

**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

IN RE:

APPLICATION OF OPTASITE, INC. AND  
OMNIPOINT COMMUNICATIONS, INC.  
FOR A CERTIFICATE OF ENVIRONMENTAL  
COMPATIBILITY AND PUBLIC NEED FOR  
THE CONSTRUCTION, MAINTENANCE AND  
OPERATION OF A TELECOMMUNICATIONS  
FACILITY AT 940 MERIDEN ROAD IN THE  
CITY OF WATERBURY, CONNECTICUT

DOCKET NO. 321

DATE: NOVEMBER 16, 2006

**PRE-FILED TESTIMONY OF SCOTT HEFFERNAN**

Q.1. Please summarize your professional background in telecommunications.

A. My career in the wireless industry has spanned the past eleven years. For the past two years, my responsibilities as a contractor for T-Mobile have included the design and integration of the T-Mobile wireless network. Prior to this period, I was responsible for the design, integration, optimization and management of network buildouts for commercial wireless carriers, including Nextel, AT&T Wireless, Cingular, and Voicestream (T-Mobile's predecessor). Additionally, I have been involved in network design for government entities such as the Department of Homeland Security, Department of the Army, Department of the Navy, and the United States Marine Corps.

Q.2. What does your testimony address?

A. The purpose of my testimony is to provide information relating to T-Mobile's existing network in this area of the state and to describe the need for a

proposed facility in the area. This includes information on the general design of T-Mobile's network and the technical constraints in selecting proposed facilities.

Q.3. Please describe T-Mobile's wireless network in Connecticut.

A. T-Mobile's predecessor entities began building a wireless network to provide PCS service in Connecticut in the mid 1990s. T-Mobile is licensed by the Federal Communications Commission to provide PCS service using frequencies in the 1900 MHz range. T-Mobile operates approximately 550 sites in Connecticut. Current efforts are directed to providing signal to areas without coverage and meeting demand for additional capacity within areas already served. Each new site must be chosen to meet the need for coverage and/or capacity without creating RF interference among sites.

Q.4. What requirements does the nature of wireless technology place on T-Mobile's selection of cell site locations?

A: Like all personal communications service providers, T-Mobile's wireless network is based on the principle of frequency reuse. Cell site locations must be chosen to provide for sufficient signal strength overlap to allow call hand-off between cells without creating unnecessary duplicative coverage and frequency interference. Terrain variations and local land use policies and development further limit cell site locations.

Technological advances in service, such as the availability of data and video services through customer handsets, are also significant factors in system

development. Increased customer demand and expectations resulting from those advances drive the need for additional sites.

T-Mobile's required lower limit threshold is -84 dBm, which is expected to provide reliable in-vehicle coverage. A higher threshold level of -76 dBm is the minimum required to provide reliable in-building coverage. At levels below the -84 dBm threshold, signal degradation would be expected to result in areas of unreliable service to T-Mobile customers for voice and data services. In addition, levels below -84 dBm would adversely affect T-Mobile's ability to provide reliable E-911 services as mandated by the federal government.

Q.5. Please describe T-Mobile's need for the proposed site.

A. The interrelationship between the proposed site and T-Mobile's existing system (including recently approved but not yet on-air sites) is depicted in the propagation plots included in Exhibit F of the Application. As shown, this proposed site is needed primarily to provide new coverage along Meriden Road. In addition, this proposed site is needed to provide capacity off-loading for those sites currently providing coverage along Interstate I-84.

Q.6. How did T-Mobile analyze the proposed sites?

A. T-Mobile's RF engineers first utilized propagation prediction tools to determine the potential effectiveness of the proposed locations in meeting the identified coverage need. That analysis confirmed that the site would provide signal within the coverage gap along Meriden Road, would be capable of

offloading overflow capacity along I-84 and would improve service generally within the area.

In order to determine the minimum height required to achieve the coverage objective, T-Mobile then conducted a drive test. The drive test allowed T-Mobile to gather accurate signal strength measurements along the target routes at various heights. The drive test process was performed at antenna heights of 127, 117, 107, and 97 feet AGL.

The drive test revealed that an antenna center line of 97' would allow T-Mobile to achieve the coverage objective levels in this area. At both 127' and 117', the coverage along Meriden Road for a distance of approximately 0.1 mile starts to break apart and fall below the T-Mobile minimum required threshold of -84 dBm just prior to reaching existing coverage from CT11494B to the east. For that distance, T-Mobile users would be likely to briefly experience poor service quality in this area. At 107', the area along Meriden Road within the targeted area which falls below the -84 dBm threshold remains similar to that at 117'. At the test height of 97' AGL, the results confirm slightly increased degradation in the area east of the proposed facility along Meriden Road, but just within the minimum requirements of T-Mobile's design criteria.

Q.7. Please summarize the basis for the height of this proposed facility

A. Based upon the results of the drive test conducted at the proposed Waterbury facility, the minimum height required to fully cover the intended coverage objective is 97' AGL. At heights below 97' AGL, the coverage within the target area of Meriden Road, starts to fall below the required minimum T-

Mobile coverage threshold of -84 dBm. A minimum height of 97' at the Site to locate T-Mobile's antennas, will allow T-Mobile to provide adequate coverage within the targeted portion of Meriden Road and the surrounding area.

Assuming that Sprint/Nextel requires a minimum height of 107' AGL to provide adequate coverage in this area of Waterbury, a minimum tower height of 110' at the Site with Sprint/Nextel's antennas at 107' AGL and T-Mobile's antennas at 97' AGL will provide for the needs of both T-Mobile and Sprint/Nextel.

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

November 15, 2006

Date



Scott Heffernan

Subscribed and sworn before me this \_\_\_ day of November, 2006.

By: \_\_\_\_\_  
Notary