

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

January 31, 2014

Via Hand Delivery

James Zeoli
First Selectman
Town of Orange
617 Orange Center Road
Orange, CT 06477

Re: **Submission of Technical Information Concerning a Proposal to
Construct a Wireless Telecommunications Facility at 831 Derby Milford
Road in the Town of Orange, Connecticut**

Dear Mr. Zeoli:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”), in its proposal to construct a new wireless telecommunications facility on an approximately 34.5 acre parcel at 831 Derby Milford Road in Orange (the “Property”). For the purposes of this filing, the proposed telecommunications facility is known as Cellco’s “Orange North Facility”. This Technical Report is submitted pursuant to Connecticut General Statutes (“Conn. Gen. Stat.”) § 16-50l(g), which establishes local input requirements for the siting of a wireless telecommunications facility under the jurisdiction of the Connecticut Siting Council (the “Council”). This statutory provision requires the submission of technical information to the municipality where a proposed facility will be located and any municipality within 2,500 feet of the proposed facility location. Because a portion of the City of Shelton is located within 2,500 feet of the Property, a copy of this report will also be forwarded to Mayor Mark A. Lauretti.

Correspondence and/or communications regarding the information contained in this report should be addressed to:



Law Offices

BOSTON

PROVIDENCE

HARTFORD

NEW LONDON

STAMFORD

WHITE PLAINS

NEW YORK CITY

ALBANY

SARASOTA

www.rc.com

ROBINSON & COLE LLP

James Zeoli
January 31, 2014
Page 2

Sandy M. Carter, Regulatory Manager
Verizon Wireless
99 East River Drive
East Hartford, CT 06108

A copy of all such correspondence or communications should also be sent to Cellco's attorneys:

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

Cellco intends to submit an application to the Council for a Certificate of Environmental Compatibility and Public Need ("Certificate") for the construction, maintenance and operation of a wireless telecommunications facility in the Town of Orange (the "Town" or "Orange"). The Orange North Facility would interact with Cellco's existing Orange 2, Orange 3, Milford NE, Shelton 2, Derby and Derby North cell sites.

The Orange North Facility would provide improved coverage and, more importantly, significant capacity relief to its network in northern portions of Orange, particularly along portions of Routes 34, 121 and 110 and in the surrounding residential neighborhoods. Cellco's existing Derby, Milford NE and Shelton 2 cell sites and, to a lesser extent, Orange 2, Orange 3 and Derby North cell sites are currently operating at or near their respective capacity limits. Coverage plots for Cellco's existing cell sites in the area, alone and together with the proposed Orange North Facility are included in Attachment 1. These plots show areas of coverage from Cellco's existing cell sites (dark gray shading), existing gaps in reliable wireless service, and the coverage footprint from the Orange North Facility (purple shading). The significant areas of overlapping service shown on these plots help illustrate the significant capacity benefits of the Orange North Facility. This additional capacity is needed so that Cellco can provide its customers with enhanced wireless services.

Cell Site Information

The proposed Orange North Facility would be located in the southerly portion of an approximately 34.5 acre parcel at 831 Derby Milford Road in Orange. The Property is owned by the Walter M. and Maryellen K. Besguda Living Trust and is located in the Residential zone. The Property is currently used for residential and



James Zeoli
January 31, 2014
Page 3

agricultural purposes.

The proposed facility will consist of a 100-foot monopole tower and a 12' x 30' shelter located within a 50' x 50' fenced compound. Cellco will install up to fifteen (15) panel-type antennas at the centerline height of 100 feet above ground level ("AGL"). Cellco's antennas would extend to an overall height of approximately 104 feet AGL. Equipment associated with the Cellco's antennas and a diesel-fueled backup generator would be located inside the 12' x 30' shelter. Access to the Orange North Facility would extend from Derby Milford Road over an existing driveway on the Property a distance of approximately 490 feet. Project plans for the Orange North Facility are included in Attachment 2.

Connecticut Siting Council Jurisdiction

Municipal jurisdiction over the siting of the proposed telecommunications facility described in this report is pre-empted by provisions of the Public Utilities Environmental Standards Act ("PUESA"), Conn. Gen. Stat. § 16-50g *et seq.* The PUESA gives exclusive jurisdiction over the location, type and modification of telecommunications towers, to the Council (Conn. Gen. Stat. § 16-50x(a); 16-50i(a)(6)). Accordingly, the telecommunications facility described in this report is exempt from the Town's land use regulations.

Upon receipt of an application, the Council will assign a docket number and, following a completeness review, set a hearing date. At that time, the Town may choose to become an intervenor or party in the proceeding. Other procedures followed by the Council include serving the applicant and other participants with interrogatories, holding a pre-hearing conference, and conducting a public hearing. The public hearing would be held at a location in the Town. Following the public hearing, the Council will issue findings of fact, an opinion and a decision and order. Prior to construction, the Council will also require the Applicant to submit a development and management plan ("D&M Plan") which is, in essence, a final site development plan showing the details of the facility incorporating any conditions imposed by the Council. These procedures are also outside the scope of the Town's jurisdiction and are governed by the Connecticut General Statutes, the Regulations of Connecticut State Agencies, and the Council's Rules of Practice. If the Council approves the cell site described in this report, Cellco will submit to the Town's Building Official an application for approval of a local building permit. Under Section 16-50x of the General Statutes, which provides for the exclusive jurisdiction of the Council, the building official must honor the Council's decision.



James Zeoli
January 31, 2014
Page 4

Municipal Consultation Process

Pursuant to Section 16-50~~l~~ of the General Statutes, Town officials are entitled to receive technical information regarding the proposed telecommunications facility at least ninety (90) days prior to the filing of an application with the Council. This Technical Report is provided to the Town in accordance with these provisions and includes information on the need for improved reliable wireless service in the area; the location of existing wireless facilities in and around Orange; details of the proposed facility; the location of alternative sites considered and rejected; the location of schools and commercial day care facilities in the area and the aesthetic impacts of the facility on those schools and day care facilities, if any; a description of the site selection process; and a discussion of potential environmental effects associated with the proposed facility.

Not later than sixty (60) days after the initial consultation meeting, the municipality may, in cooperation with Cellco, hold a public information hearing on the facility proposal. If such a hearing is held, the applicant must notify all abutting landowners and publish notice of the hearing in a newspaper of general circulation in the municipality, at least fifteen (15) days prior to the hearing.

Not later than thirty (30) days after the initial consultation meeting, the municipality may present the prospective applicant with alternative sites, including municipal parcels, for its consideration. If not previously considered, these alternatives will be evaluated and discussed in its application to the Council.

Pursuant to Section 16-50~~l~~(e) of the General Statutes, Cellco must provide a summary of the Town's comments and recommendations, if any, to the Council within fifteen (15) days of the filing of an application.

Need for the Proposed Wireless Facility

The proposed Orange North Facility described in this Technical Report is needed so that Cellco can provide enhanced wireless voice and data services in the Town of Orange. More particularly, the Orange North Facility will provide additional wireless "coverage" along portions of Routes 34, 121, 110 and local roads in the area immediately around the Property. Also, Cellco's existing Derby, Milford NE and Shelton 2 cell sites and, to a lesser extent, Derby North, Orange 2 and Orange 3 cell sites are currently operating at their respective capacity limits. The Orange North Facility, described in this report, would improve significantly network capacity in the area, improving Cellco's ability to provide reliable wireless services in north Orange.



James Zeoli
January 31, 2014
Page 5

Environmental Effects

In our experience, the primary impact of a wireless facility such as the proposed Orange North Facility is visual. The visual impact of the proposed facility will vary from place to place around the site location, depending upon factors such as vegetation, topography, distance from the towers, and the location of buildings in the sight-line of the cell site. The Orange North Facility will be located in the northerly portion of the Property.

To more fully assess the visual impact of the Orange North Facility, Cellco's consultant, All-Points Technology Corporation ("APT") has prepared a Preliminary Visual Assessment. This assessment indicates that a majority of the year-round visibility of the proposed 100-foot tower at the Property would be limited to the area in the immediate vicinity of the proposed tower location and generally on the Property. These year-round views encompass an area of approximately 24 acres. When the leaves are off the trees, views of the proposed tower through the trees (a/k/a seasonal views) may occur over a larger area (approximately 590 acres) around the tower site. (*See Attachment 3*). A more detailed visual assessment report is being prepared and will be included in Cellco's application to the Council.

Pursuant to the provisions of Conn. Gen. Stat. § 16-50p(a)(3)(G), new telecommunications facilities must be located at least 250 feet from schools (defined in C.G.S. §10-154a) and commercial day care facilities (defined in C.G.S. §19a-77(a)(1)) unless the location selected is acceptable to the Town's chief elected official or the Council finds that the facility will not have a substantial adverse effect on the aesthetics or scenic quality of the neighborhood where the school or commercial day care use is located. The proposed Orange North Facility is not located within 250 feet of any building containing a school or commercial day care facility.

Based on field surveys, Cellco has determined that the construction of the Orange North Facility will have no impacts on inland wetlands or watercourses, within or near the tower compound. Cellco anticipates that all other physical environmental effects associated with the proposed facility would be minimal.

Radio Frequency Emissions

The Federal Communications Commission ("FCC") has adopted a standard (the "Standard") for exposure of radio frequency ("RF") emissions from telecommunications base stations like the Orange North Facility. To ensure compliance with the Standard, Cellco has performed a worst-case RF emissions calculation for the proposed facility according to the methodology described in FCC



James Zeoli
January 31, 2014
Page 6

Office of Science and Technology Bulletin No. 65 (“OST Bulletin 65”). This calculation is a conservative, worst-case approximation of RF emissions at the closest accessible point to the antenna (i.e., the base of the tower), and with all antennas transmitting simultaneously on all channels at full power. The worst-case calculated RF emissions level for Cellco’s antennas at the 100-foot level on the proposed tower would be 37.88% of the FCC Standard. (See Attachment 4.) Actual RF emissions levels from this facility will be far less than these “worst-case” approximations.

Scenic Natural Historic or Recreational Impacts

To further assess the environmental impacts of the proposed facility, Cellco is working with its consultant team to prepare a National Environmental Policy Act (“NEPA”) Environmental Screening Checklist (the “NEPA Checklist”) and other related environmental reviews to determine if the facility will have any significant adverse environmental effects. The NEPA Checklist will include information from the Environmental and Geographic Information Center of the Connecticut Department of Energy and Environmental Protection (“DEEP”), the U.S. Fish and Wildlife Service (“USFWS”) and the State Historic Preservation Officer (“SHPO”). Copies of the DEEP, USFWS and the SHPO determinations will also be submitted as a part of the Council Application.

Site Search Process

Cellco conducted a search for suitable cell site locations in northern portions of Orange and identified the Property as a site that would satisfy its wireless service objectives in the area. In addition to the proposed location, Cellco identified and investigated seven (7) alternative facility locations in the area. With the exception of the Property, each of the alternative sites considered were either rejected by the landowner who was unwilling to enter into a lease, rejected by Cellco’s RF engineers for failing to satisfy the site’s service objectives or eliminated due to some concerns for significant environmental effects. A complete list of other potential cell sites investigated is included in Attachment 5.

Tower Sharing

As stated above, Cellco intends to build a tower that is capable of supporting its antennas and those of additional wireless telecommunications providers, including Town of Orange emergency service providers, if a need exists. The provision to share the tower is consistent with the intent of the General Assembly when it adopted Conn. Gen. Stat. § 16-50aa and with Council policy. The availability of space on the proposed tower may reduce, if not eliminate, the need for additional towers in



ROBINSON & COLE_{LLP}

James Zeoli
January 31, 2014
Page 7

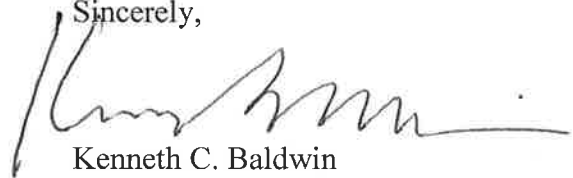
northern portions of Orange for the foreseeable future.

Conclusion

This Technical Report is submitted in accordance with Conn. Gen. Stat. § 16-50l which requires Cellco to supply the Town with information regarding its proposed Orange North Facility. This report includes information regarding the site selection process, public need, and the potential environmental impacts of the facility. Cellco submits that its proposed Orange North Facility would not have any significant adverse environmental effects. Moreover, Cellco submits that the public need for high quality wireless service, and a competitive framework for providing such service has been determined by the FCC to be in the public interest and that such public need far outweighs any perceived environmental effects of the proposed facility.

Please contact me if you have any additional questions regarding the proposed facility.

Sincerely,



Kenneth C. Baldwin

KCB/kmd

Enclosures

Copy to:

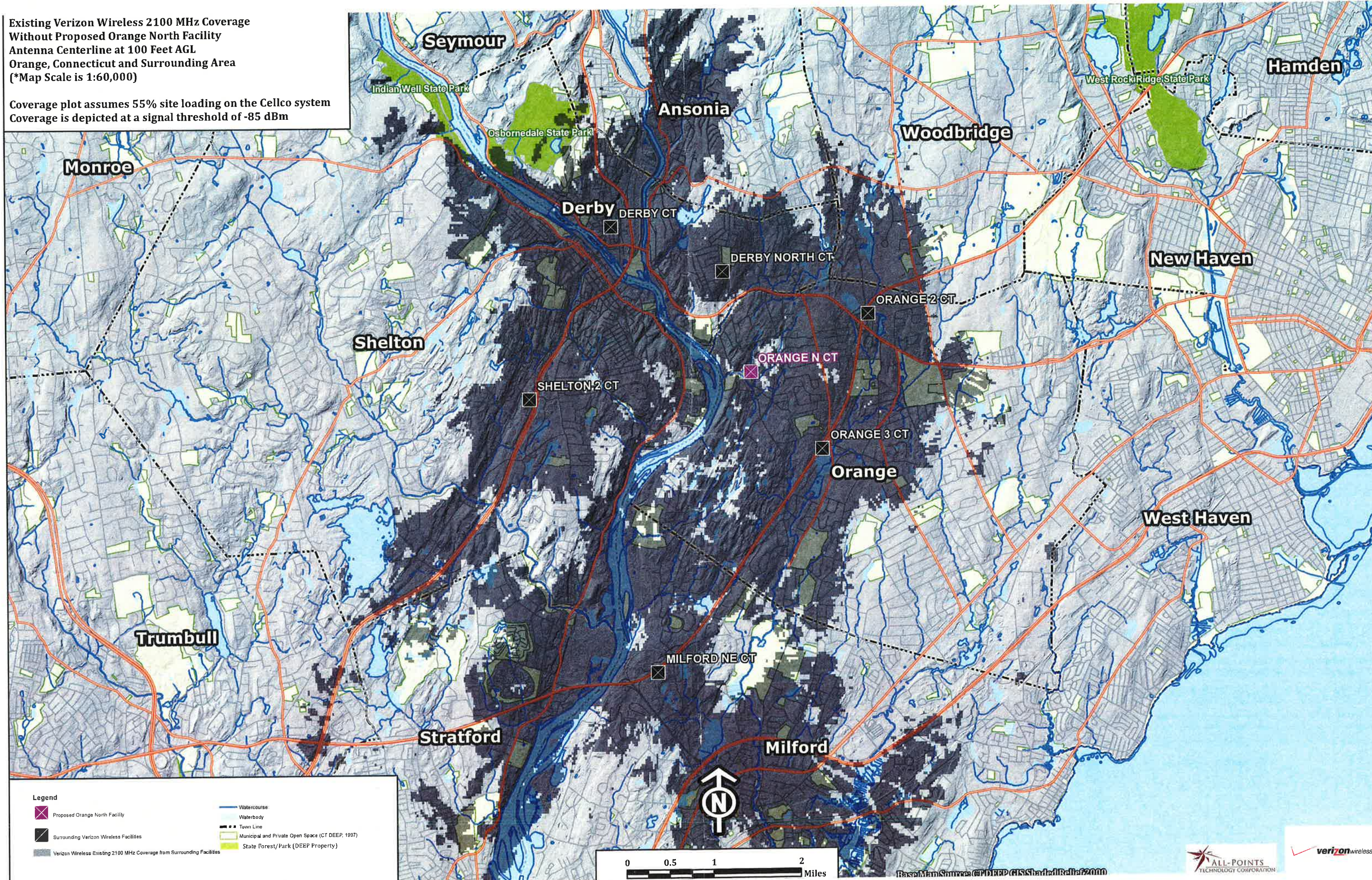
Mark A. Lauretti, Mayor, City of Shelton
Walter Clark IV, Chair, Orange Town Plan and Zoning Commission
Rick Mangione, Chair, Orange Inland Wetlands and Water Courses
Commission
Ruth M. Parkins, Chair, Shelton Planning and Zoning Commission
Gary Zahornasky, Chair, Shelton Inland Wetlands Commission
Sandy M. Carter



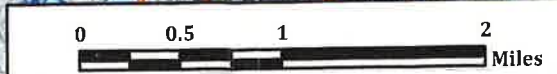
ATTACHMENT 1

Existing Verizon Wireless 2100 MHz Coverage
 Without Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



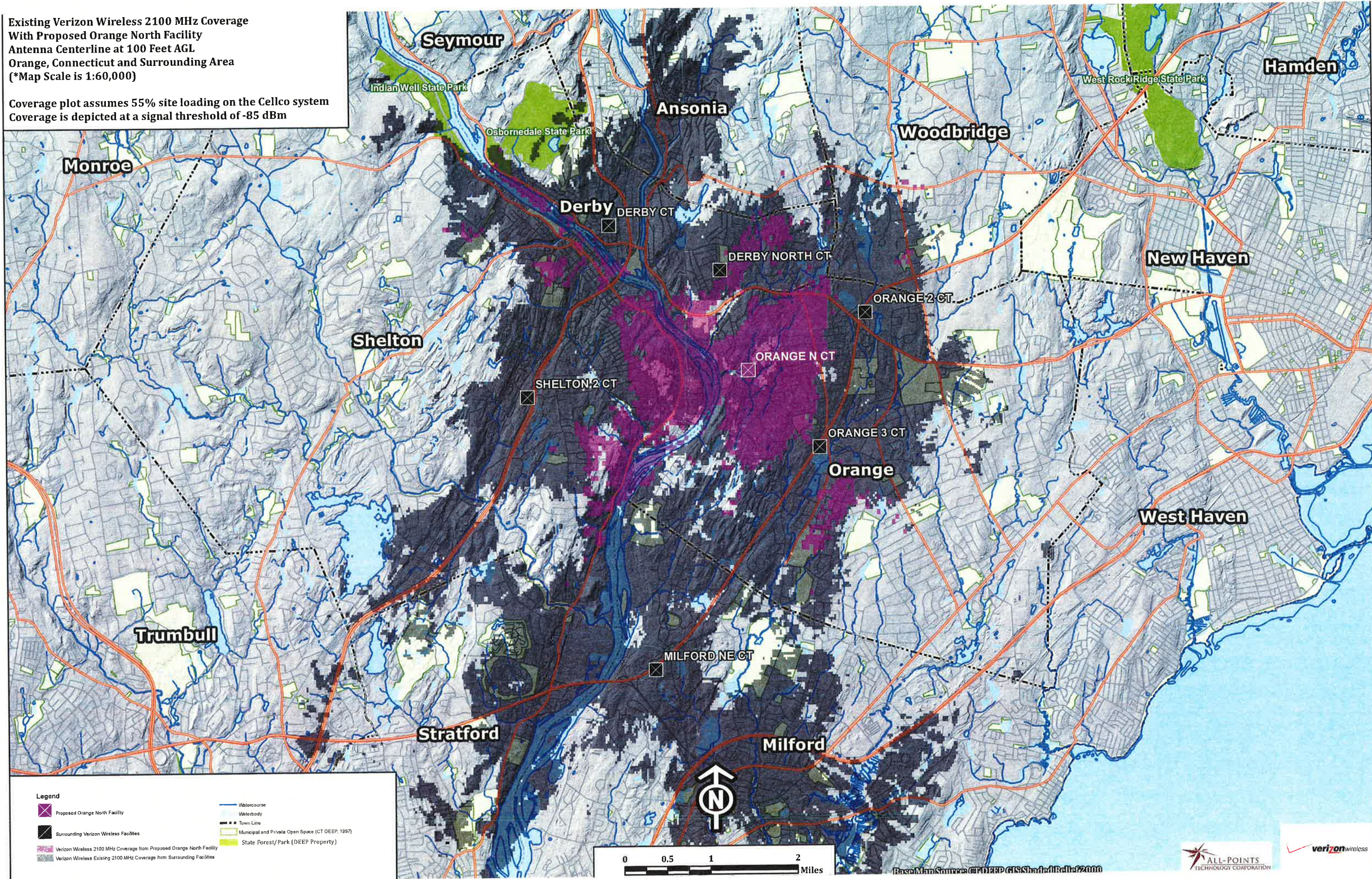
- Legend**
- Proposed Orange North Facility
 - Surrounding Verizon Wireless Facilities
 - Verizon Wireless Existing 2100 MHz Coverage from Surrounding Facilities
 - Watercourse
 - Waterbody
 - Town Line
 - Municipal and Private Open Space (CT DEEP, 1997)
 - State Forest/Park (DEEP Property)



Base Map Source: © 2008 ESRI, Inc. All Rights Reserved

Existing Verizon Wireless 2100 MHz Coverage
 With Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



- Legend**
- Proposed Orange North Facility
 - Surrounding Verizon Wireless Facilities
 - Verizon Wireless 2100 MHz Coverage from Proposed Orange North Facility
 - Verizon Wireless Existing 2100 MHz Coverage from Surrounding Facilities
 - Watercourse
 - Waterbody
 - Town Line
 - Municipal and Private Open Space (CT DEEP, 1997)
 - State Forest/Park (DEEP Property)

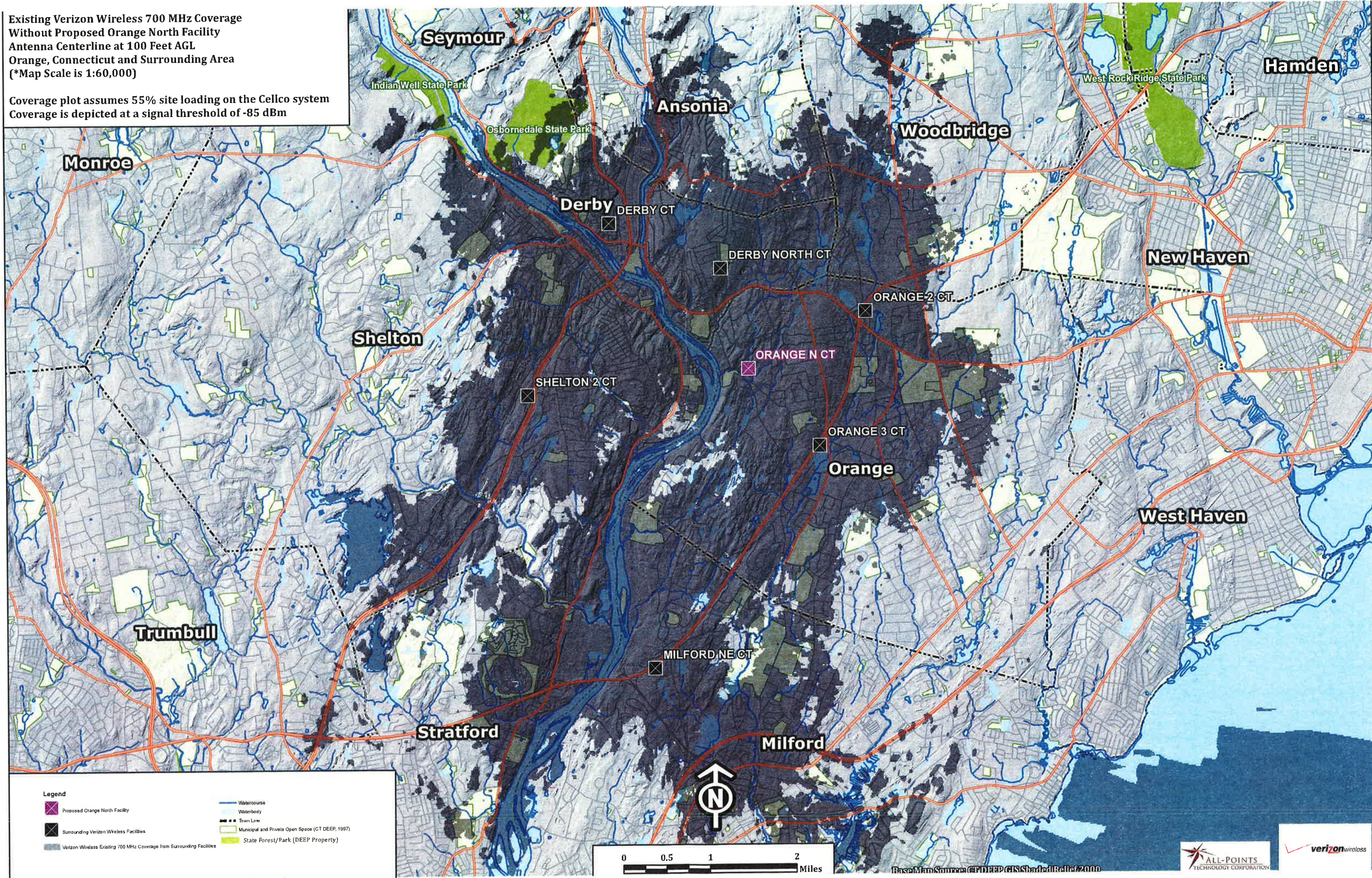


Base Map Source: © DEEP GIS/State of CT 2000



Existing Verizon Wireless 700 MHz Coverage
 Without Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



- Legend**
- ✕ Proposed Orange North Facility
 - ✕ Surrounding Verizon Wireless Facilities
 - Verizon Wireless Existing 700 MHz Coverage from Surrounding Facilities
 - Watercourse
 - Waterbody
 - - - Town Line
 - Municipal and Private Open Space (CT DEEP, 1997)
 - State Forest/Park (DEEP Property)

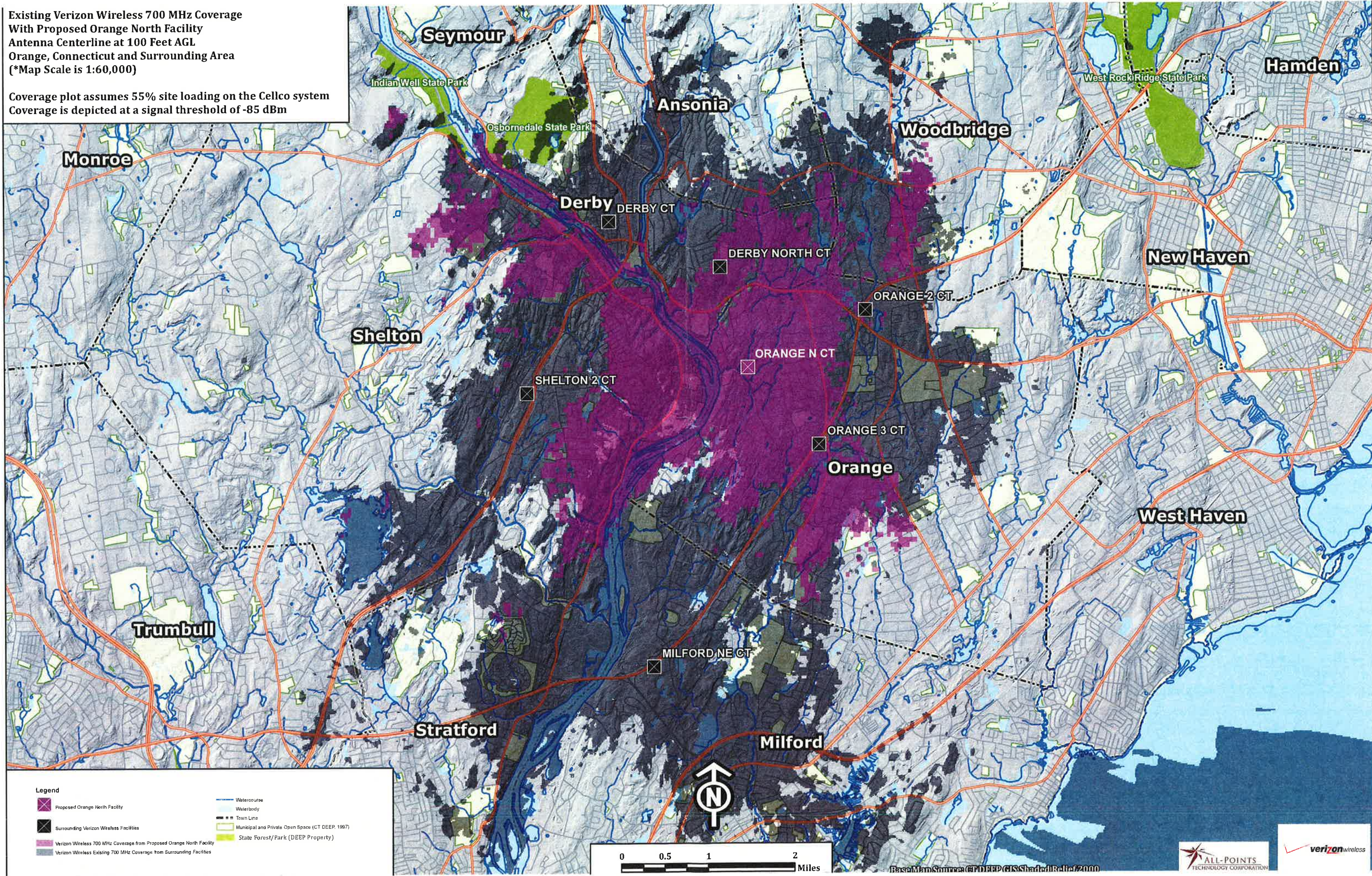


Base Map Source: © DEEP GIS Shaded Relief 2000



Existing Verizon Wireless 700 MHz Coverage
 With Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



Legend

- Proposed Orange North Facility
- Surrounding Verizon Wireless Facilities
- Verizon Wireless 700 MHz Coverage from Proposed Orange North Facility
- Verizon Wireless Existing 700 MHz Coverage from Surrounding Facilities
- Watercourse
- Waterbody
- Town Line
- Municipal and Private Open Space (CT DEEP, 1997)
- State Forest/Park (DEEP Property)

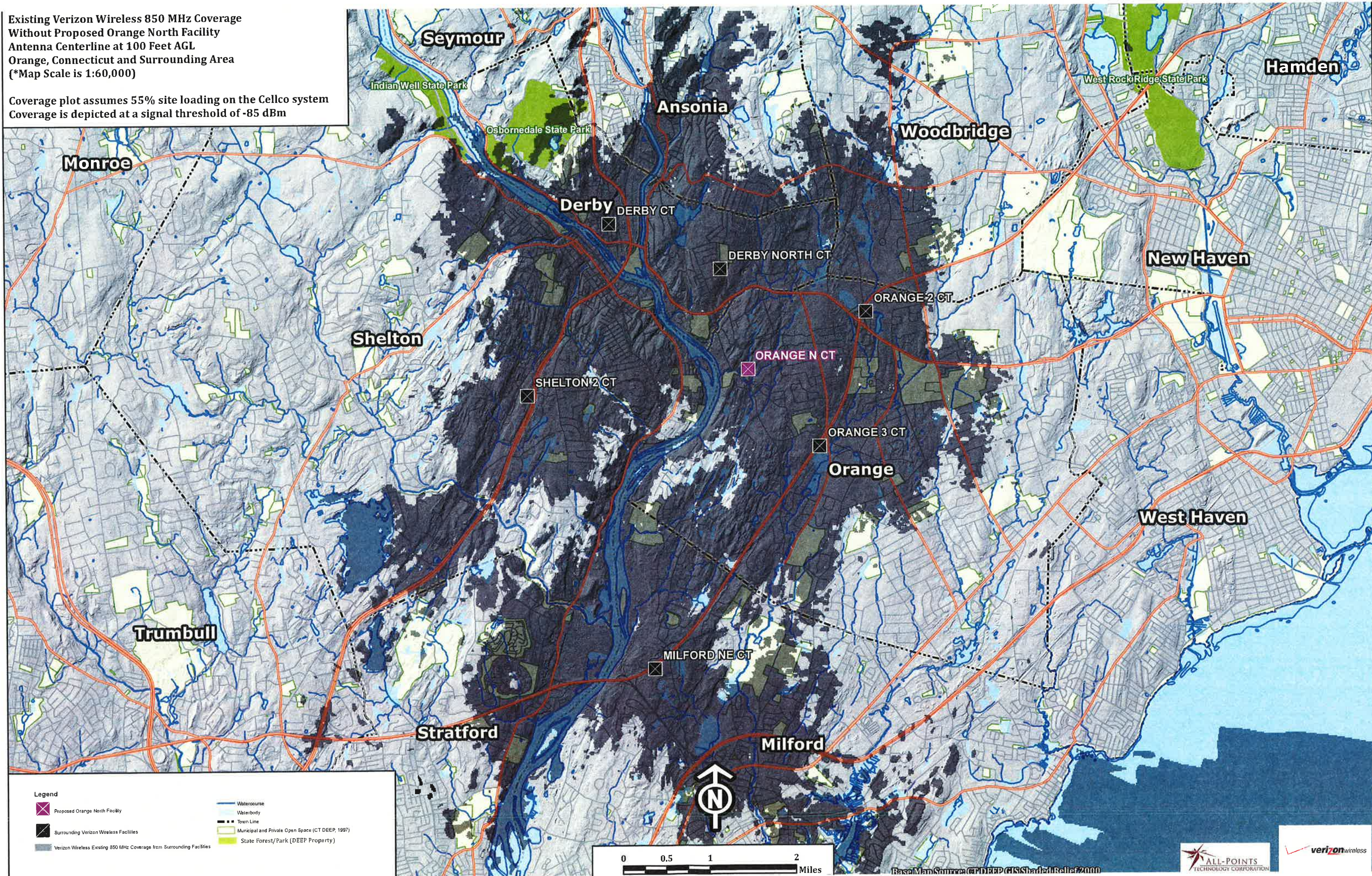


BaseMap Source: ©DEEP GIS Shaded Relief 2000



Existing Verizon Wireless 850 MHz Coverage
 Without Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



- Legend**
- Proposed Orange North Facility
 - Surrounding Verizon Wireless Facilities
 - Verizon Wireless Existing 850 MHz Coverage from Surrounding Facilities
 - Watercourse
 - Waterbody
 - Town Line
 - Municipal and Private Open Space (CT DEEP, 1997)
 - State Forest/Park (DEEP Property)

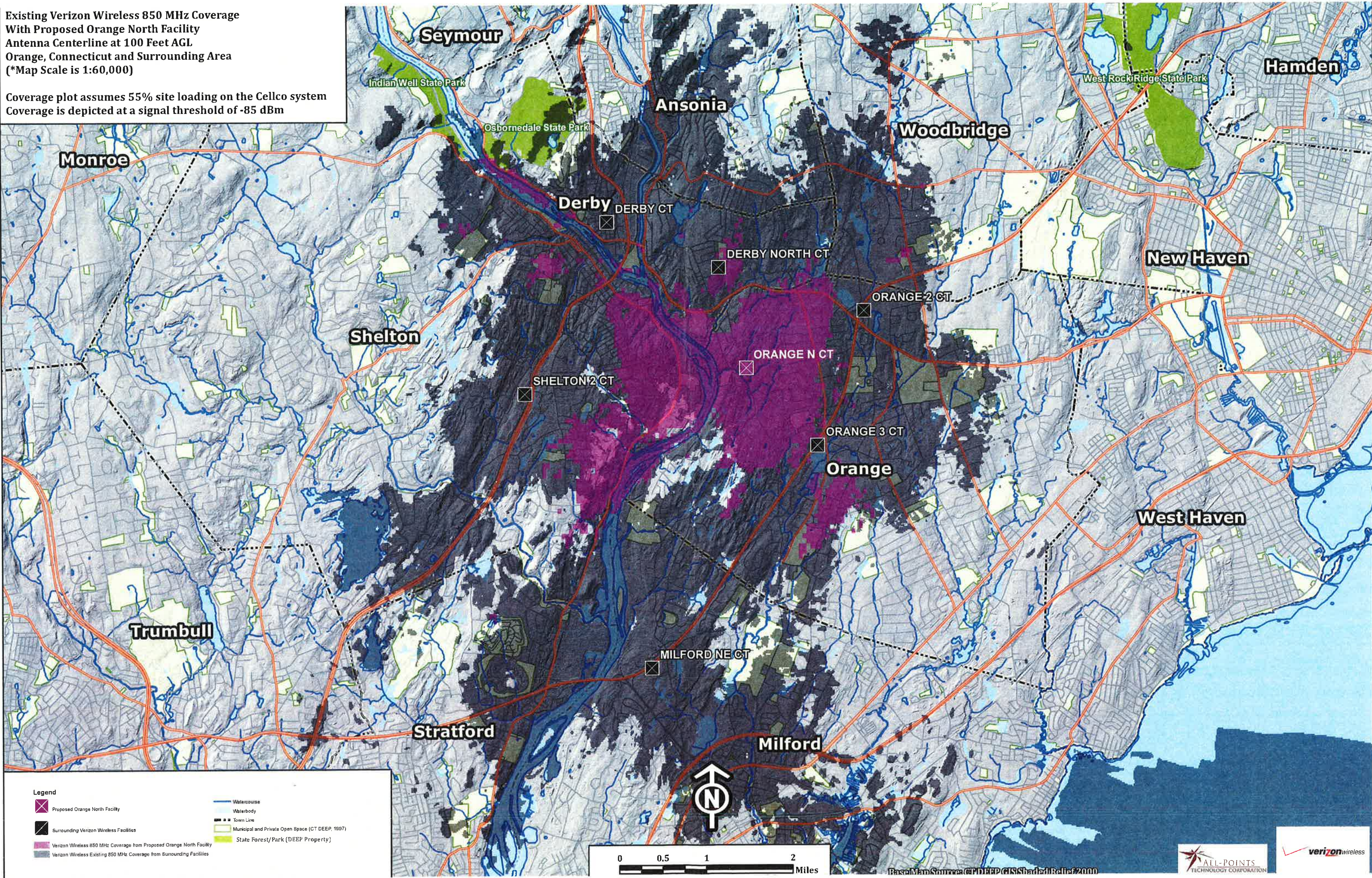


Base Map Source: © DEEP GIS Data © Relief 2000



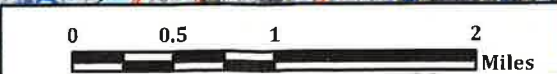
Existing Verizon Wireless 850 MHz Coverage
 With Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



Legend

- Proposed Orange North Facility
- Surrounding Verizon Wireless Facilities
- Verizon Wireless 850 MHz Coverage from Proposed Orange North Facility
- Verizon Wireless Existing 850 MHz Coverage from Surrounding Facilities
- Watercourse
- Waterbody
- Town Line
- Municipal and Private Open Space (CT DEEP, 1997)
- State Forest/Park (DEEP Property)

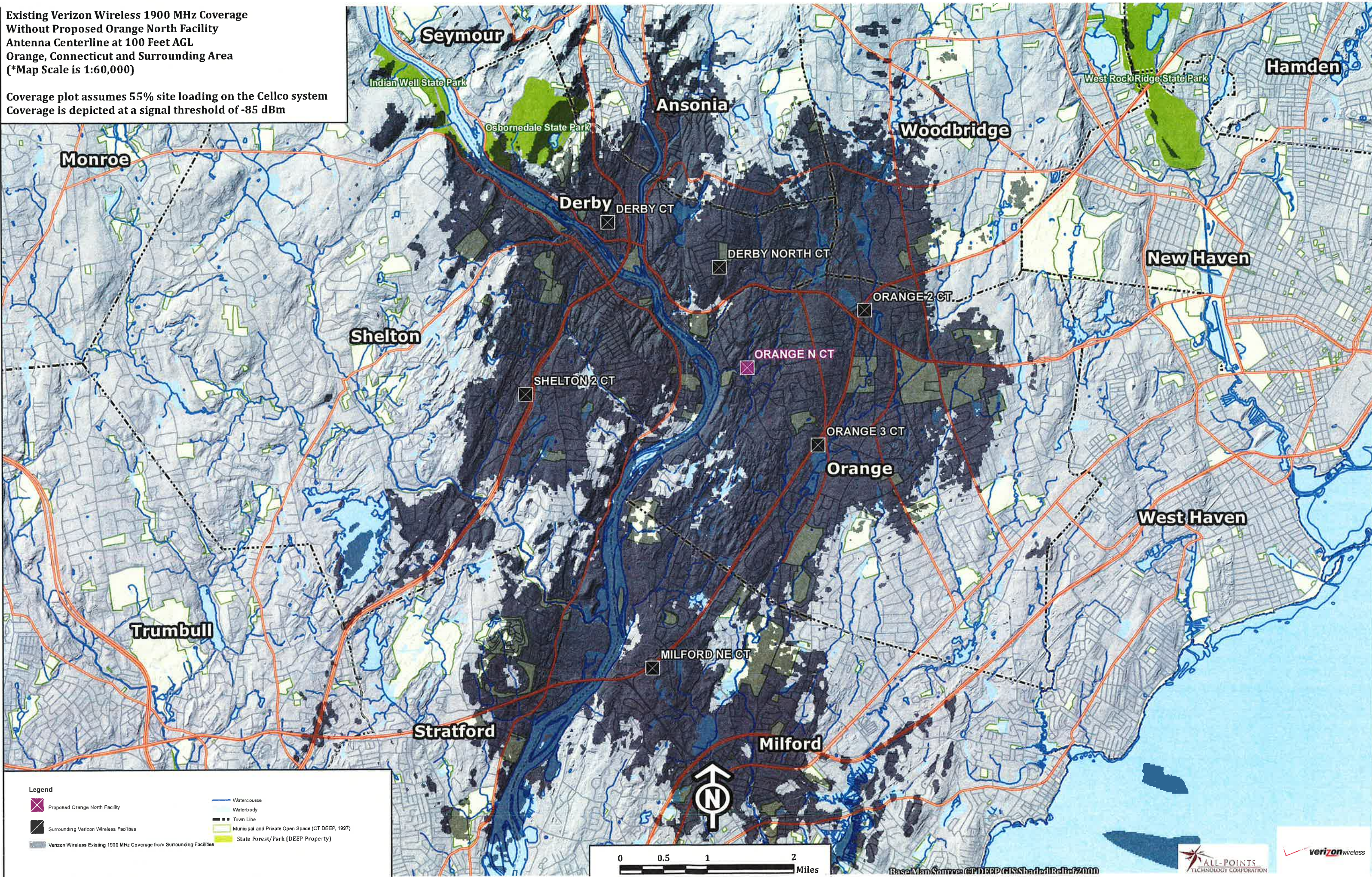


Base Map Source: © PD/DEP/CES/State of CT, 2000



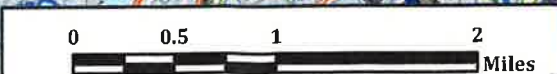
Existing Verizon Wireless 1900 MHz Coverage
 Without Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



Legend

-  Proposed Orange North Facility
-  Surrounding Verizon Wireless Facilities
-  Verizon Wireless Existing 1900 MHz Coverage from Surrounding Facilities
-  Watercourse
-  Waterbody
-  Town Line
-  Municipal and Private Open Space (CT DEEP, 1997)
-  State Forest/Park (DEEP Property)

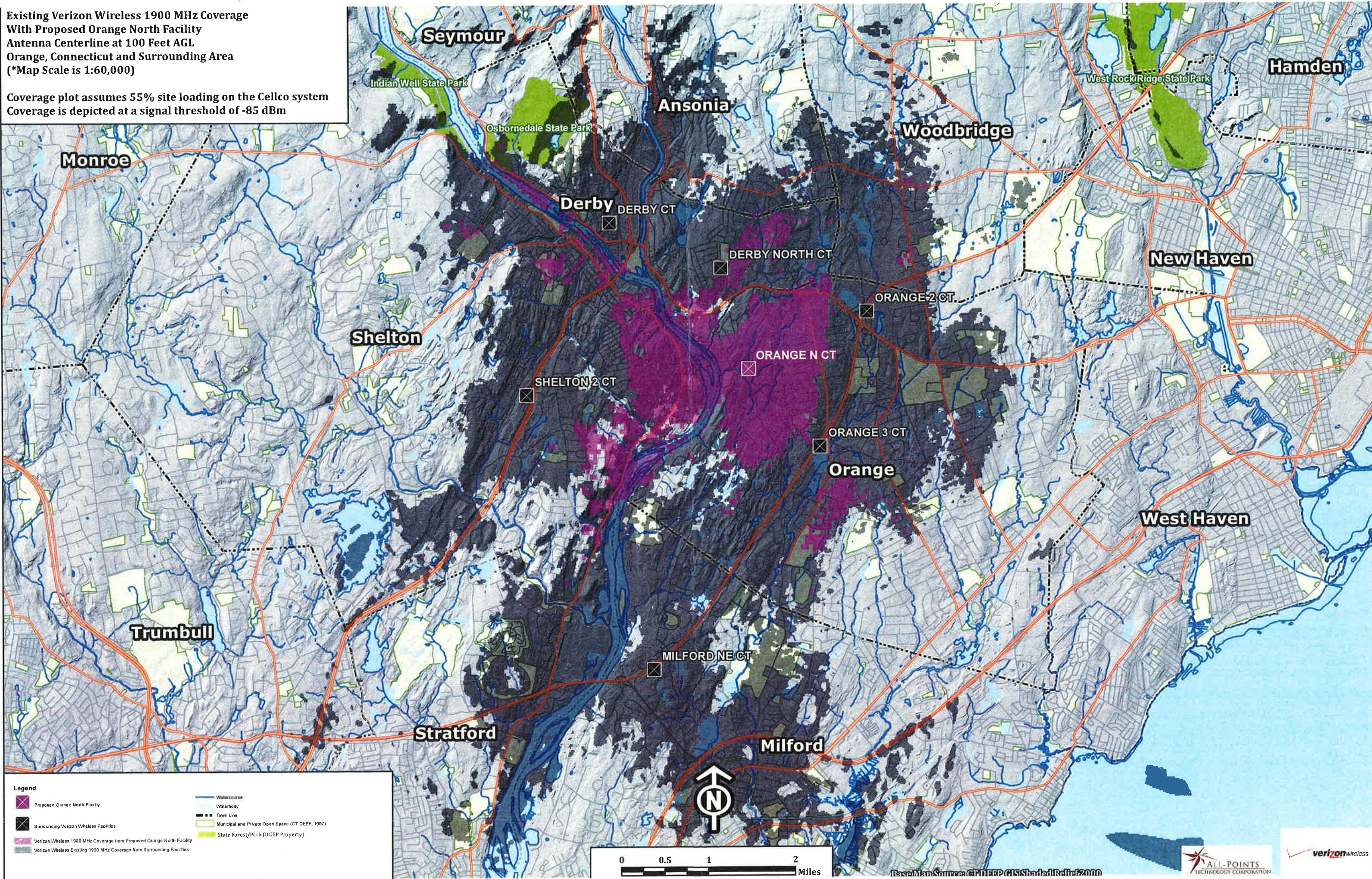


Base Map Source: © DEEP GIS (Shaded Relief) 2000

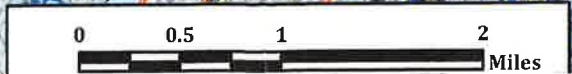


Existing Verizon Wireless 1900 MHz Coverage
 With Proposed Orange North Facility
 Antenna Centerline at 100 Feet AGL
 Orange, Connecticut and Surrounding Area
 (*Map Scale is 1:60,000)

Coverage plot assumes 55% site loading on the Cellco system
 Coverage is depicted at a signal threshold of -85 dBm



- Legend**
- Proposed Orange North Facility
 - Surrounding Verizon Wireless Facilities
 - Verizon Wireless 1900 MHz Coverage from Proposed Orange North Facility
 - Verizon Wireless Existing 1900 MHz Coverage from Surrounding Facilities
 - Watercourse
 - Waterbody
 - Town Line
 - Municipal and Private Open Space (CT DEEP, 1997)
 - State Forest/Park (DEEP Property)



Base Map Source: © 2012 ESRI (Shaded Relief 2000)

ATTACHMENT 2

Cellco Partnership



d.b.a. **verizon** wireless
WIRELESS COMMUNICATIONS FACILITY

ORANGE NORTH
 831 DERBY MILFORD ROAD
 ORANGE, CT 06477

SITE DIRECTIONS

FROM: 89 EAST WALK DRIVE, EAST HARTFORD, CONNECTICUT
TO: 831 DERBY MILFORD ROAD, ORANGE, CONNECTICUT

1. Head East on East Hartford Road 0.31 mi.
2. Turn Right onto Main St toward GALETTI ST 0.5 mi.
3. Turn Right onto Main St 0.5 mi.
4. Turn Left onto Columbus Blvd 0.3 mi.
5. Turn Right onto Derby Milford Road 18.1 mi.
6. Head East on Derby Milford Road 0.4 mi.
7. Turn Left onto Columbus Blvd 0.2 mi.
8. Turn Left onto Derby Milford Road 1.0 mi.

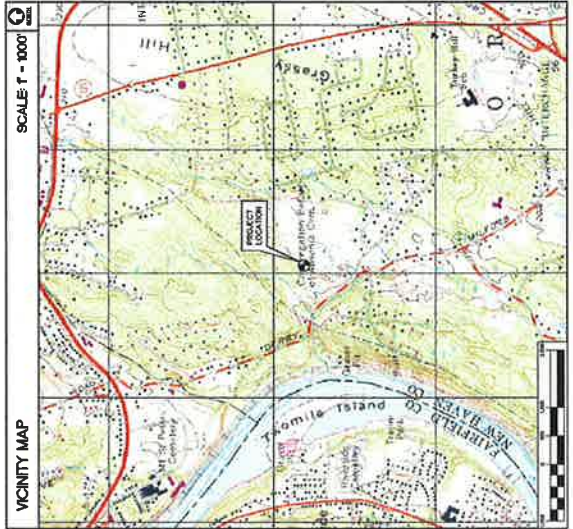
GENERAL NOTES

1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELCO PARTNERSHIP.

SITE INFORMATION

THE SCOPE OF WORK SHALL INCLUDE:

1. A TOTAL OF UP TO THREE (3) DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED AT A CENTERLINE ELEVATION OF 100'-0"± AGL ON A 100'-0"± PROPOSED STEEL MONOPOLE TOWER.
2. TOWER ACCESS ROAD LENGTH IS 490± FEET OFF OF DERBY MILFORD ROAD VIA PROPOSED 12' WIDE DRIVE.
3. POWER AND TELCO UTILITIES SHALL BE BOLTED UNDERGROUND FROM EXISTING RESPECTIVE OWNERS TO THE PROPOSED UTILITY BACKBONE LOCATED ADJACENT TO THE PROPOSED FACILITY. ALL UTILITIES SHALL BE VERIFIED/DETERMINED BY LOCAL UTILITY COMPANIES. UTILITIES WILL BE ROUTED UNDERGROUND LOCAL UTILITY BACKBONE TO THE PROPOSED NORMAL 12'x30' WIRELESS EQUIPMENT SHELTER.
4. FINAL DESIGN FOR TOWER AND ANTENNA MOUNTS SHALL BE INCLUDED IN THE DETAILED PLANS.
5. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE PERFORMED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2008 CONNECTICUT SUPPLEMENT.
6. THERE WILL NOT BE ANY LIGHTING UNLESS REQUIRED BY THE FCC OR THE FAA.
7. THERE WILL NOT BE ANY SIGNS OR ADVERTISING ON THE ANTENNAS OR EQUIPMENT.



PROJECT SUMMARY

SITE NAME: ORANGE NORTH
SITE ADDRESS: 831 DERBY MILFORD ROAD, ORANGE, CONNECTICUT 06477
PROPERTY OWNER: VERIZON WIRELESS
LESSEE/TENANT: CELCO PARTNERSHIP
CONTACT PERSON: SHERY CARVER
TOWER COORDINATES: LATITUDE 41°-17'-53.85" N, LONGITUDE 73°-03'-29.57" W, GROUND ELEVATION: 745.2, A.M.S.L.
 PROVIDED BY VERIZON WIRELESS

SHEET INDEX

SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
C-1	SITE LOCATION PLAN	0
C-2	COMPOUND PLAN AND ELEVATION	0

Cellco Partnership d/b/a Verizon Wireless
 WIRELESS COMMUNICATIONS FACILITY
 ORANGE NORTH
 831 DERBY MILFORD ROAD
 ORANGE, CT 06477

www.CellcoPartnership.com
 800.833.8338
 860.234.8338
 860.234.8338
 860.234.8338

DATE: 07/17/14
 SCALE: AS SHOWN
 200 H.C. 12345678

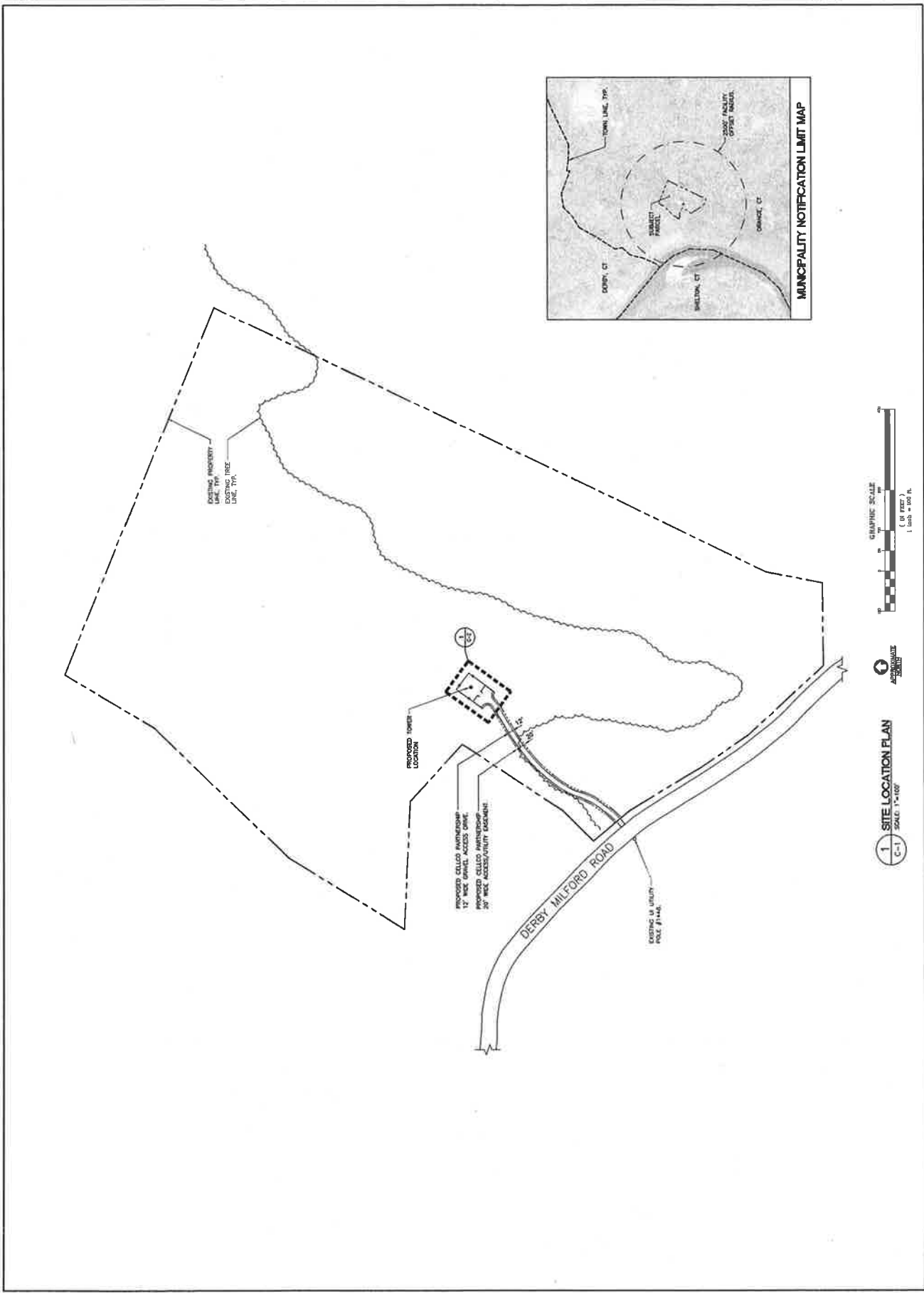
TITLE SHEET
 T-1

Sheet No. 1 of 2

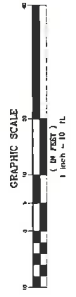
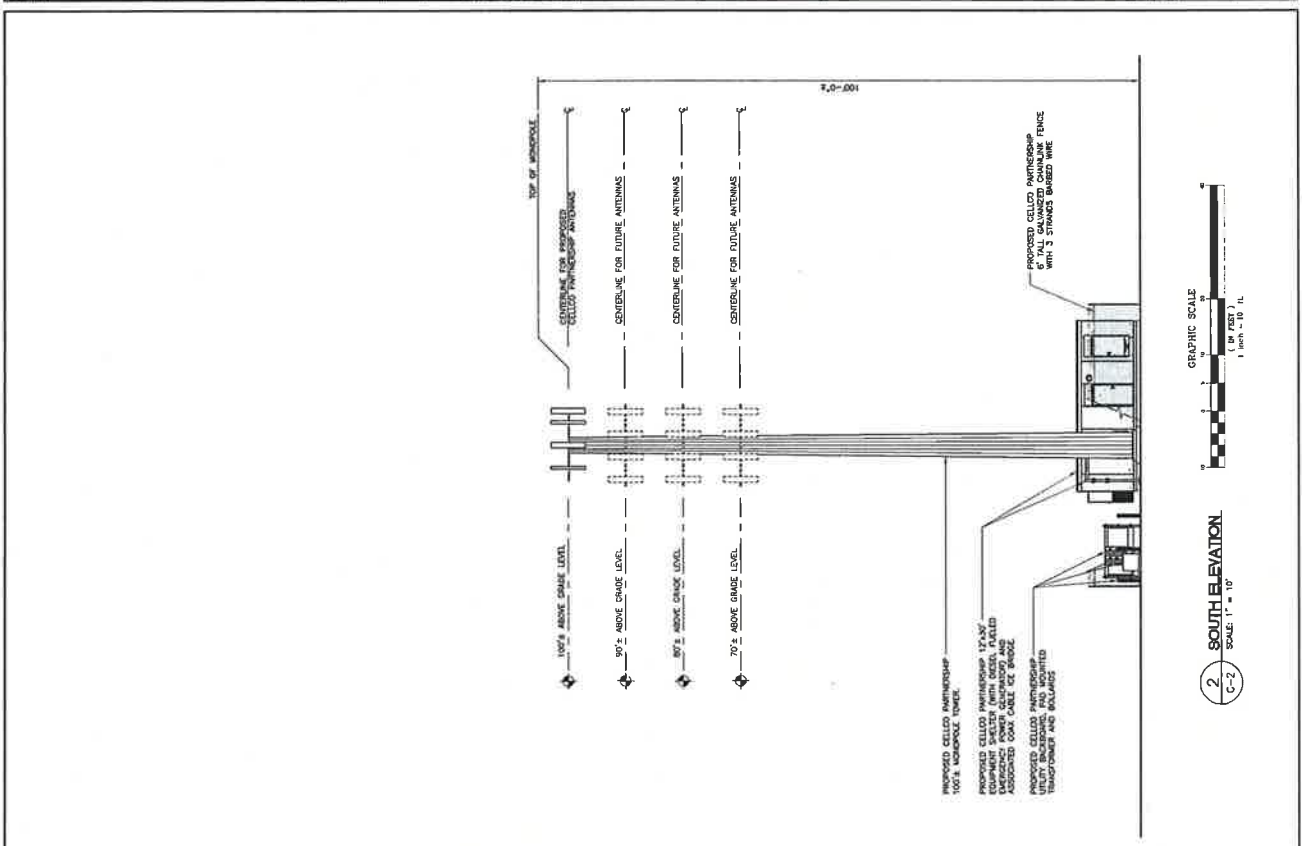
REV.	DATE	BY	CHKD BY	DESCRIPTION
0	07/17/14	LEAD	DAVID	ISSUED FOR CITY ENGINEERING - CIVIL REVIEW

DESIGNED BY: JAV
 DRAWN BY: DAV
 CHECKED BY: DAV

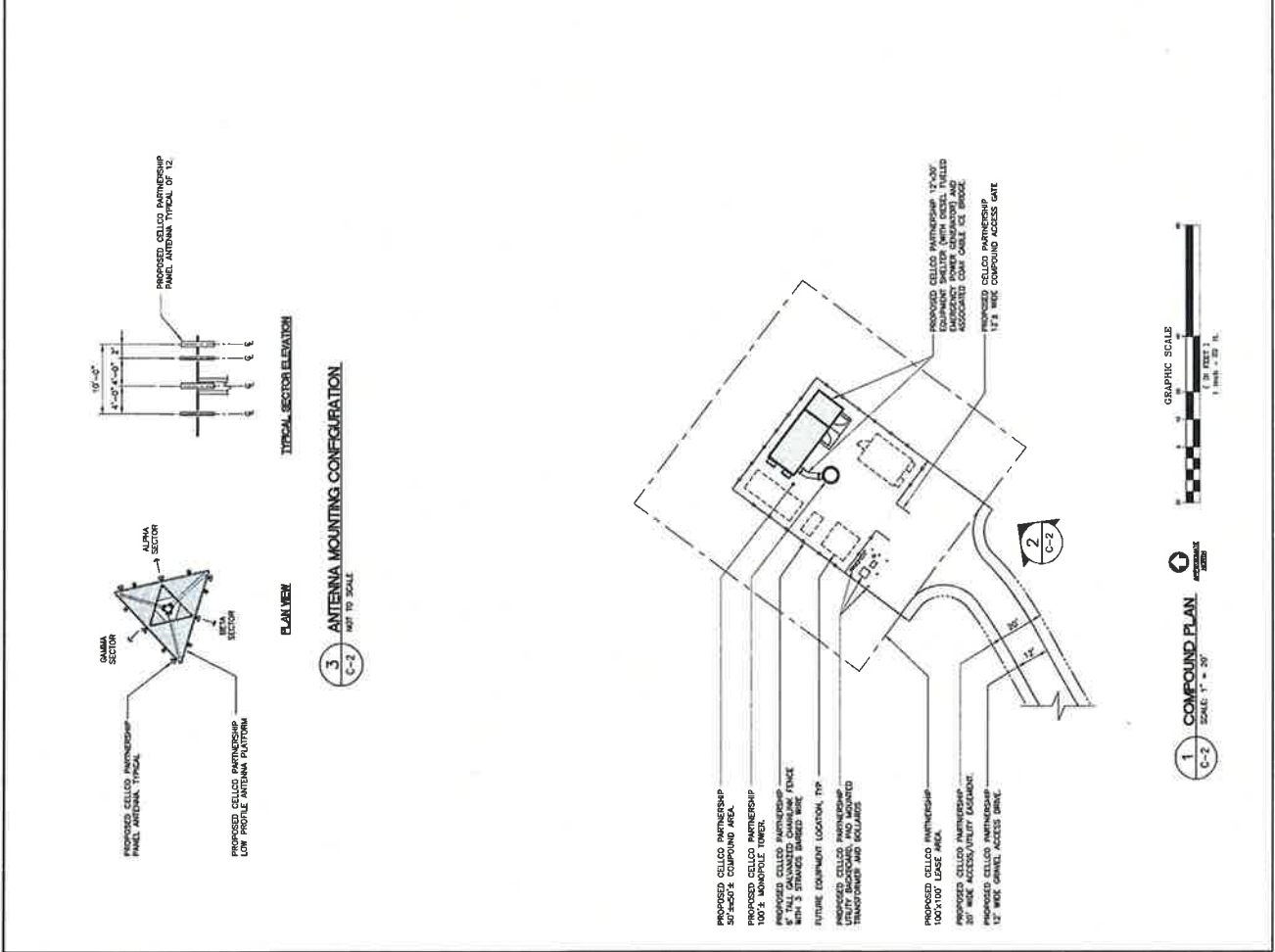
Orange North 881 DERBY MILFORD ROAD ORANGE, CT 06477		Celco Partnership d/b/a Verizon Wireless
DATE: 01/12/14 SCALE: AS SHOWN JOB NO.: 13040000	CENTER CENTER OF GRAVITY CENTER OF GRAVITY CENTER OF GRAVITY	PROFESSIONAL ENGINEER REG. NO. 13040000
SHEET NO. 2 OF 2 C-1	SITE LOCATION PLAN	PROJECT NO. 13040000



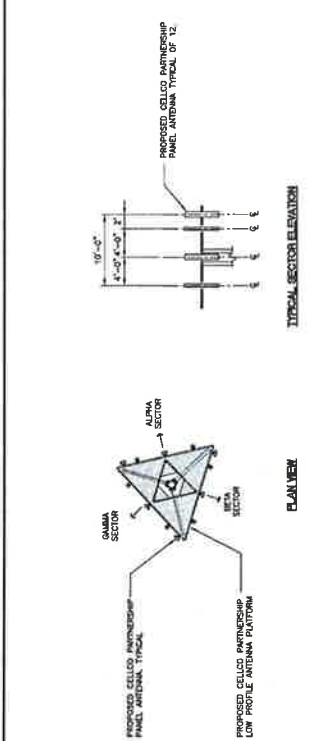
Calco Partnership d/b/a Verizon Wireless ORANGE NORTH 831 DERBY MILL FORD ROAD ORANGE, CT 06477 <small>VERIZON COMMUNICATIONS FACILITY</small>	Calco Partnership <small>d/b/a Verizon Wireless</small>	PROFESSIONAL ENGINEER SEAL DATE: 07/17/14 SCALE: AS SHOWN JOB NO.: 132814000	COMPUND PLAN AND ELEVATION C-2
--	---	--	---



2 SOUTH ELEVATION
 SCALE: 1" = 10'
 GRAPHIC SCALE



1 COMPOUND PLAN
 SCALE: 1" = 25'
 GRAPHIC SCALE



3 ANTENNA MOUNTING CONFIGURATION
 NOT TO SCALE
 GRAPHIC SCALE

REVISIONS DATE BY DESCRIPTION 0 01/18/14 JMS 060 REVISED FOR CT STATE TOWER - CHECK REVIEW	DATE: 07/17/14 SCALE: AS SHOWN JOB NO.: 132814000
--	---

ATTACHMENT 3



PRELIMINARY VISUAL ASSESSMENT

To: Ms. Alexandria Carter
Verizon Wireless

Date: January 20, 2014

Re: Orange North
831 Derby-Milford Road
Orange, Connecticut

From: Michael Libertine

Cellco Partnership (d/b/a “Verizon Wireless”) has identified a potential site candidate location for development of a new wireless telecommunications facility (“Facility”) at 831 Derby-Milford Road in Orange, Connecticut (the “host Property”). The proposed Facility would consist of a 100-foot tall monopole and associated ground equipment enclosed within a fenced, gravel-base compound.

At the request of Verizon Wireless, All-Points Technology Corporation, P.C. (“APT”) prepared preliminary viewshed mapping to evaluate the potential visibility associated with the proposed Facility. To conduct this assessment, a predictive computer model was developed specifically for this project. The predictive model provides an initial estimate of potential visibility throughout a pre-defined Study Area, in this case a two-mile radius surrounding the proposed Facility location.

Two computer modeling tools were used to predict those areas where at least the top of the Facility is estimated to be visible: IDRISI image analysis program (developed by Clark Labs, Clark University) and ArcGIS®, developed by Environmental Systems Research Institute, Inc. Project- and Study Area-specific data were incorporated into the computer model, including the site location, its ground elevation and Facility height, as well as the surrounding topography and existing vegetation, which are the primary features that can block direct lines of sight. For purposes of this preliminary evaluation, a conservative average tree canopy height of 50 feet was incorporated.

Information used in the model included LiDAR¹-based digital elevation data and customized land use data layers developed specifically for this analysis. The LiDAR-based Digital Elevation Model represents topographic information for the state of Connecticut that was derived through the spatial interpolation of airborne LiDAR-based data collected in the year 2000 and has a horizontal resolution of ten (10) feet. In addition, multiple land use data layers were created from the Natural Resources Conservation Service (through the USDA) aerial photography (1-meter resolution, flown in 2012) using IDRISI image processing tools. The IDRISI tools develops light reflective classes defined by statistical analysis of individual pixels, which are then grouped based on common reflective values such that distinctions can be made automatically between deciduous and coniferous tree species, as well as

¹ LiDAR is an acronym for Light Detection and Ranging. It is a technology that utilized lasers to determine the distance to an object or surface. LiDAR is similar to radar, but incorporates laser pulses rather than sound waves. It measures the time delay between transmission and reflection of the laser pulse.

grassland, impervious surface areas, surface water and other distinct land use features. This information is manually cross-checked with the recent USGS topographic land characteristics to quality assure the imaging analysis.

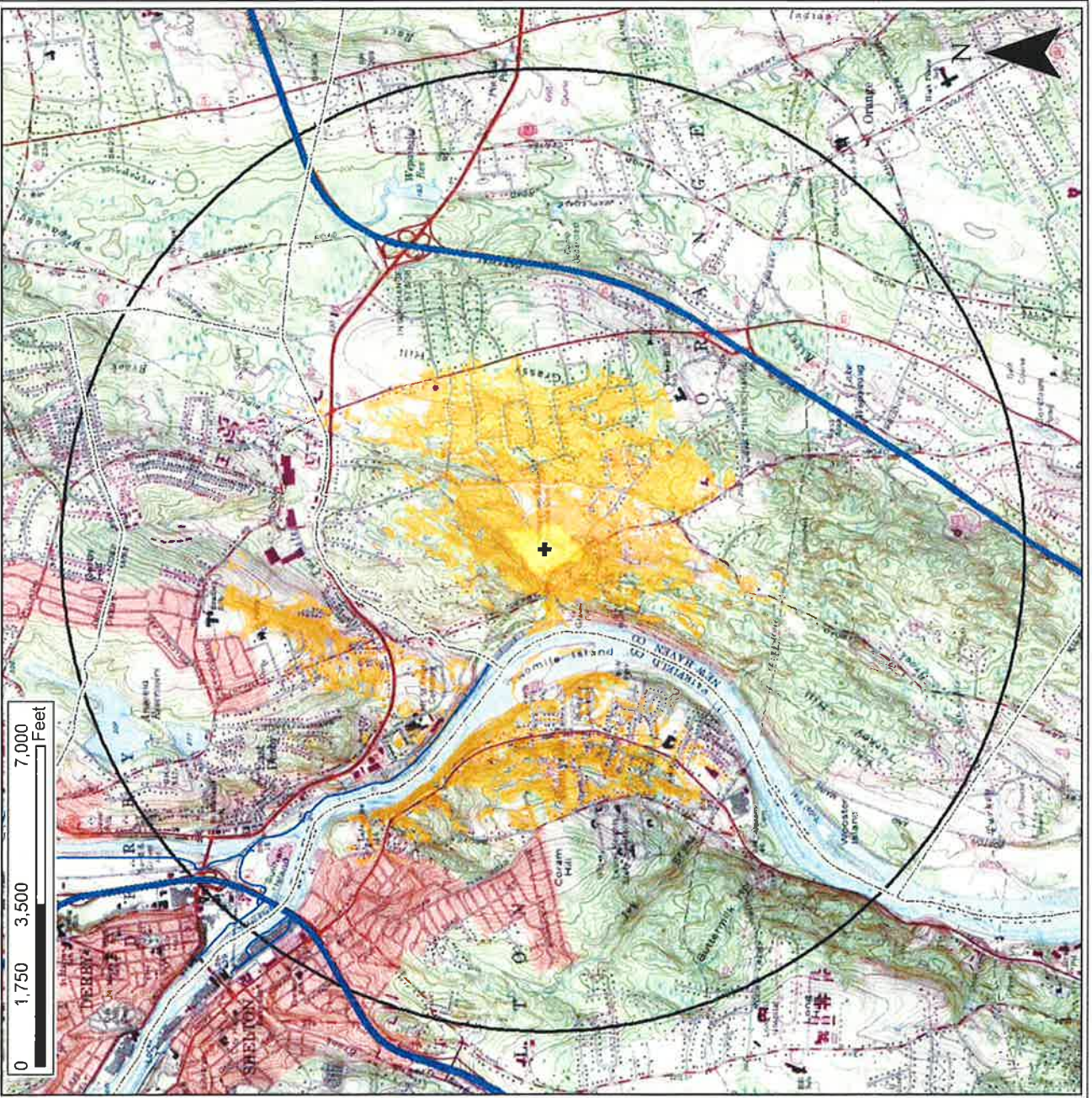
With these data inputs, the model is then queried to determine where the top of the Facility can be seen from any point(s) within the Study Area, given the intervening existing topography and vegetation? The results of the preliminary analysis are depicted on the attached map and are intended to provide a representation of those areas where portions of the Facility may potentially be visible to the human eye without the aid of magnification, based on a viewer eye-height of 5 feet above the ground and the combination of intervening topography and tree canopy (year-round) and tree trunks (seasonally, when the leaves are off the deciduous trees), using an assumed, average tree height of 50 feet. The shaded areas of predicted visibility shown on the map denote locations from within the Study Area which the proposed Facility may potentially be visible year-round (in yellow) above the tree canopy and/or seasonally, through the trees (during “leaf-off” conditions; depicted in orange). The Facility however may not necessarily be visible from all locations within those shaded areas. It is important to note that the computer model cannot account for mass density, the height, diameter and branching variability of the trees, or the degradation of views that occur with distance. In addition, each point – or pixel - represents about one meter (3.28 feet) in area, and thus is not predicting visibility from all viewpoints through all possible obstacles. Although large portions of the predicted viewshed may theoretically offer visibility of the Facility, because of these unavoidable limitations the quality of those views may not be sufficient for the human eye to recognize the tower or discriminate it from other surrounding objects. Visibility also varies seasonally with increased, albeit obstructed, views occurring during “leaf-off” conditions. Beyond the density of woodlands found within the given 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. Thus, modeling for seasonal variations of visibility becomes somewhat problematic and, in our experience, even when incorporating conservative constraints into the model (i.e., assuming each tree is simply a vertical pole of varying width, depending upon species) the results over-predict visibility in “leaf-off” conditions. The model has proved to be a very useful estimator of visibility, but field verification remains a necessary component for cross-checking its results.

The preliminary viewshed mapping results indicate that year-round visibility appears to be confined to areas within the immediate vicinity of the proposed Facility location and generally on the host property, which has large open agricultural fields. The tree cover in the Study Area is fairly dense, particularly east of the Housatonic River, which appears to limit the majority of visibility to those times of the year when the leaves are off the deciduous tree. On a purely quantitative basis, areas from where the proposed Facility is predicted to be visible above the tree canopy year-round constitute approximately 24 acres. When the leaves are off the trees, seasonal views through the intervening pole timber and branches are anticipated to occur over an additional 590± acres of land.

The map provides the preliminary quantitative basis for understanding the extent of visibility that may occur throughout the Study Area, but it does not qualitatively address any of those potential views. Note that the results of the computer model have not been field verified. The modest average tree height value of 50 feet used in this preliminary analysis, combined with the variability in tree heights and the model's sensitivity typically result in the initial model to be over-predictive of the Facility's viewshed.

Our preliminary results will be field-verified via a balloon test to supplement and fine tune the results of the preliminary computer modeling. The balloon test activities consist of raising an approximately four-foot diameter, helium-filled balloon tethered to the proposed Facility height. Once the balloon is secured, APT performs a Study Area reconnaissance by driving along the local and State roads and inventorying those locations where the balloon is seen above/through the trees. Visual observations will be used to evaluate the results of the preliminary viewshed mapping and identify any discrepancies in the initial modeling. During the field activities, APT will also photo-document areas where the balloon can be seen and will prepare photographic simulations from several vantage points to depict scaled renderings of the proposed Facility. Verizon Wireless will include this information in an application to the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need.

Attachment



Preliminary Viewshed Map – Topo Base
 Proposed Wireless Telecommunications Facility
 831 Derby-Milford Road, Orange, CT

This Visibility Analysis map relies solely on computer modeling and interpretation of aerial photographs and topographic maps. The information presented herein has not been field verified.

NOTES

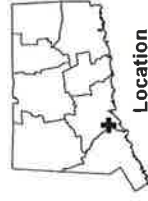
- Viewshed analysis conducted using Clark University's IDRISI.
- Areas of potential visibility are calculated based on facility location and height, Study Area topography, and Study Area vegetation.
- Proposed facility height is 100 feet AGL.
- Forest canopy height is 50 feet AGL.
- Study area encompasses a two-mile radius and includes 8,042 acres of land.

DATA SOURCES

- Digital elevation model (DEM) derived from 10-foot contours obtained from official CT DEEP and CLEAR sources.
- Forest areas are generated with IDRISI (Clark University) image processing from 2012 NRC5/NAIP digital orthophotos with 1-foot pixel resolution.
- Municipal Open Space, State Recreation Areas, County Recreation Areas, and Town Boundary data obtained from CT DEEP.

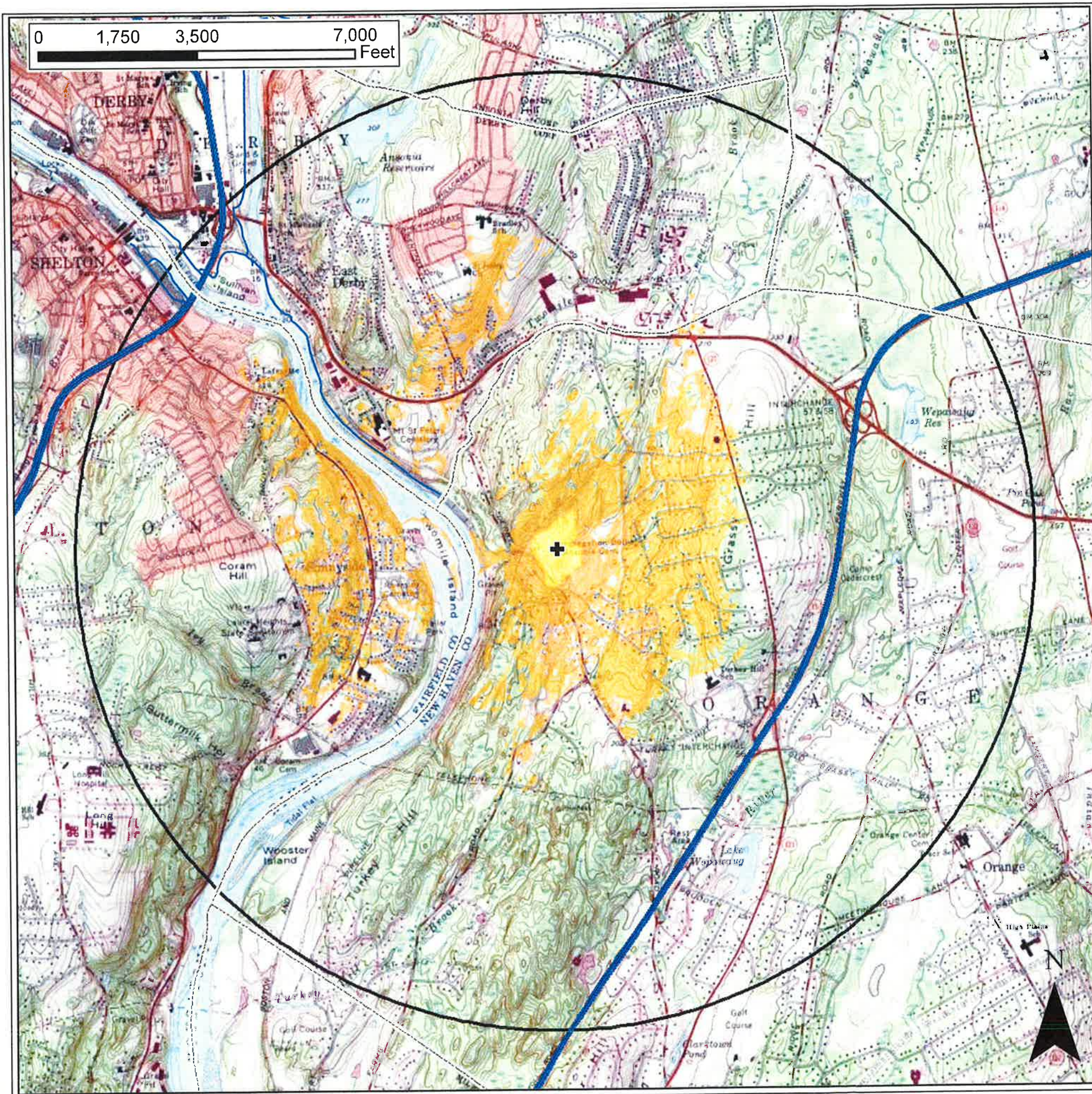
Legend

- + Proposed Tower
- Trails
- Predicted Seasonal Visibility (24 Ac.)
- Predicted Year-Round Visibility (590 Ac.)
- Towns
- 2-Mile Study Area
- Open Space



Location





Preliminary Viewshed Map – Topo Base

Proposed Wireless Telecommunications Facility
831 Derby-Milford Road, Orange, CT

This Visibility Analysis map relies solely on computer modeling and interpretation of aerial photographs and topographic maps. The information presented herein has not been field verified.

NOTES

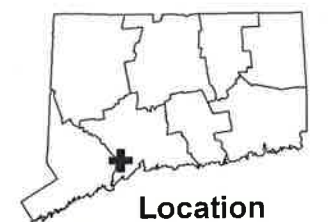
- Viewshed analysis conducted using Clark University's IDRISI.
- Areas of potential visibility are calculated based on facility location and height, Study Area topography, and Study Area vegetation.
- Proposed facility height is 100 feet AGL.
- Forest canopy height is 50 feet AGL
- Study area encompasses a two-mile radius and includes 8,042 acres of land.

DATA SOURCES

- Digital elevation model (DEM) derived from 10-foot contours obtained from official CT DEEP and CLEAR sources.
- Forest areas are generated with IDRISI (Clark University) image processing from 2012 NRCS/NAIP digital orthophotos with 1-foot pixel resolution.
- Municipal Open Space, State Recreation Areas, County Recreation Areas, and Town Boundary data obtained from CT DEEP.

Legend

- + Proposed Tower
- Trails
- Predicted Seasonal Visibility (24 Ac.)
- Predicted Year-Round Visibility (590 Ac.)
- Towns
- 2-Mile Study Area
- Open Space



ATTACHMENT 4

General Power Density

Site Name: ORANGE N, CT
 Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure* (mW/cm ²)	Fraction of MPE (%)
VZW PCS	1970	7	358	2507	100	0.0902	1.0	9.02%
VZW Cellular	869	9	330	2971	100	0.1068	0.5793333333	18.44%
VZW AWS	2145	1	1403	1403	100	0.0505	1.0	5.05%
VZW 700	698	1	696	696	100	0.0250	0.4653333333	5.38%

Total Percentage of Maximum Permissible Exposure

37.88%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.

ATTACHMENT 5

Cellco Partnership d/b/a Verizon Wireless
831 Derby Milford Road
Orange, Connecticut

Orange North Facility

Site Search Summary

Section 16-50j-74(j) of the Regulations of Connecticut State Agencies requires the submission of a statement that describes “the narrowing process by which other possible sites were considered and eliminated.” In accordance with this requirement, descriptions of the general site search process, the identification of the applicable search area and the alternative locations considered for development of the proposed telecommunications facility in northwest Orange are provided below.

Site Search Process

To initiate its site selection process in an area where wireless service problems have been identified, Cellco first establishes a “site search ring” or “site search area”. In any search ring or search area, Cellco seeks to avoid the unnecessary proliferation of towers and to reduce the potential adverse environmental effects of the cell site, while at the same time maximizing the quality of service provided from a particular facility. These objectives are achieved by initially locating existing towers and other sufficiently tall structures within and near the site search area. If any are found, they are evaluated to determine whether they are capable of supporting Cellco’s telecommunications antennas and related equipment at a location and elevation that satisfies its technical requirements.

The list of available locations may be further reduced if, after preliminary negotiations, the property owners withdraw a site from further consideration. From among the remaining locations, the proposed sites are selected by eliminating those that have greater potential for adverse environmental effects and fewer benefits to the public (*i.e.*, those requiring taller towers; those with substantial adverse environmental impacts, or in densely populated residential areas; and those with limited ability to share space with other public or private telecommunications service providers). It should be noted that in any given site search, the weight afforded to factors considered in the selection process will vary depending upon the availability and nature of sites within the search area.

Need for the Orange North Facility

Within approximately four miles of the proposed Orange North Facility, Cellco maintains six (6) telecommunications facilities. These facilities are identified as Cellco’s Orange 2, Orange 3, Milford NE, Shelton 2, Derby and Derby North cell sites. Cellco’s Orange 2 facility consists of antennas at the 160-foot level on an existing 160-foot tower off Ogg Meadow Road in Orange. Cellco’s Orange 3 facility consists of antennas at the 120-foot level on an existing 140-foot tower at 700 Grassy Hill Road in Orange. Cellco’s Milford NE facility consists of antennas

at the 110-foot level on the 120-foot tower at 528 Wheeler Farm Road in Milford. Cellco's Shelton 2 facility consists of antennas at the 140-foot level on the existing 140-foot tower at 30 Oliver Terrace in Shelton. Cellco's Derby facility consists of antennas at the 68-foot level on an existing Church bell tower at 123 Minerva Street in Derby. Cellco's Derby North facility consists of antennas at the 107-foot level on the existing 120-foot tower at 71 Pleasant View Road in Derby.

These existing facilities currently provide wireless service in the area around the proposed Orange North Facility location. Cellco's existing Derby, Milford NE and Shelton 2 facilities and, to a lesser extent, the Orange 2, Orange 3 and Derby North facilities are, however, operating at or near their current capacity limits, resulting in a significant reduction in reliable wireless service in the area. Unfortunately, there are no other existing towers or other sufficiently tall structures available in this area. Construction of a new tower, therefore, is required to resolve Cellco's wireless service problems. Because the proposed tower site provides, primarily, "capacity" relief to its network, Cellco can keep the overall height of the structure lower than that which might be needed for a pure "coverage site".

Identification of the Orange North Search Area

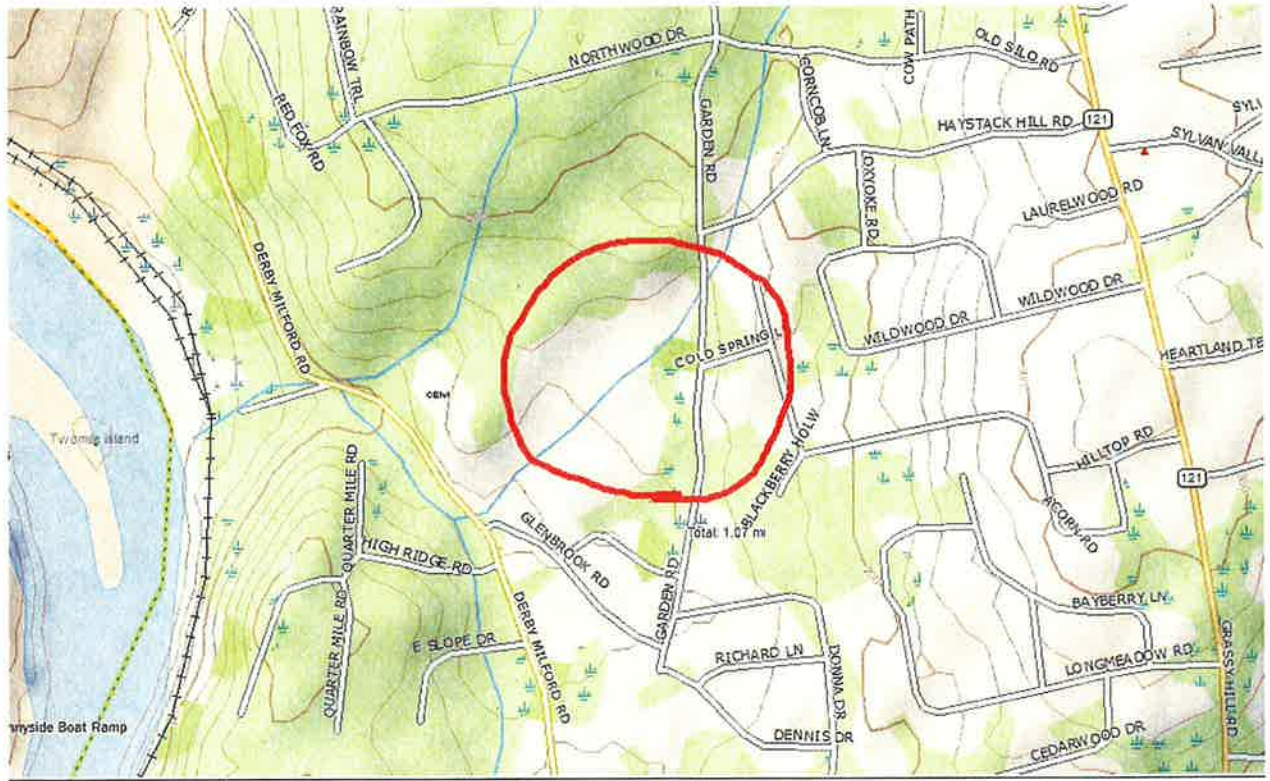
The purpose of the proposed Orange North Facility is to provide some coverage relief and additional network capacity along portions of Routes 34, 110 and 121 in the area, and to the surrounding residential neighborhoods in northern Orange. (See attached Search Area Maps). Because the primary purpose of the Orange North Facility is to relieve existing capacity problems at the six (6) closest sites, the search ring issued is small and located approximately the same distance from these existing sites.

Sites Investigated

Cellco identified and investigated a total of eight (8) sites in northwest Orange. A listing of the sites investigated is provided below.

1. **831 Derby Milford Road, Orange, CT:** Cellco entered into a lease agreement with the property owners, Walter M. and Maryellen K. Besguda, for a new tower site in the southerly portion of this 34.5 acre parcel.
2. **814 Glenbrook Road, Orange, CT 06477:** The property owners of this parcel were not interested in leasing space to Cellco for a tower site.
3. **870 Garden Road, Orange, CT 06477:** The property owners of this parcel were not interested in leasing space to Cellco for a tower site.
4. **Derby Milford Road, Orange, CT 06477 (Beth Israel Cemetery):** This parcel is located immediately west of the proposed tower site but does not maintain adequate ground space for the development of a telecommunications facility.

5. **414 Cold Spring Lane, Orange, CT 06477:** This parcel is located east of the proposed tower location but did not maintain adequate ground space for the development of a telecommunications facility compound.
6. **1730 Derby Milford Road, Orange, CT 06477:** This parcel was rejected by Cellco's RF Engineers. Overall, the ground elevation at this location was too low to allow Cellco to satisfy its wireless service objectives in the area.
7. **962 Grassy Hill Road, Orange, CT 06477 (Water Tank):** Cellco's RF Engineers rejected this water tank site. The existing water tank is too low to allow Cellco to satisfy its wireless service objectives.
8. **986 Grassy Hill Road, Orange, CT 06477:** Cellco's RF Engineers rejected this potential site location because it lies too close to its existing Orange 3 site and cannot cover the majority of the Orange North wireless service objectives.



Guidelines for the SAR are shown in the above map to emphasize areas where existing structures may exist.

Source: DeLorme Maps