Q.1. Please identify yourself and describe your position.

- A. My name is Jamie L. Laredo, Jr. and I am radio frequency (“RF”) design engineer with Cellco Partnership d/b/a Verizon Wireless (“Cellco”). My principal responsibilities include radio frequency design for Cellco’s wireless network throughout New Haven County in Connecticut, including the proposed tower at 831 Derby Milford Road in Orange (the “Orange North” cell site). Prior to joining Cellco, I worked as an RF and Optimization Engineer for AT&T’s markets in Louisiana and Northern California.

Q.2. Please describe Cellco’s current service in the area around the proposed Orange North cell site at 831 Derby Milford Road.

- A. As discussed in the Docket No. 448 application narrative, Cellco currently provides wireless service in northwest portions of Orange, eastern portions of Shelton and southern portions of Derby from six (6) existing cell sites in the area, identified as our Derby, Derby North, Orange 2, Orange 3, Shelton 2 and Milford NE.

These sites provide wireless service to major travel corridors in the area including portions of Routes 15, 8, 34, 121 and 110, and to commercial, industrial and residential uses in Orange, Shelton and Derby. (See Cellco's coverage plots included in Attachment 8 of the application).

Q.3. Can you describe Cellco's need for the Orange North cell site?

A. Even with the service from the existing cell sites in the area, Cellco's network still experiences, in each of its operating frequencies, gaps in reliable wireless service. For example, as shown on the "Existing Verizon Wireless 700 MHz Coverage" plot in Attachment 8, gaps in wireless service remain to the south and southwest of the proposed Orange North cell site into residential areas in southwest Orange, residential, commercial and industrial areas in eastern Shelton and along portions of Route 110 in Shelton.

Likewise, in Cellco's 2100 MHz frequencies, gaps in reliable wireless service also exist in residential areas to the northeast and to the south of the Orange North cell site in Orange; in commercial, industrial and residential areas to the southwest in Shelton; along portions of Route 110 in Shelton; and along a portion of Route 34 in Orange and Derby. Significant portions of these existing coverage gaps will be filled by service from the proposed Orange North cell site.

In addition to these coverage benefits, the proposed Orange North cell site will provide significant capacity relief to Cellco's Shelton 2 cell site (beta sector antennas); Derby North cell site (beta and gamma sector antennas); Orange 2 cell site (gamma sector antennas); Orange 3 cell site (alpha and gamma sector antennas); and to a lesser extent Milford NE cell site (alpha sector antennas). Each of these surrounding cell sites has reached or is projected to reach their respective capacity in 2016.

Q.4. Please describe why capacity of the wireless network is a significant concern.

A. Like “coverage” problems, network capacity problems have a significant impact on Cellco’s ability to provide reliable wireless service to its customers. Due to technological limitations of its radio equipment and the limited number of frequencies within which Cellco is licensed to operate, each cell site operating in Cellco’s network has a limited capacity to handle only so many calls and/or data transmissions. Cellco cannot add radio equipment or increase transmit power or operate in additional frequencies in an effort to boost capacity. Often, the only way to boost capacity is to add another cell site somewhere nearby, and off-load some of the “traffic” from the adjacent sites. As illustrated on the plots in Attachment 6, the portion of the coverage footprint of the new (Orange North) site that overlaps with the coverage footprint from the existing sites is the area where those capacity benefits are realized.

Whether you are in an area of poor coverage or in a service area operating at or beyond its capacity limits, the impact on the customers is the same. Calls or data transmissions in progress could be lost or dropped. Attempts to initiate calls or data transmissions will be ineffective or calls and data transmissions in the areas will be of poor quality and/or slow speeds.

Q.5. What is driving the need and focus on capacity relief in Cellco’s wireless network?

A. Cellco’s customers, and all wireless customers for that matter, are demanding faster and more reliable service from all of their wireless devices, including smart phones, tablets, home computers, medical devices, cars, cameras and much more. Nearly 40% of households nationwide, are currently wireless only. Cellco’s existing cell sites in areas like Orange, Shelton and Derby are being asked to handle more calls and data transmission

every day. Cellco is working very hard to stay ahead of this exponential growth in demand.

Q.6. How does Cellco know when an existing cell site is reaching its capacity limit?

- A. Cellco's system performance engineers and network RF engineers monitor, on a monthly basis, the performance and operation of each individual cell site in its network. We analyze historic cell site performance and utilization data including, but not limited to, the number of connected users on a sector of a particular cell site; information of how much data is going through a sector of a particular cell site; and population, land use and development trends in a particular area. This data allows Cellco to forecast when any individual or combination of cell sites will reach their capacity limits.

Q.7. Is adding a new cell site the only option available when a capacity problem is identified?

- A. No. Once a capacity problem is identified we look at several options before we issue a search ring for a new cell site. The first thing we do is we attempt to "optimize" the sector or sectors of a particular cell site experiencing the capacity problem. Optimization techniques can include, changing antenna types to antennas with a narrower beam width, changing the down tilt of the antennas, changing the antenna azimuth and adjusting transmit power and other system parameters. These efforts can change antenna sector characteristics to limit the coverage footprint for a particular site, adjust capacity limits and let some of the users utilize the next best serving sector, if one is available. Some of these measures, particularly those that limit a cell site's ability to provide service to customers (coverage and capacity relief) are "stop gap" measures used as a last resort to avoid having a particular cell site "crash", taking it out of service altogether.

Once optimization is completed, we will monitor the site again for a period of time to see if the capacity problems have been resolved.

If the capacity problems relate to a specific use or customer we can look at alternative facilities that may solve the more precise problem. For example, if a capacity problem is related to a high capacity user in a particular area (a large office building, college campus or corporate park), a dedicated in-building system or small cell installation on or in that building may resolve the capacity problem. Before a new tower site is proposed, Cellco will also search for other existing structures (e.g. buildings, church steeples, etc.) for the location of a new base station.

Q.8. Does this conclude your testimony?

A. Yes.


The statements above are true and complete, to the best of my knowledge.

JULY 8, 2014
Date



Jamie L. Laredo, Jr.

Subscribed and sworn before me this 8th day of July, 2014.



Kenneth C. Baldwin
Commissioner of the Superior Court