

February 22, 2017

*Via Hand Delivery*

Roy A. Piper, First Selectman  
Town of Canterbury  
1 Municipal Drive  
Canterbury, CT 06331

**Re: Submission of Technical Information Concerning a Proposal to Construct a Wireless Telecommunications Facility at 46 Cemetery Road, Canterbury, Connecticut**

Dear Mr. Piper:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”), in its proposal to construct a new wireless telecommunications facility on an approximately 41.83-acre parcel at 46 Cemetery Road in Canterbury, Connecticut (the “Property”). For the purposes of this filing, the proposed telecommunications facility is known as Cellco’s “Canterbury South Facility”. This Technical Report is submitted pursuant to Connecticut General Statutes (“Conn. Gen. Stat.”) § 16-50(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 officials in the municipality where a proposed facility will be located and any municipality within 2,500 feet of the proposed facility location.

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

Anthony Befera  
Cellco Partnership d/b/a Verizon Wireless  
99 East River Drive  
East Hartford, CT 06108

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February 22, 2017  
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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 at the Property. The Canterbury South Facility would interact with Cellco's existing cell sites in Canterbury, Scotland, Sprague, Lisbon and Plainfield.

The Canterbury South Facility would provide improved coverage to significant gaps in service along portions of Route 14, 97 and 169 as well as local roads in the area and residential and agricultural uses surrounding the Property. Coverage plots showing service from Cellco's existing cell sites in the area, alone and together with the proposed Canterbury South Facility are included in Attachment 1. These plots show areas of coverage from Cellco's existing cell sites in the area (purple shading), existing gaps in reliable wireless service, and the coverage footprint from the proposed Canterbury South Facility (lighter purple shading) in each of Cellco's licensed frequencies. In addition to the coverage benefits, the proposed Canterbury South Facility will provide capacity relief to Cellco's existing Baltic Facility in the Town of Sprague. Cellco's Baltic Facility (Alpha Sector) is currently operating at or near its existing capacity limits resulting in the reduction of reliable wireless service.

## **Cell Site Information**

The proposed Canterbury South Facility would be located in the southwesterly portion of an approximately 41.83-acre parcel at 46 Cemetery Road in Canterbury. The Property is owned by Nicholas Holowaty II and is located in Canterbury's Rural Zone District. The Property is currently used for residential purposes.

The proposed Canterbury South Facility will consist of a 160-foot monopole tower located within a 50' x 50' fenced compound and 80' x 125' leased area. Cellco will install nine (9) panel-type antennas on a low-profile platform at the 157-foot level on the tower. Cellco's antennas will not extend above the top of the tower. Cellco will also install nine (9) remote radio heads ("RRHs") behind its antennas. Equipment cabinets and a diesel-fueled back-up generator would be located on a 12' x 26' steel platform, beneath a canopy structure near the base of the

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tower. Access to the Canterbury South Facility would extend from Cemetery Road over a portion of the existing paved driveway a distance of approximately 1,150 feet; then over a proposed gravel driveway extension, an additional distance of approximately 750 feet to the facility compound. Project plans for the Canterbury South 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 (zoning and wetlands) regulations.

Upon receipt of an application, the Council will assign a docket number and, following a completeness review, establish a docket schedule, and 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 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.

## **Municipal Consultation Process**

Pursuant to Section 16-50j 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

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Canterbury; 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 proposed 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 16-50l(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 Canterbury South Facility described in this Technical Report is needed so that Cellco can provide enhanced wireless service in southerly portions of the Town of Canterbury as well as areas within the adjacent towns of Scotland, Sprague, Lisbon and Plainfield. The Canterbury South Facility will provide additional wireless "coverage" along portions of Routes 14, 97 and 169, and local roads in the area. The Canterbury South Facility will also provide capacity relief to Cellco's existing Baltic cell site (Alpha sector) which is currently operating at or beyond its existing capacity limits.

### **Environmental Effects**

In our experience, the primary impact of a wireless facility such as the proposed Canterbury South 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 proposed tower, and the location of buildings in the sight-line of the cell site.

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To more fully assess the visual impact of the Canterbury South Facility, Cellco's consultant, All-Points Technology Corporation ("APT") has prepared a Preliminary Visual Assessment. The preliminary assessment and view shed mapping indicates that visibility associated with the facility may extend out distances of approximately 0.75 miles from the cell site. A majority of the visibility appears to be seasonal (during the winter months when leaves are off the trees). Areas from where the facility is predicted to be visible above the tree canopy, year-round, constitute approximately 13 acres. Seasonal views through the trees are anticipated to occur from some locations with an area of approximately 293 acres. Preliminary visual assessment results will be field-verify with a "balloon float" test prior to submission of an application to the Council. (See Attachment 3).

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 City'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 Canterbury South 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 Canterbury South Facility will have no direct impact on inland wetlands or watercourses, or other sensitive environmental resources 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 Canterbury South 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 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 157-foot level on the proposed tower would be 26.19% of the FCC Standard. (See Attachment 4.) Actual RF emissions levels from this facility will be far less than this "worst-case" approximation.

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## **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 portions of Canterbury 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 four (4) alternative facility locations in the area. With the exception of the Property, each of the alternative sites considered were rejected. A 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, 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 southern portions of Canterbury for the foreseeable future.

## **Conclusion**

This Technical Report is submitted in accordance with Conn. Gen. Stat. § 16-50~~l~~ which requires Cellco to supply the Town with information regarding its proposed Canterbury South 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 Canterbury South 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

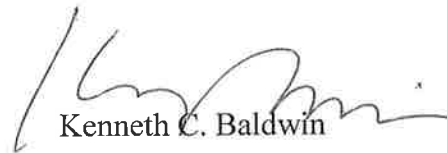
# Robinson + Cole

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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:

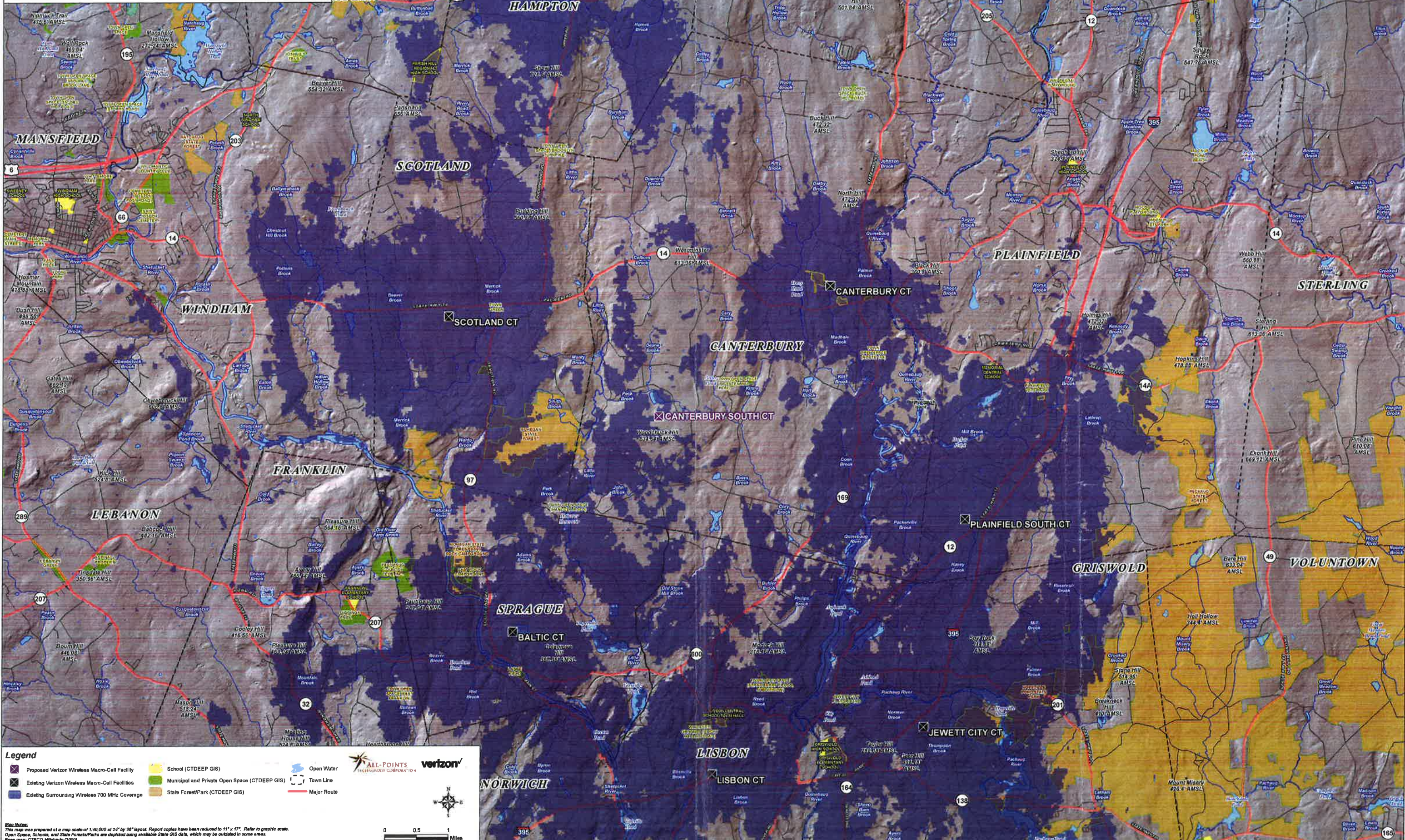
Everett St. Louis, Chairman, Canterbury Planning and Zoning Commission  
Thomas Brummett, Chairman, Canterbury Inland Wetlands and Watercourses & Aquifer  
Protection Agency

# **ATTACHMENT 1**



**Existing Verizon Wireless 700 MHz Coverage  
Canterbury, Connecticut and Surrounding Area  
(\*Map Scale is 1:40,000)**

Coverage is depicted at a signal threshold of 120 dB Operational Path Loss



**Legend**

- Proposed Verizon Wireless Macro-Call Facility
- School (CTDEEP GIS)
- Existing Verizon Wireless Macro-Call Facility
- Municipal and Private Open Space (CTDEEP GIS)
- Open Water
- Town Line
- Existing Surrounding Wireless 700 MHz Coverage
- State Forest/Park (CTDEEP GIS)
- Major Route

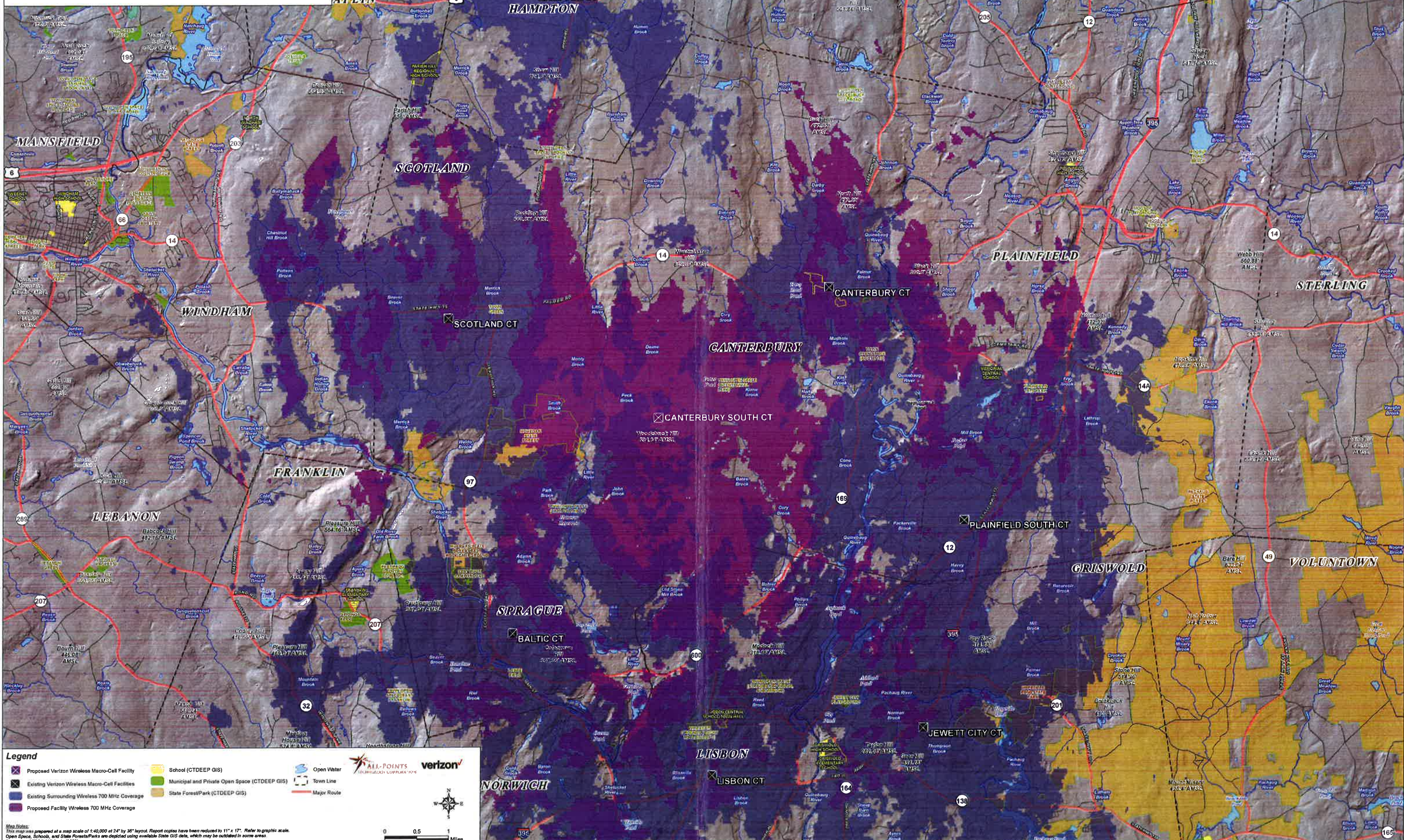
**Map Notes:**  
This map was prepared at a map scale of 1:40,000 at 24" by 36" layout. Report copies have been reduced to 11" x 17". Refer to graphic scale.  
Open Space, Schools, and State Forests/Parks are depicted using available State GIS data, which may be outdated in some areas.  
Base map: CTECO Hillshade (2000)

0 0.5 1 Miles



**Proposed Verizon Wireless 700 MHz Coverage  
Canterbury, Connecticut and Surrounding Area  
(\*Map Scale is 1:40,000)**

Coverage is depicted at a signal threshold of 120 dB Operational Path Loss



**Legend**

- Proposed Verizon Wireless Macro-Cell Facility
- Existing Verizon Wireless Macro-Cell Facilities
- Existing Surrounding Wireless 700 Mhz Coverage
- Proposed Facility Wireless 700 Mhz Coverage
- School (CTDEEP GIS)
- Municipal and Private Open Space (CTDEEP GIS)
- State Forest/Park (CTDEEP GIS)
- Open Water
- Town Line
- Major Route

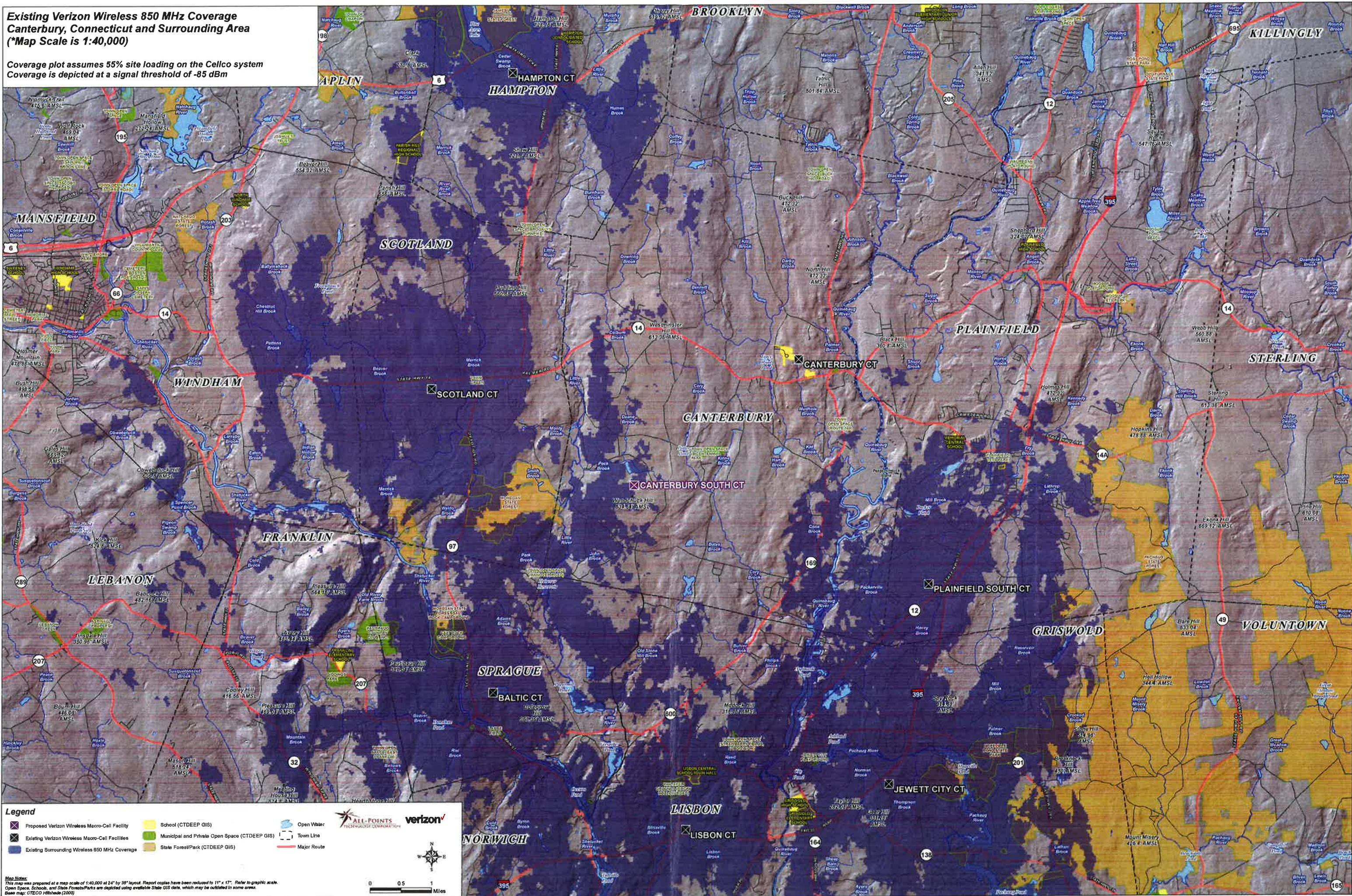
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Base map: CTECO Hillshack (2009)

0 0.5 1 Miles



**Existing Verizon Wireless 850 MHz Coverage  
 Canterbury, Connecticut and Surrounding Area  
 (\*Map Scale is 1:40,000)**

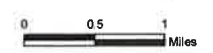
Coverage plot assumes 55% site loading on the Cellco system  
 Coverage is depicted at a signal threshold of -85 dBm



- Legend**
- X Proposed Verizon Wireless Macro-Cell Facility
  - X Existing Verizon Wireless Macro-Cell Facilities
  - Existing Surrounding Wireless 850 MHz Coverage
  - School (CTDEEP GIS)
  - Municipal and Private Open Space (CTDEEP GIS)
  - State Forest/Park (CTDEEP GIS)
  - Open Water
  - Town Line
  - Major Route



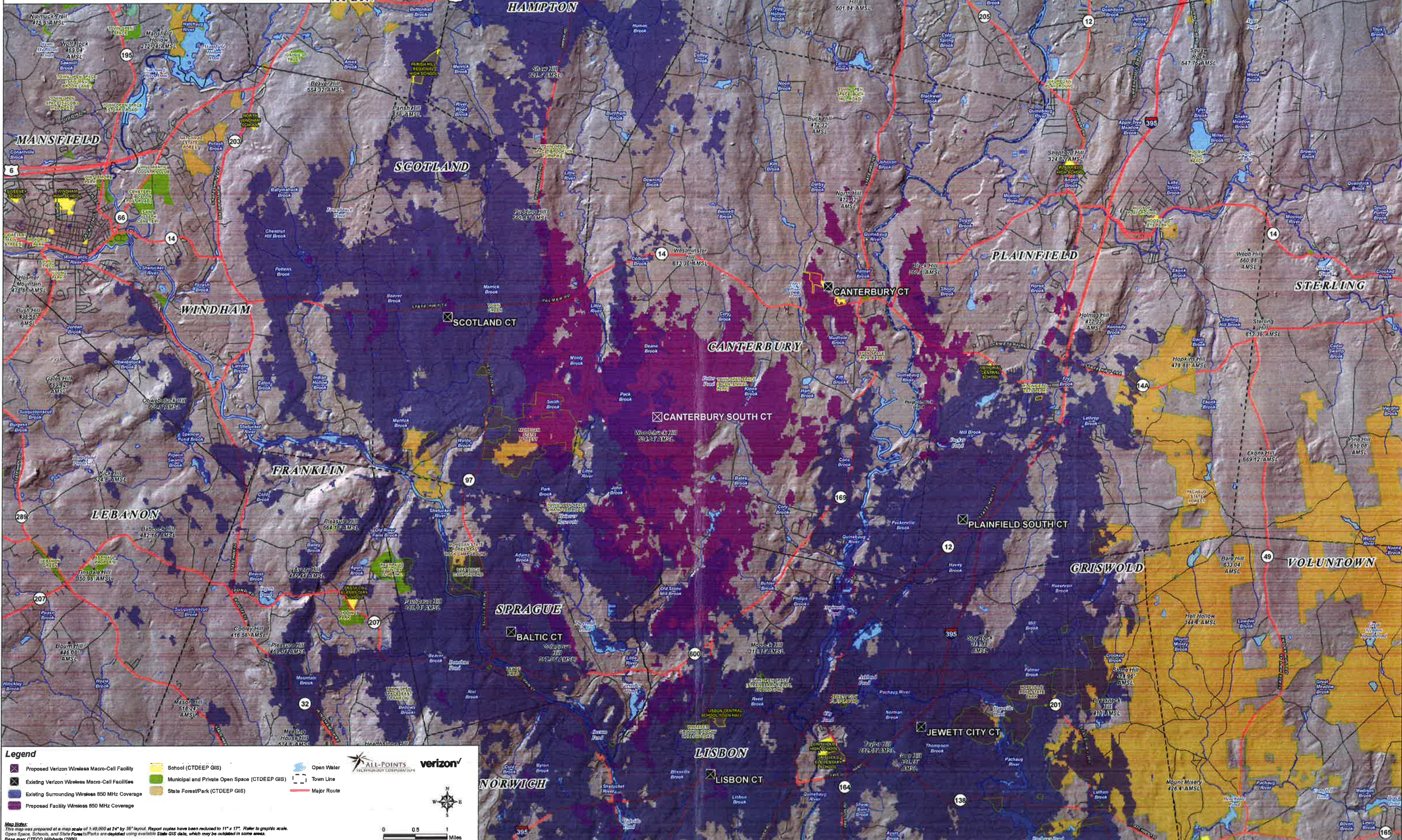
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 Base map: CTECO Hillshade (2000)





**Proposed Verizon Wireless 850 MHz Coverage  
Canterbury, Connecticut and Surrounding Area  
(\*Map Scale is 1:40,000)**

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



**Legend**

- Proposed Verizon Wireless Macro-Cell Facility
- Existing Verizon Wireless Macro-Cell Facilities
- Existing Surrounding Wireless 850 MHz Coverage
- Proposed Facility Wireless 850 MHz Coverage
- School (CTDEEP GIS)
- Municipal and Private Open Space (CTDEEP GIS)
- State Forest/Park (CTDEEP GIS)
- Open Water
- Town Line
- Major Route

**Map Notes:**  
This map was prepared at a map scale of 1:40,000 at 24" by 36" layout. Report copies have been reduced to 11" x 17". Refer to graphic scale.  
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Base map: CTeco Hillshade (2000)

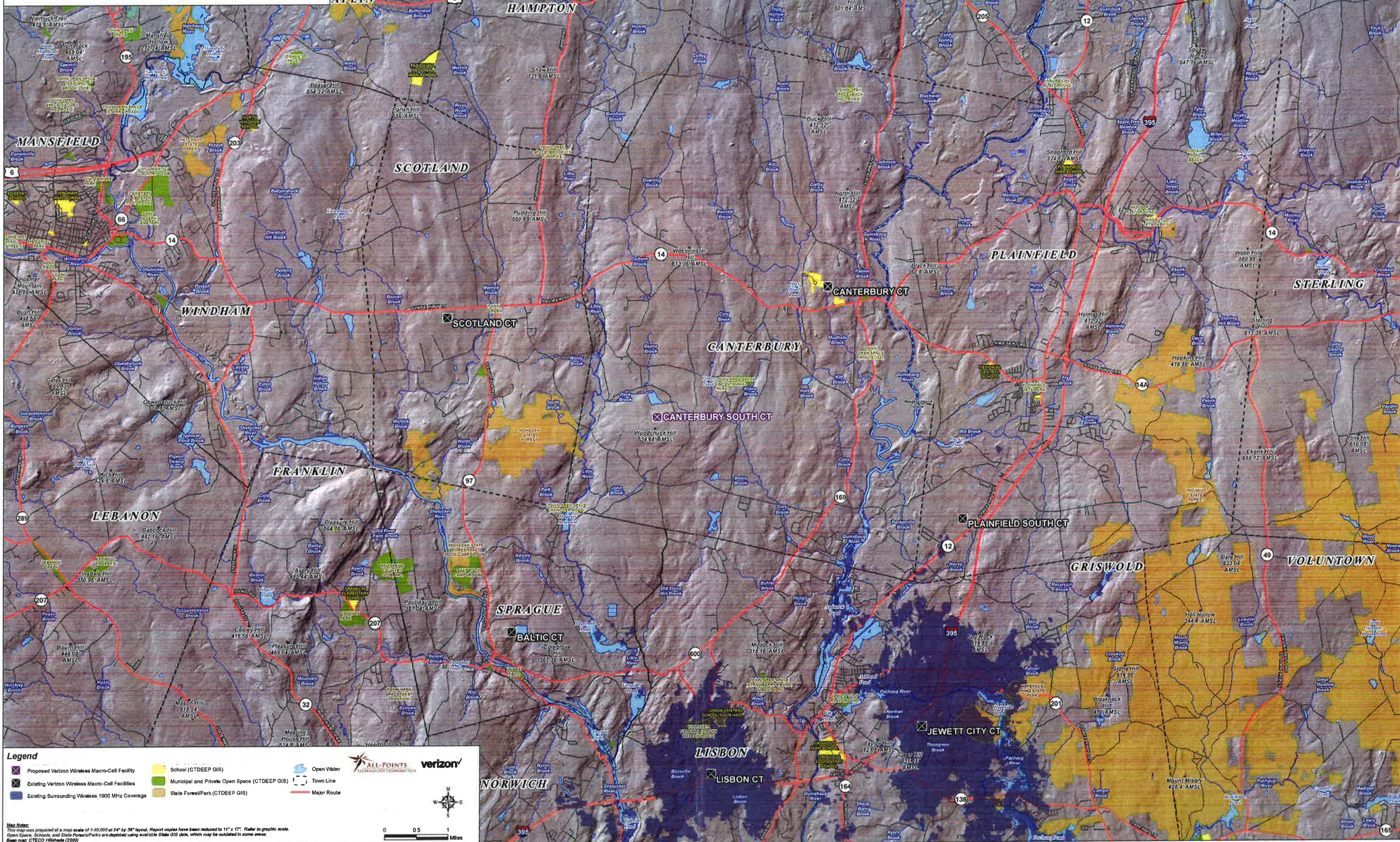
**Scale:** 0 0.5 1 Miles

**Logos:** ALL-POINTS TECHNOLOGY CORPORATION, verizon



**Existing Verizon Wireless 1900 MHz Coverage  
Canterbury, Connecticut and Surrounding Area  
(\*Map Scale is 1:40,000)**

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



**Legend**

- ✖ Proposed Verizon Wireless Macro-Cell Facility
- ✖ Existing Verizon Wireless Macro-Cell Facilities
- ✖ Existing Surrounding Wireless 1900 MHz Coverage
- School (CTDEEP GIS)
- Municipal and Private Open Space (CTDEEP GIS)
- State Forest/Park (CTDEEP GIS)
- Open Water
- Town Line
- Major Route

ALL-POINTS COMMUNICATIONS verizon

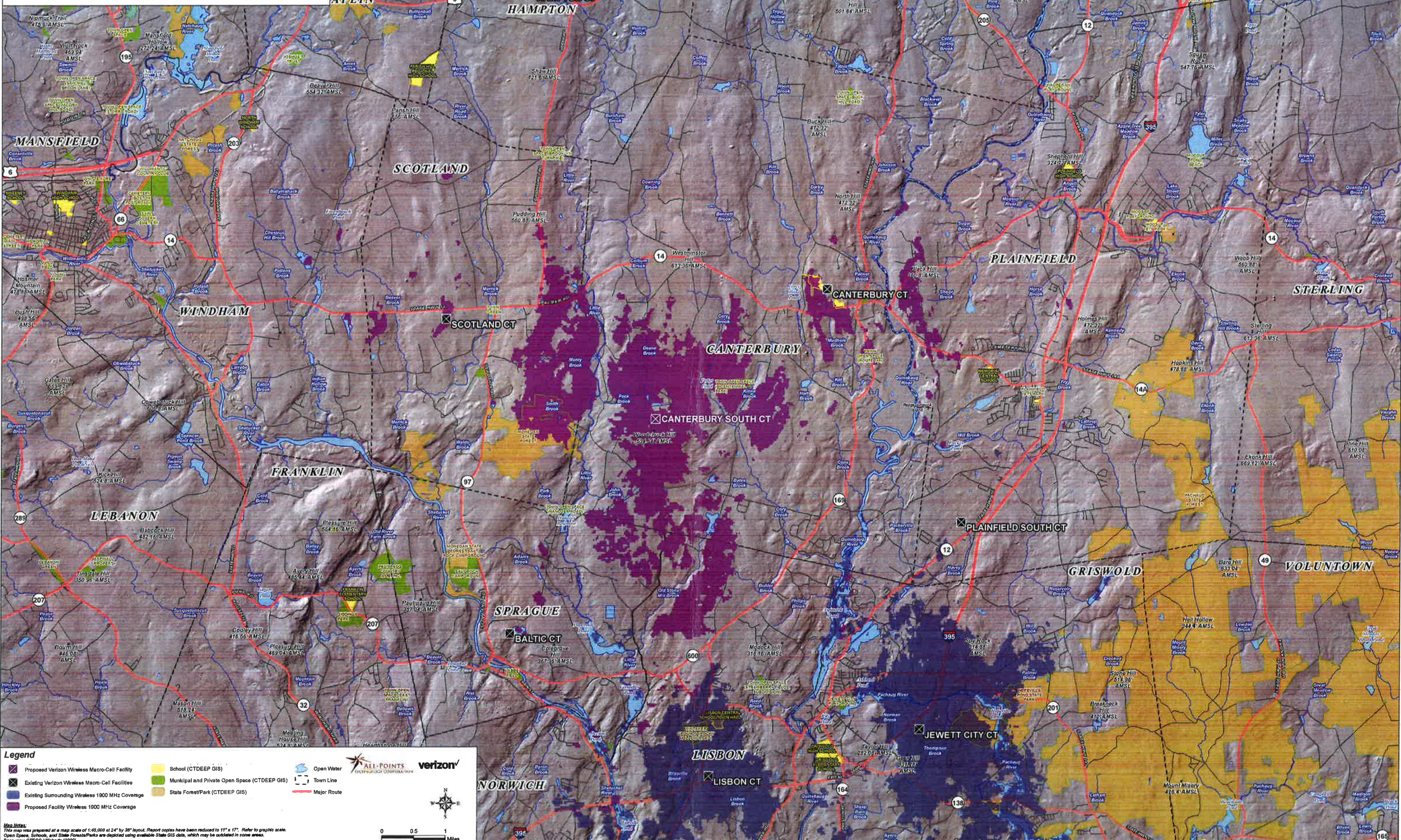
Map Notes:  
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Open Space, Schools, and State Forests/Parks are depicted using available State GIS data, which may be outdated in some areas.  
Base map: CTECO Hillshade (2000)

0 0.5 1 Miles



**Proposed Verizon Wireless 1900 MHz Coverage  
Canterbury, Connecticut and Surrounding Area  
(\*Map Scale is 1:40,000)**

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



**Legend**

- Proposed Verizon Wireless Macro-Cell Facility
- Existing Verizon Wireless Macro-Cell Facilities
- Existing Surrounding Wireless 1900 MHz Coverage
- Proposed Facility Wireless 1900 MHz Coverage
- School (CTDEEP GIS)
- Municipal and Private Open Space (CTDEEP GIS)
- State Forest/Park (CTDEEP GIS)
- Open Water
- Town Line
- Major Route

**Map Notes:**  
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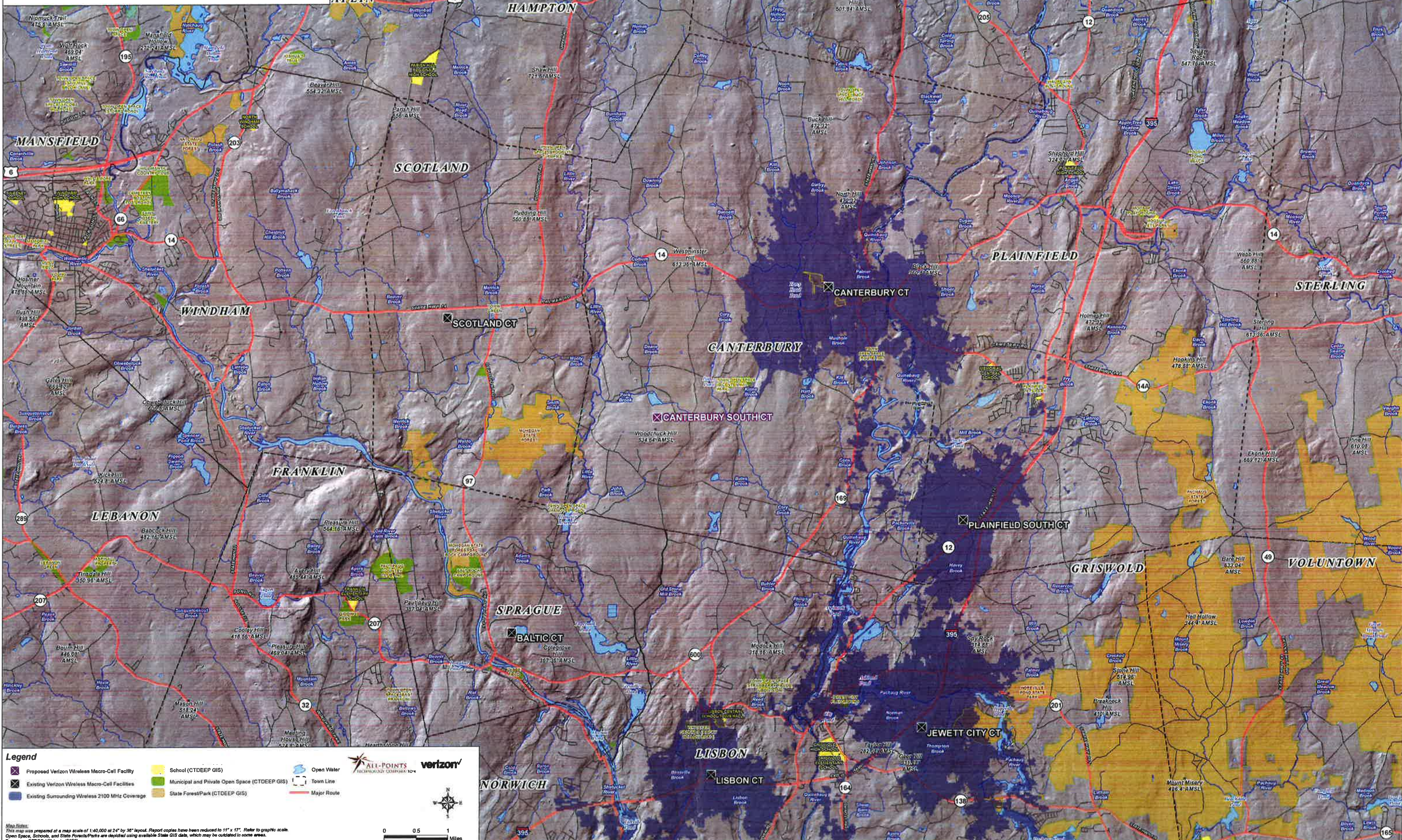
**ALL-POINTS TECHNOLOGICAL CORPORATION**     **verizon**

0    0.5    1 Miles



**Existing Verizon Wireless 2100 MHz Coverage  
Canterbury, Connecticut and Surrounding Area  
(\*Map Scale is 1:40,000)**

Coverage is depicted at a signal threshold of 120 dB Operational Path Loss



**Legend**

- Proposed Verizon Wireless Macro-Cell Facility
- School (CTDEEP GIS)
- Open Water
- Existing Verizon Wireless Macro-Cell Facilities
- Municipal and Private Open Space (CTDEEP GIS)
- Town Line
- Existing Surrounding Wireless 2100 MHz Coverage
- State Forest/Park (CTDEEP GIS)
- Major Route

**Map Notes:**  
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 Base map: CTECO Hillshade (2009)

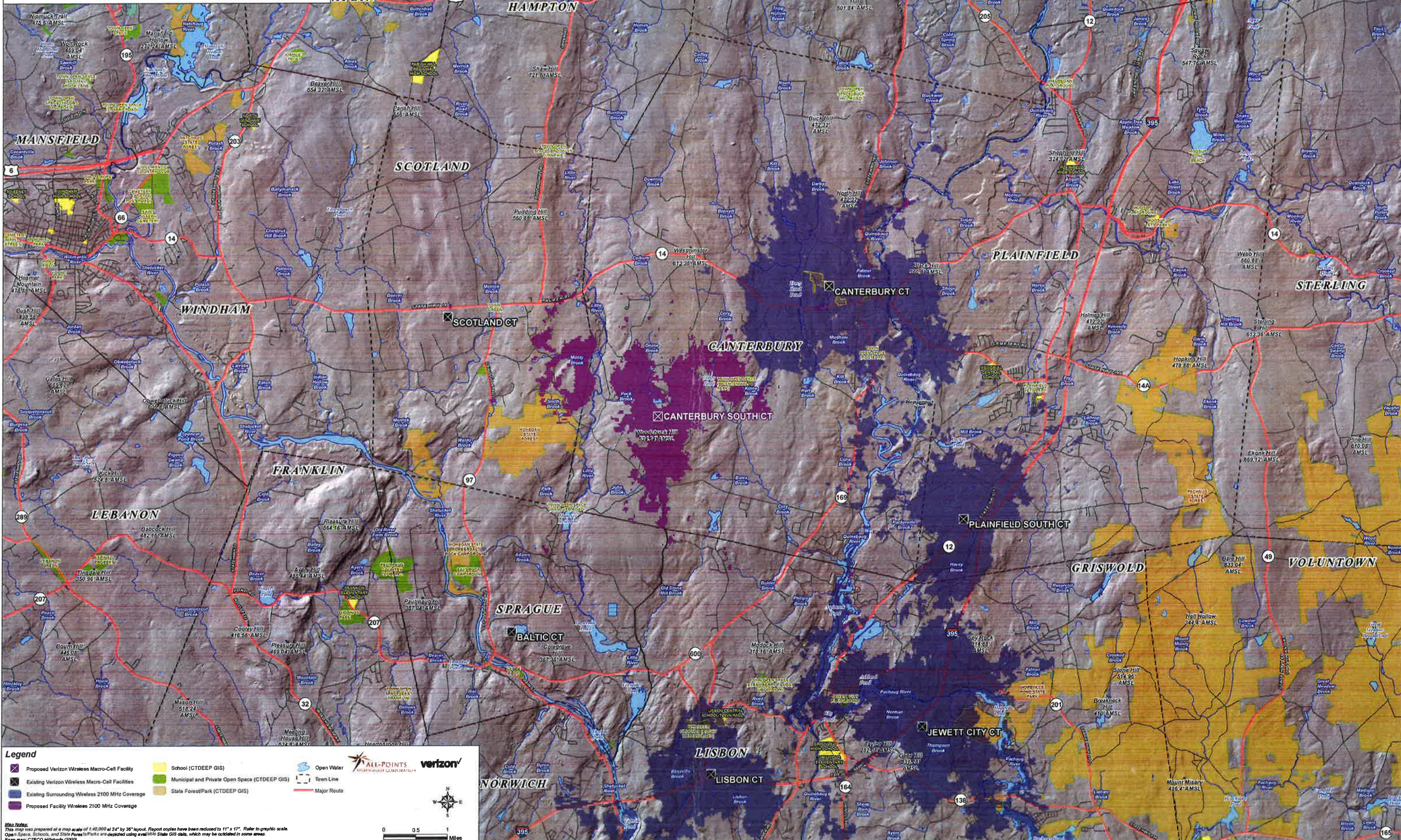
**Scale:** 0 0.5 1 Miles

**Logos:** ALL-POINTS TECHNOLOGY CORPORATION, verizon



**Proposed Verizon Wireless 2100 MHz Coverage  
Canterbury, Connecticut and Surrounding Area  
(\*Map Scale is 1:40,000)**

Coverage is depicted at a signal threshold of 120 dB Operational Path Loss



**Legend**

- Proposed Verizon Wireless Macro-Cell Facility
- Existing Surrounding Wireless 2100 MHz Coverage
- State Forest/Park (CTDEEP GIS)
- Municipal and Private Open Space (CTDEEP GIS)
- School (CTDEEP GIS)
- Open Water
- Town Line
- Major Route

**Map Notes:**  
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Base map: CTECO Hillshade (2000)

**Scale:** 0 0.5 1 Miles

**Logos:** ALL-POINTS, verizon



# **ATTACHMENT 2**



**WIRELESS COMMUNICATIONS FACILITY**

SITE NAME: CANTERBURY SOUTH CT

HOLOWATY PROPERTY  
46 CEMETERY RD.  
CANTERBURY, CT 06331

RAW LAND MONOPOLE

Celco Partnership  
d/b/a Verizon Wireless



WIRELESS COMMUNICATIONS FACILITY  
99 EAST RIVER DRIVE  
EAST HARTFORD, CT 06108

**On Air Engineering, LLC**

88 Foundry Pond Rd.  
Cold Spring, NY 10516  
onair@optonline.net  
201-456-4624

LICENSURE

DAVID WEINPAHL, P.E.  
CT LIC. NO. 22144

NO.	DATE	SUBMISSIONS
0	01.04.17	REVIEW
1	02.14.17	REVISED PER ATTORNEY COMMENTS

DRAWN BY:	CHECKED BY:
AS	DW

SITE NAME:  
**CANTERBURY SOUTH CT**

PROJECT DESCRIPTION:  
**NEW BUILD MACRO**

PROJECT INFORMATION:  
**HOLOWATY PROPERTY  
46 CEMETERY RD.  
CANTERBURY, CT 06331**

DRAWING TITLE:  
**TITLE SHEET**

SHEET NUMBER:  
**T-1**



PROJECT SUMMARY	
SITE NAME:	CANTERBURY SOUTH CT
SITE ADDRESS:	HOLOWATY PROPERTY 46 CEMETERY RD. CANTERBURY, CT 06331
PROPERTY OWNER:	HOLOWATY NICHOLAS II 46 CEMETERY RD. CANTERBURY, CT 06331
PARCEL ID:	09-2
TOWER COORDINATES:	41° 40' 21.79" N 72° 01' 59.50" W
APPLICANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DR., 9TH FL. EAST HARTFORD, CT 06108
VERIZON WIRELESS CONTACTS:	JOHN TIERNEY - CONSTRUCTION (860) 999-1179 STEVE SCHADLER - SITE ACQ. (508) 887-0357
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE, LLP (860) 275-8345

DRAWING SCHEDULE	
SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
C-1	SITE LAYOUT
C-2	COMPOUND PLAN, NORTH ELEVATION & ANTENNA PLAN
C-3	ABUTTERS MAP & PROPERTY OWNER LIST

PROJECT DESCRIPTION
<ul style="list-style-type: none"> <li>- INSTALLATION OF A 160 FT. MONOPOLE/TOWER AND FENCED-IN COMPOUND AT GRADE</li> <li>- INSTALLATION OF OUTDOOR EQUIPMENT CABINETS AND A DIESEL FUELED GENERATOR LOCATED ON A NEW 26'x12' CONCRETE PAD WITHIN THE COMPOUND</li> <li>- INSTALLATION OF (9) PANEL ANTENNAS AND ASSOCIATED DEVICES ON THE MONOPOLE</li> <li>- INSTALLATION OF CABLING FROM EQUIP. CABINETS TO ANTENNAS</li> <li>- ELECTRICAL, TELEPHONE &amp; GROUNDING CONNECTIONS TO EXISTING UTILITIES</li> </ul>

Cellco Partnership  
d/b/a Verizon Wireless



WIRELESS COMMUNICATIONS FACILITY  
99 EAST RIVER DRIVE  
EAST HARTFORD, CT 06108

On Air Engineering, LLC

88 Foundry Pond Rd.  
Cold Spring, NY 10516  
onair@optonline.net  
201-456-4624

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DAVID WEINPAHL, P.E.  
CT LIC. NO. 22144

NO.: DATE: SUBMISSIONS

NO.	DATE	SUBMISSIONS
0	01.04.17	REVIEW
1	02.14.17	REVISED PER ATTORNEY COMMENTS

DRAWN BY: AS CHECKED BY: DW

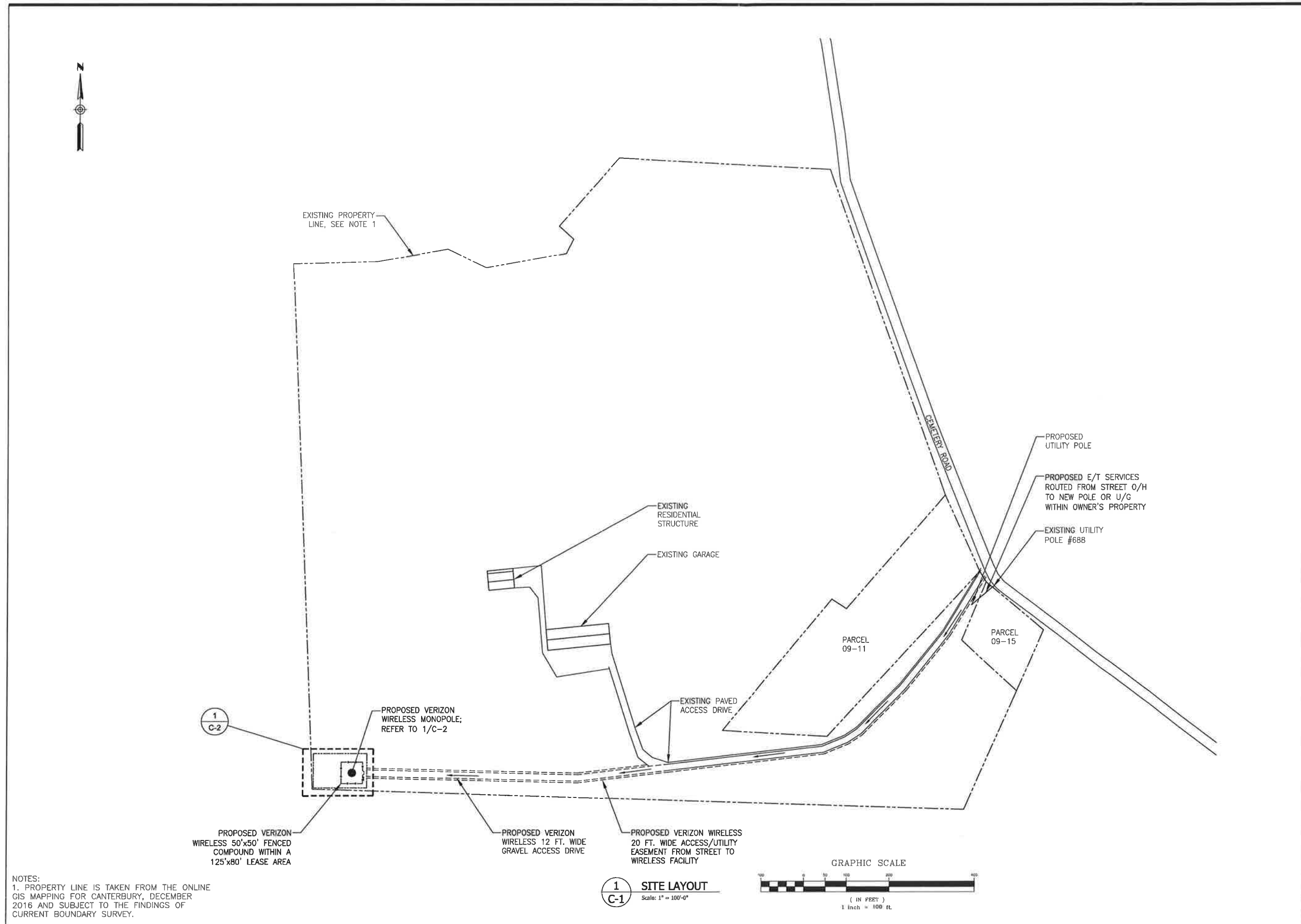
SITE NAME:  
CANTERBURY SOUTH CT

PROJECT DESCRIPTION:  
NEW BUILD MACRO

PROJECT INFORMATION:  
HOLOWATY PROPERTY  
46 CEMETERY RD.  
CANTERBURY, CT 06331

DRAWING TITLE:  
SITE LAYOUT

SHEET NUMBER:  
C-1



NOTES:  
1. PROPERTY LINE IS TAKEN FROM THE ONLINE GIS MAPPING FOR CANTERBURY, DECEMBER 2016 AND SUBJECT TO THE FINDINGS OF CURRENT BOUNDARY SURVEY.

1 SITE LAYOUT  
Scale: 1" = 100'-0"



LICENSURE

DAVID WEINPAHL, P.E.  
CT LIC. NO. 22144

NO.	DATE	SUBMISSIONS
0	01.04.17	REVIEW
1	02.14.17	REVISED PER ATTORNEY COMMENTS

DRAWN BY:	CHECKED BY:
AS	DW

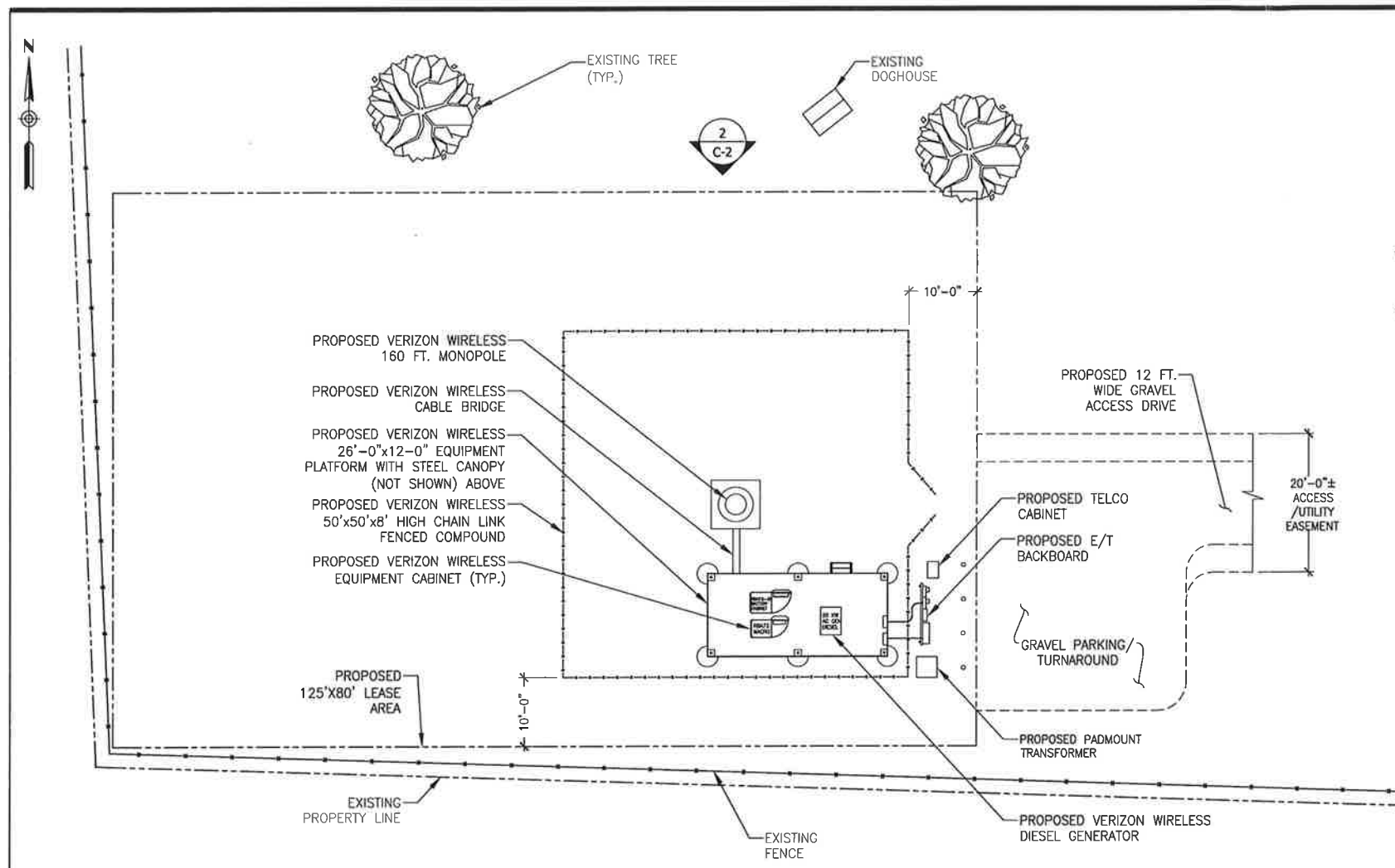
SITE NAME:  
**CANTERBURY SOUTH CT**

PROJECT DESCRIPTION:  
**NEW BUILD MACRO**

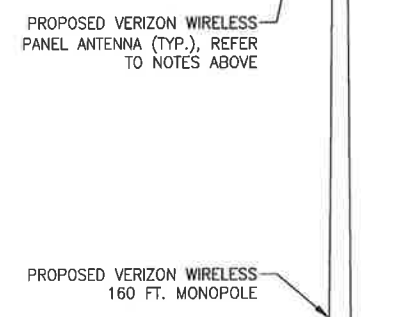
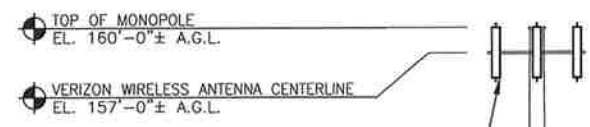
PROJECT INFORMATION:  
**HOLOWATY PROPERTY  
46 CEMETERY RD.  
CANTERBURY, CT 06331**

DRAWING TITLE:  
**COMPOUND PLAN,  
NORTH ELEVATION  
& ANTENNA PLAN**

SHEET NUMBER:  
**C-2**

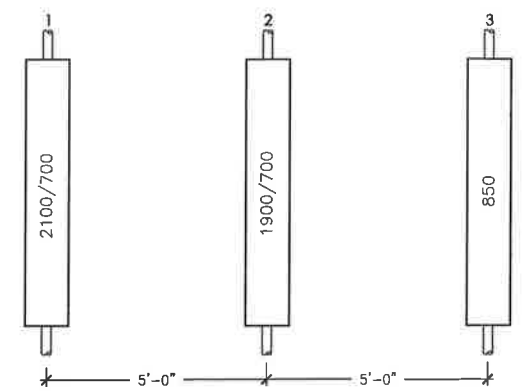


**1 COMPOUND PLAN**  
Scale: 3/32" = 1'-0"

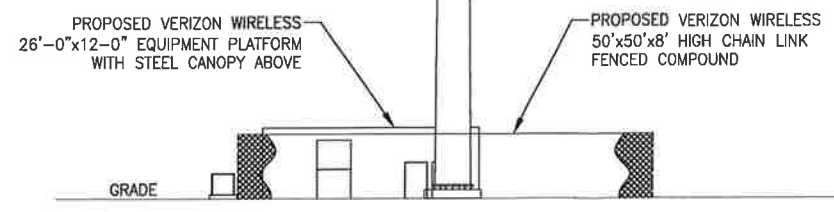


ANTENNA SPECIFICATIONS (TYP. AT 3 SECTORS)

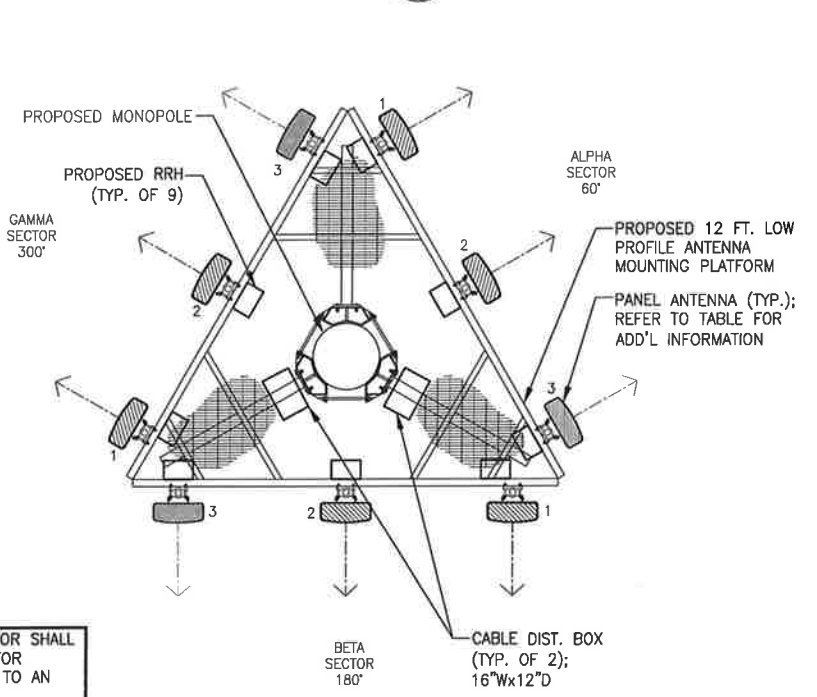
POS.	ANTENNA BAND	MODEL #	SIZE	ACCESSORY EQUIPMENT
1	2100/700	SBNHH-1D65B	72"Hx11.9"Wx7.1"D; 40.6 LBS.	ALU RRH_2x45-AWS ALU B13 RRH2x60
2	1900/700	SBNHH-1D65B	72"Hx11.9"Wx7.1"D; 40.6 LBS.	ALU RRH_2x60-PCS
3	850	LNX-6514DS-A1M	72.9"Hx11.9"Wx7.1"D; 38.4 LBS.	



**4 TYPICAL ANTENNA ELEVATION**  
Scale: N.T.S.



**2 NORTH ELEVATION**  
Scale: 3/32" = 1'-0"



**3 ANTENNA PLAN @ 157 FT. A.G.L.**  
Scale: 3/8" = 1'-0"

NOTE: CONTRACTOR SHALL SET ALPHA SECTOR PLATFORM FACE TO AN AZIMUTH OF 60°

Cellco Partnership  
d/b/a Verizon Wireless



WIRELESS COMMUNICATIONS FACILITY  
99 EAST RIVER DRIVE  
EAST HARTFORD, CT 06108

On Air Engineering, LLC

88 Foundry Pond Rd.  
Cold Spring, NY 10516  
onair@optonline.net  
201-456-4624

LICENSURE

DAVID WEINPAHL, P.E.  
CT LIC. NO. 22144

NO.	DATE	SUBMISSIONS
0	01.04.17	REVIEW
1	02.14.17	REVISED PER ATTORNEY COMMENTS

DRAWN BY:	CHECKED BY:
AS	DW

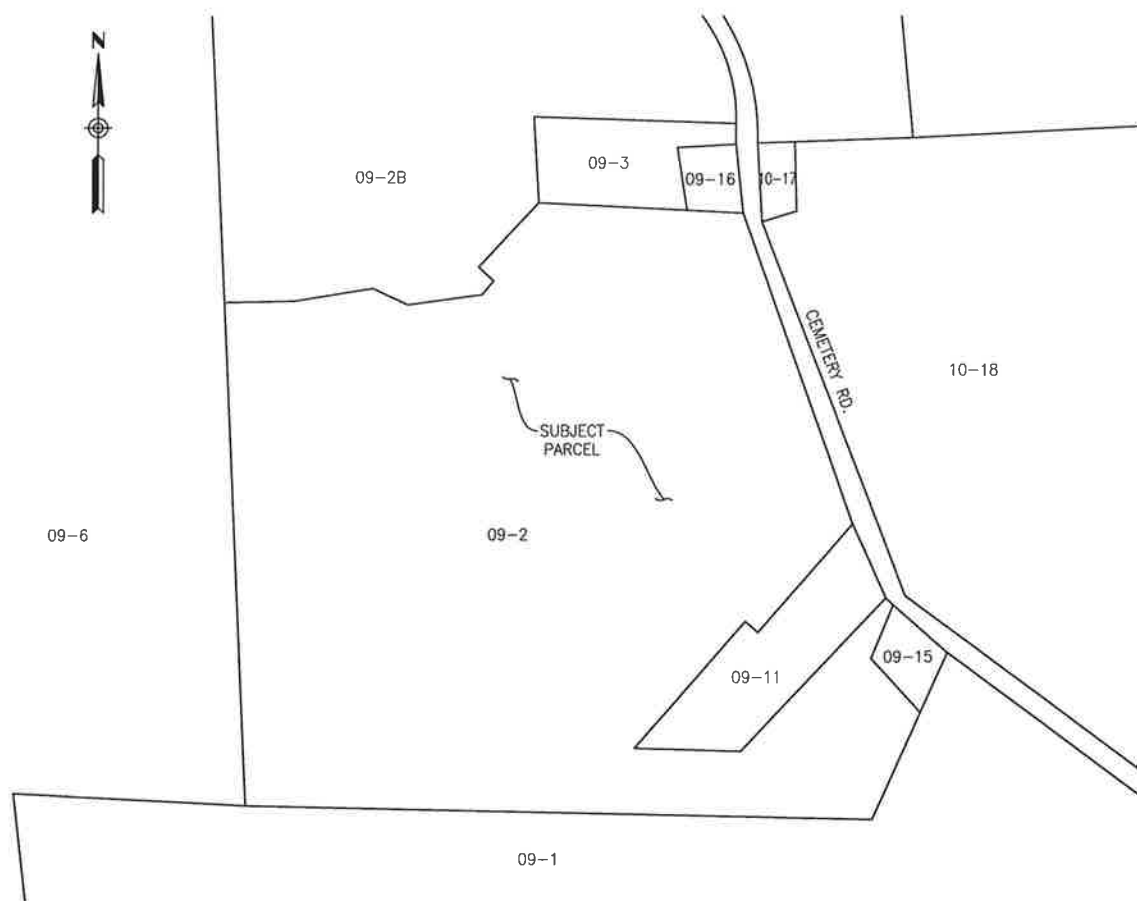
SITE NAME:  
CANTERBURY SOUTH CT

PROJECT DESCRIPTION:  
NEW BUILD MACRO

PROJECT INFORMATION:  
HOLOWATY PROPERTY  
46 CEMETERY RD.  
CANTERBURY, CT 06331

DRAWING TITLE:  
ABUTTERS MAP &  
PROPERTY OWNER LIST

SHEET NUMBER:  
C-3



**1**  
C-3 ABUTTERS MAP  
Scale: 1"=300'

ABUTTERS LIST FROM PARCEL 9-02			
PARCEL #	OWNER NAME	OWNER MAILING ADDRESS	PROPERTY ADDRESS
09-2B	THOMA BARBARA, ET AL	144 CEMETERY RD, CANTERBURY, CT 06331	144 CEMETERY RD.
09-3	CANTERBURY CEMETERY ASSOC. INC	CEMETERY RD, CANTERBURY, CT 06331	CEMETERY RD.
09-16	WESTMINSTER CONGREGATIONAL CHURCH	RTE 14, CANTERBURY, CT 06331	CEMETERY RD.
10-17	CANTERBURY TOWN OF	OLD SMITH CEMETERY, CANTERBURY, CT 06331	CEMETERY RD.
10-18	CHOMA ANN MARIE	75 CEMETERY RD, CANTERBURY, CT 06331	45 CEMETERY RD.
09-11	RILEY GEORGE JR & DEBORAH ROSE	40 CEMETERY RD, CANTERBURY, CT 06331	40 CEMETERY RD.
09-15	CANTERBURY TOWN OF	PO BOX 27, CANTERBURY, CT 06331	CEMETERY RD.
09-1	RACY ANN S	395 WATER ST, CANTERBURY, CT 06331	395 WATER ST
09-6	THOMA BARBARA, ET AL	148 CEMETERY RD, CANTERBURY, CT 06331	148 CEMETERY RD.

NOTES TO ABUTTERS MAP & OWNERS LIST:  
1. ALL INFORMATION TAKEN FROM THE "NECCOG"  
'GIS' WEBSITE FOR THE TOWN OF CANTERBURY,  
DECEMBER 2016.

# **ATTACHMENT 3**





## **PRELIMINARY VISUAL ASSESSMENT**

To: Verizon Wireless  
99 East River Drive  
East Hartford, Connecticut

Date: February 5, 2017

Re: Proposed Telecommunications Facility  
46 Cemetery Road  
Canterbury, Connecticut

From: Michael Libertine

---

Cellco Partnership d/b/a Verizon Wireless (“Verizon”) has identified a proposed location for development of a new wireless telecommunications facility (“Facility”) at 46 Cemetery Road in Canterbury, Connecticut. The proposed Facility would include a 160-foot tall monopole in the southwest corner of the property (“Site”).

At the request of Verizon, All-Points Technology Corporation, P.C. (“APT”) has prepared preliminary viewshed mapping to evaluate the 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.

Computer modeling tools were used to predict those areas where at least the top of the Facility is estimated to be visible including TerrSet, an image analysis program developed by Clark Labs at Clark University. Project- and Study Area-specific data were incorporated into the computer model, including the Site location, its ground elevation and the proposed Facility height, as well as the surrounding topography and existing vegetation, which are the primary features that can block direct lines of sight.

Information used in the model included LiDAR<sup>1</sup>-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 2010 and has a horizontal resolution of one (1) meter (3.28 feet) and a vertical horizontal resolution of less than one meter. 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 [leaf-on] and 2016 [leaf off]) 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

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<sup>1</sup> 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.

be made automatically between deciduous and coniferous tree species, as well as 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). 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 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 generally over-predicts the viewshed in "leaf-off" conditions, even when incorporating conservative constraints into the model (i.e., assuming each tree is simply a vertical pole of varying width, depending upon species, with no distinct branching pattern). Therefore, field verification remains an important component for cross-checking the model's initial results.

The preliminary viewshed mapping results indicate that visibility associated with the proposed Facility could extend out distances of approximately 0.75 mile from the Site. The majority of visibility appears to be seasonal (when the leaves are off the deciduous trees). On a purely quantitative basis, areas from where the proposed Facility is predicted to be visible above the tree canopy year-round constitute approximately 13 acres. Seasonal views through the intervening pole timber and branches are anticipated to occur over some locations within an area measuring 293± acres.

The map provides a preliminary basis for understanding the extent of visibility that may occur throughout the Study Area, but it does not address the character of those potential views. Note that the results of the computer model have not been field verified. The variability in tree heights combined with

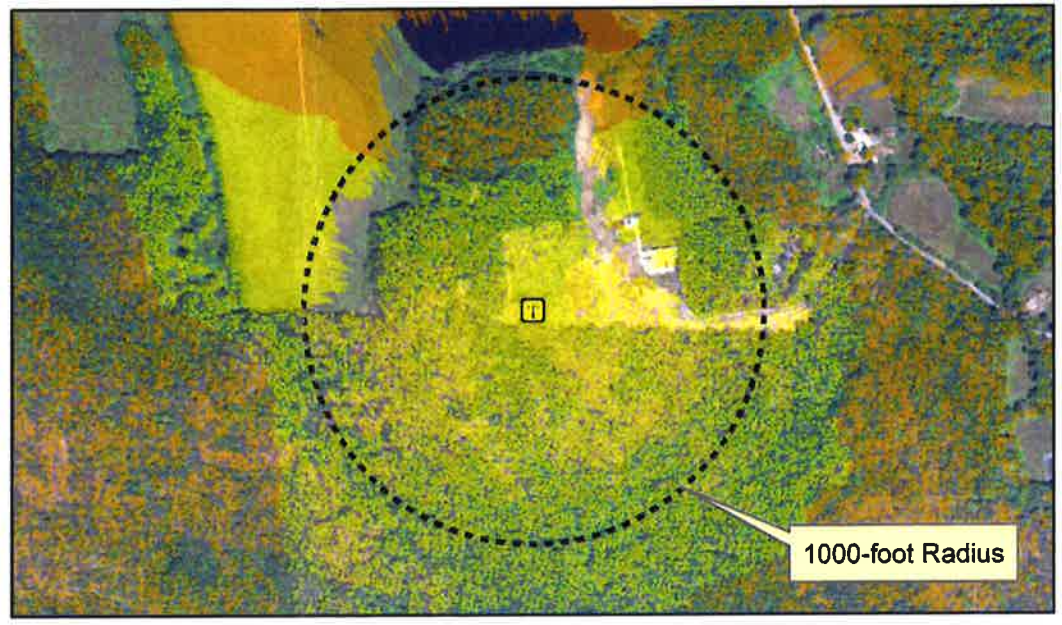
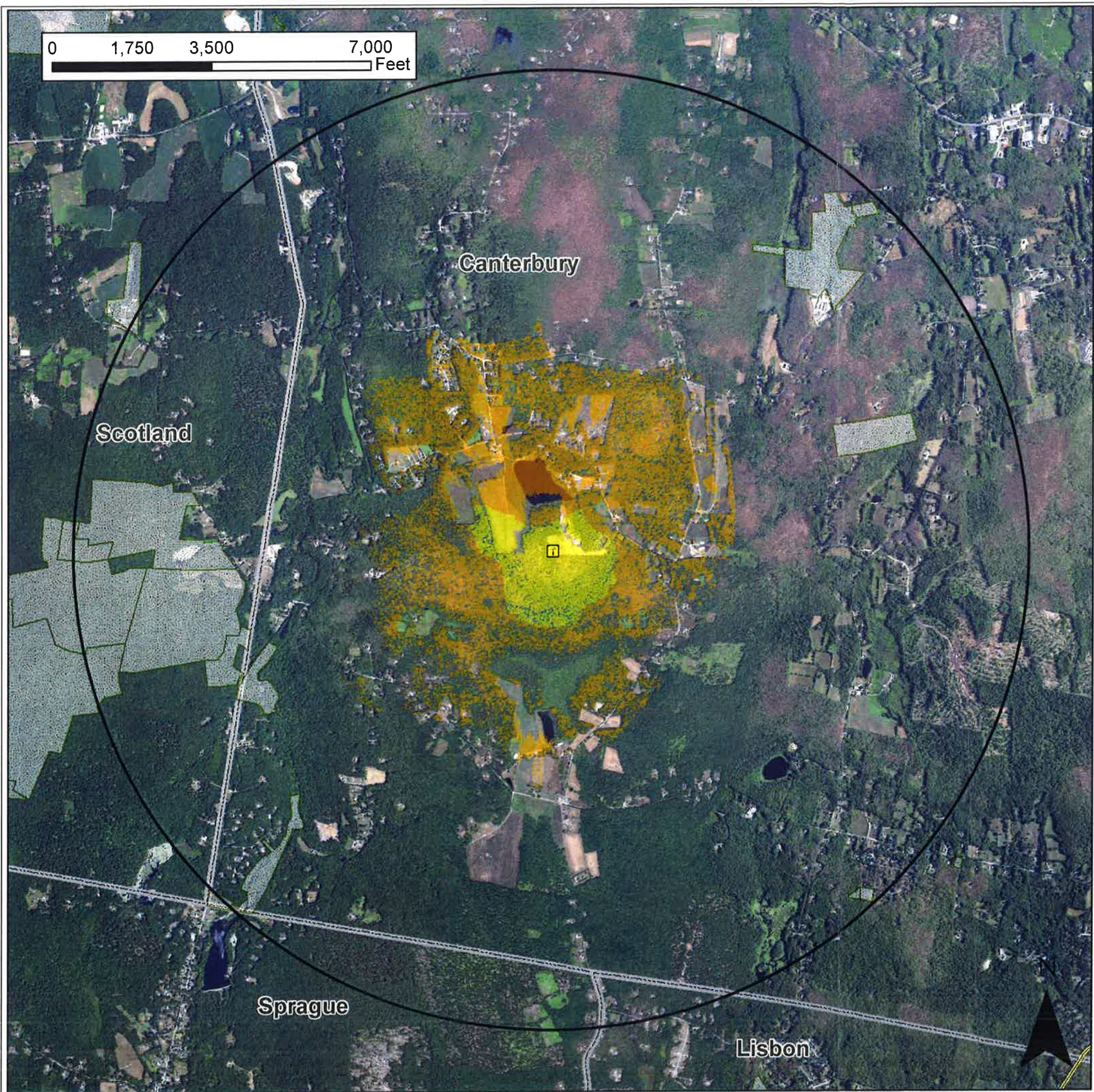


the model's sensitivity typically result in the initial model to be over-predictive of the Facility's viewshed.

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. This information will be included in Verizon's application to the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need.

#### Attachments





**Preliminary Viewshed Map – Aerial Base**

Proposed Wireless Telecommunications Facility  
 Canterbury South CT – 46 Cemetery Road, Canterbury, 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**

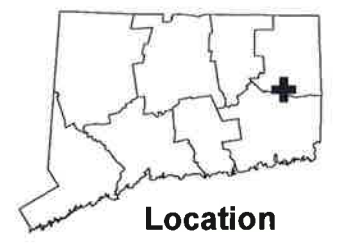
- Viewshed analysis conducted using Clark University's TerrSet.
- Areas of potential visibility are calculated based on facility location and height, Study Area topography, and Study Area vegetation.
- Proposed facility height is 160 feet AGL.
- Forest canopy height is derived from lidar data.
- Study area encompasses a two-mile radius and includes 8,042 acres of land.

**DATA SOURCES**

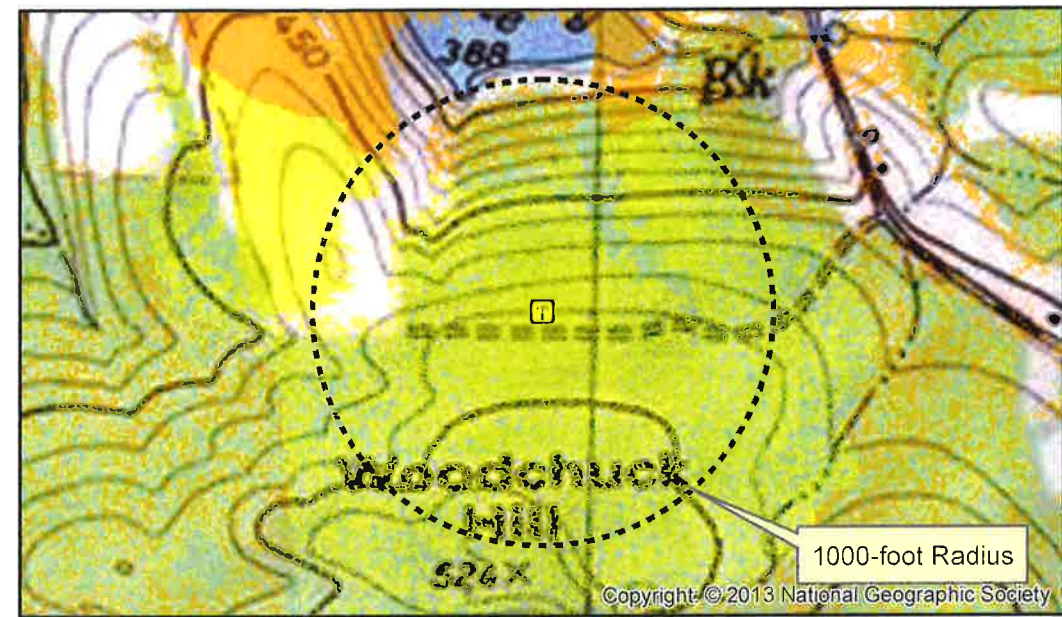
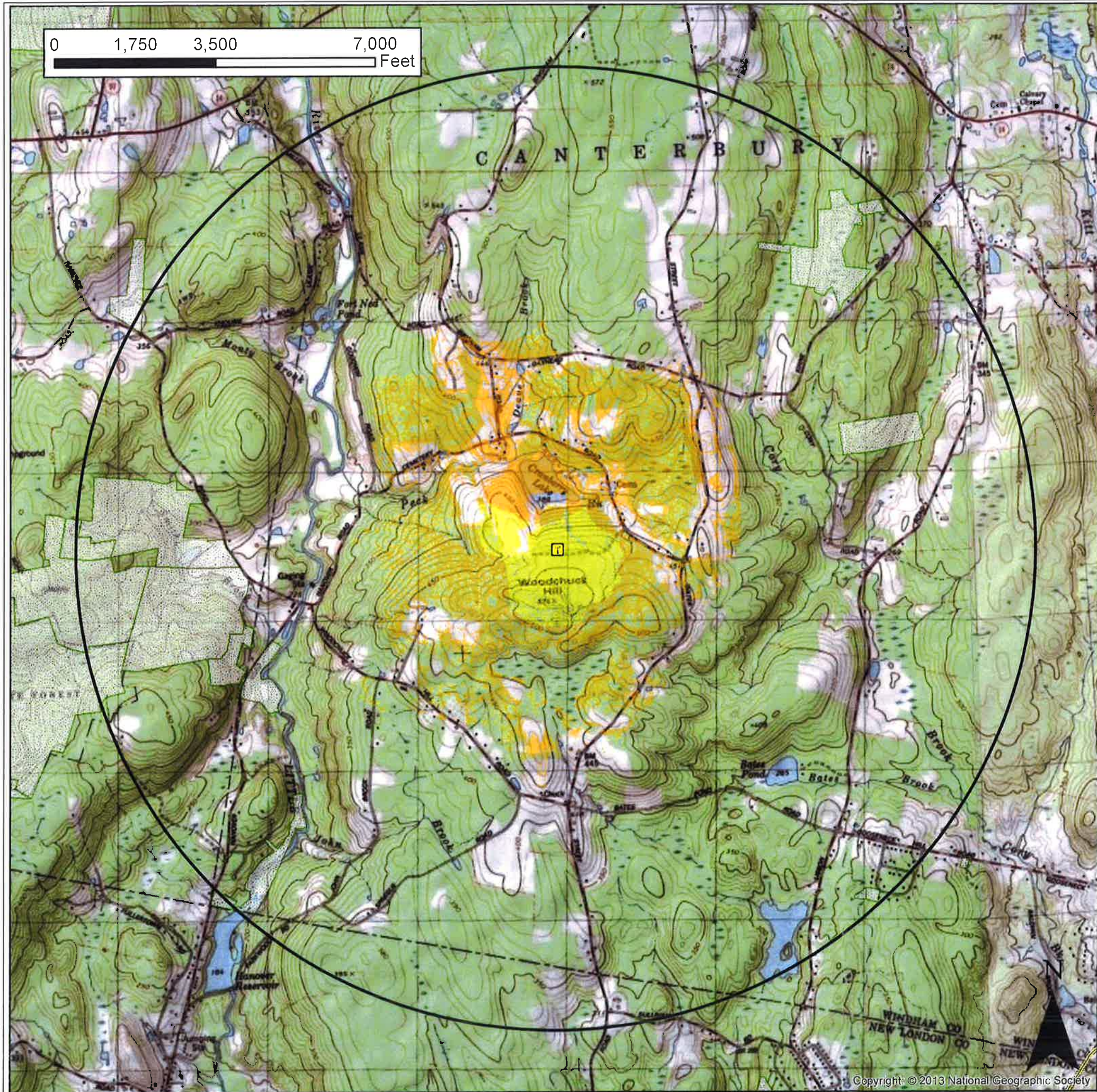
- Digital elevation model (DEM) derived from lidar data obtained from NOAA which has a raster resolution of 0.3 m and horizontal accuracy of 1 meter or less.
- Forest areas are generated with TerrSet (Clark University) image processing from 2014 NRCS/NAIP digital orthophotos with 1-foot pixel resolution.
- Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP and the towns.

**Legend**

- Proposed Tower
- Predicted Seasonal Visibility (293 Acres)
- Predicted Year-Round Visibility (13 Acres)
- Towns
- 2-Mile Study Area
- Open Space







**Preliminary Viewshed Map – Topo Base**

Proposed Wireless Telecommunications Facility  
 Canterbury South CT – 46 Cemetery Road, Canterbury, 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**

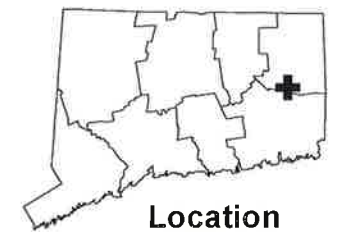
- Viewshed analysis conducted using Clark University's TerrSet.
- Areas of potential visibility are calculated based on facility location and height, Study Area topography, and Study Area vegetation.
- Proposed facility height is 160 feet AGL.
- Forest canopy height is derived from lidar data.
- Study area encompasses a two-mile radius and includes 8,042 acres of land.

**DATA SOURCES**

- Digital elevation model (DEM) derived from lidar data obtained from NOAA which has a raster resolution of 0.3 m and horizontal accuracy of 1 meter or less.
- Forest areas are generated with TerrSet (Clark University) image processing from 2014 NRCS/NAIP digital orthophotos with 1-foot pixel resolution.
- Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP and the towns.

**Legend**

- Proposed Tower
- Predicted Seasonal Visibility (293 Acres)
- Predicted Year-Round Visibility (13 Acres)
- Towns
- 2-Mile Study Area
- Open Space





# **ATTACHMENT 4**

General Power Density

Site Name: Canterbury South, 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 <sup>2</sup> )	Maximum Permissible Exposure* (mW/cm <sup>2</sup> )	Fraction of MPE (%)
VZW PCS	1970	1	3082	3082.061	157	0.0450	1.0	4.50%
VZW Cellular	869	9	344	3096.717	157	0.0452	0.5793333333	7.80%
VZW AWS	2145	1	6987	6986.707	157	0.1019	1.0	10.19%
VZW 700	746	1	1635	1634.561	157	0.0238	0.4973333333	4.80%

**Total Percentage of Maximum Permissible Exposure**

27.28%

\*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/cm<sup>2</sup> = milliwatts per square centimeter  
 ERP = Effective Radiated Power

Absolute worst case maximum values used.

# **ATTACHMENT 5**

Cellco Partnership d/b/a Verizon Wireless  
46 Cemetery Road  
Canterbury, Connecticut

Canterbury South 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 Canterbury South telecommunications facility 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 and reliability of service provided. These objectives are achieved by initially locating existing towers and other sufficiently tall structures within and near a 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 located in densely populated 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 Canterbury South Facility

Cellco currently maintains seven (7) wireless telecommunications facilities within approximately eight (8) miles of the proposed Canterbury South Facility. These facilities are identified as Cellco’s Baltic, Lisbon, Jewett City, Plainfield South, Canterbury, Hampton and Scotland cell sites. Cellco’s Baltic facility consists of antennas on a tower at 62 Main Street in Baltic. Cellco’s Lisbon facility consists of antennas on an existing tower at 26 Mell Street in Lisbon. Cellco’s Jewett City facility consists of antennas on an existing tower at 257 Norman Road in Griswold. Cellco’s Plainfield South facility consists of antennas on an existing tower at

1197 Norwich Road in Plainfield. Cellco's Canterbury facility consists of antennas on an existing tower at 53 Westminster Road in Canterbury. Cellco's Hampton facility consists of antennas on an existing tower at 185 Fiske Road in Hampton. Cellco's Scotland facility consists of antennas on an existing tower at 165 Huntington Road in Scotland.

These existing facilities currently provide wireless service in the area around the proposed Canterbury South Facility location. In addition, Cellco's existing Baltic facility (Alpha sector antennas) is also currently operating at or near its network capacity limits, resulting in a significant reduction in reliable wireless service in the area. Cellco is experiencing significant gaps in wireless service throughout southern portions of Canterbury and the adjacent Towns. There are no other existing towers or other sufficiently tall structures available in the Canterbury South search area that would satisfy Cellco wireless service objectives. Construction of a new tower, therefore, is required to resolve Cellco's existing wireless service problems.

#### Identification of the Canterbury South Search Area

The purpose of the proposed Canterbury South Facility is to provide service to existing coverage gaps in the area along portions of Routes 14, 97 and 169, and in the surrounding residential areas and capacity relief to Cellco's existing Baltic cell site. (*See attached Search Area Maps*).

#### Sites Investigated

Cellco investigated a total of four (4) sites in or near its Canterbury South search area. A listing of the sites investigated is provided below.

1. **46 Cemetery Road, Canterbury, CT** – Proposed Canterbury South Facility.
2. **148 Cemetery Road, Canterbury, CT** – Rejected by Verizon radio frequency engineer.
3. **395 Water Street, Canterbury, CT** – Rejected by Verizon radio frequency engineer.
4. **Woodchuck Hill Road, Canterbury, CT** – Rejected by Verizon radio frequency engineer.



# Canterbury South Search Area

