Robinson+Cole

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Also admitted in Massachusetts

March 3, 2015

Via Hand Delivery

Mark D. Boughton
Mayor
City of Danbury
155 Deer Hill Avenue
Danbury, CT 06810

Re: **Submission of Technical Information Concerning a Proposal to Construct a Wireless Telecommunications Facility at 15 Great Pasture Road, Danbury, Connecticut**

Dear Mr. Boughton:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"), in its proposal to construct a new wireless telecommunications facility on an approximately 14 acre parcel at 15 Great Pasture Road in Danbury (the "Property"). For the purposes of this filing, the proposed telecommunications facility is known as Cellco's "Bethel West 2 Facility". This Technical Report is submitted pursuant to Connecticut General Statutes ("Conn. Gen. Stat.") § 16-50*l*(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 Town of Bethel is located within 2,500 feet of the Property, a copy of this report will also be forwarded to First Selectman Matt Knickerbocker.

13423739-v1

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

Timothy Parks
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 at the Property in northeast Danbury. The Bethel West 2 Facility would interact with Cellco's existing cell sites in Danbury and Bethel.

The Bethel West 2 Facility would provide improved coverage and, more importantly, significant capacity relief to Cellco's network in Danbury and Bethel, particularly along portions of Routes 53 and 302 and in the surrounding industrial, commercial and residential areas. Coverage plots for Cellco's existing cell sites in the area, alone and together with the proposed Bethel West 2 Facility are included in Attachment 1. These plots show areas of coverage from Cellco's existing cell sites (purple shading), existing gaps in reliable wireless service, and the coverage footprint from the Bethel West 2 Facility (lighter purple shading) in each of Cellco's licensed frequencies. The significant areas of overlapping service shown on these plots also helps illustrate the capacity benefits of the Bethel West 2 Facility which will off-load voice and data traffic from Cellco's Bethel (Alpha sector), Bethel West (Alpha sector), Danbury 3 (Beta sector) and Danbury (Beta sector) cell sites, which are currently operating beyond their capacity limits.

Cell Site Information

The proposed Bethel West 2 Facility would be located in the westerly portion of an approximately 14 acre parcel at 15 Great Pasture Road in Danbury. The Property is owned by

Eppoliti Industrial Realty Inc. and is located in Danbury's IL-40 (Industrial) zone district. The Property is currently used for light industrial purposes.

The proposed wireless facility will consist of a 120-foot monopole tower and a 12' x 26' shelter located within a 50' x 50' fenced compound and leased area. Cellco will install up to twelve (12) panel-type antennas at the centerline height of 120 feet above ground level ("AGL"). Cellco's antennas would extend to an overall height of approximately 124 feet AGL. Equipment associated with Cellco's antennas and a natural gas-fueled back-up generator would be located inside the shelter. Access to the Bethel West 2 Facility would extend from Great Pasture Road over an existing paved driveway and parking area on the Property a distance of approximately 775 feet. Project plans for the Bethel West 2 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 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 16-50*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 Danbury; 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 Bethel West 2 Facility described in this Technical Report is needed so that Cellco can provide enhanced wireless voice and data services in Danbury and Bethel, Connecticut. More particularly, the Bethel West 2 Facility will provide additional wireless "coverage" along portions of Routes 53 and 302 and local roads in the area immediately around the Property in its 1900 and 2100 MHz frequency ranges. More importantly, the Bethel West 2 Facility will provide capacity relief to Cellco's existing Danbury (Beta sector), Danbury 3 (Beta sector), Bethel West (Alpha sector) and Bethel (Alpha sector) cell sites which are currently operating beyond their respective capacity limits. The Bethel West 2 Facility, described in this report, would improve coverage in the area and off-load significantly network capacity in the

area, improving, overall, Cellco's ability to provide high quality, reliable wireless services in the area.

Environmental Effects

In our experience, the primary impact of a wireless facility such as the proposed Bethel West 2 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 tower, and the location of buildings in the sight-line of the cell site.

To more fully assess the visual impact of the Bethel West 2 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 120-foot tower at the Property would be limited to the area in the immediate vicinity of the proposed tower location, generally within less than 0.25 miles of the Property. These year-round views encompass an area of approximately 50 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 410 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 Bethel West 2 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 Bethel West 2 Facility will have no direct impact 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 Bethel West 2 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 120-foot level on the proposed tower would be 32.74% of the FCC Standard. (*See* Attachment 4.) Actual RF emissions levels from this facility will be far less than this "worst-case" approximation.

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 Danbury and Bethel 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 or eliminated due to some concerns for significant environmental effects, including floodplain and/or wetland impacts. 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 City of Danbury 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 Danbury 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 Bethel West 2 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 Bethel West 2 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,

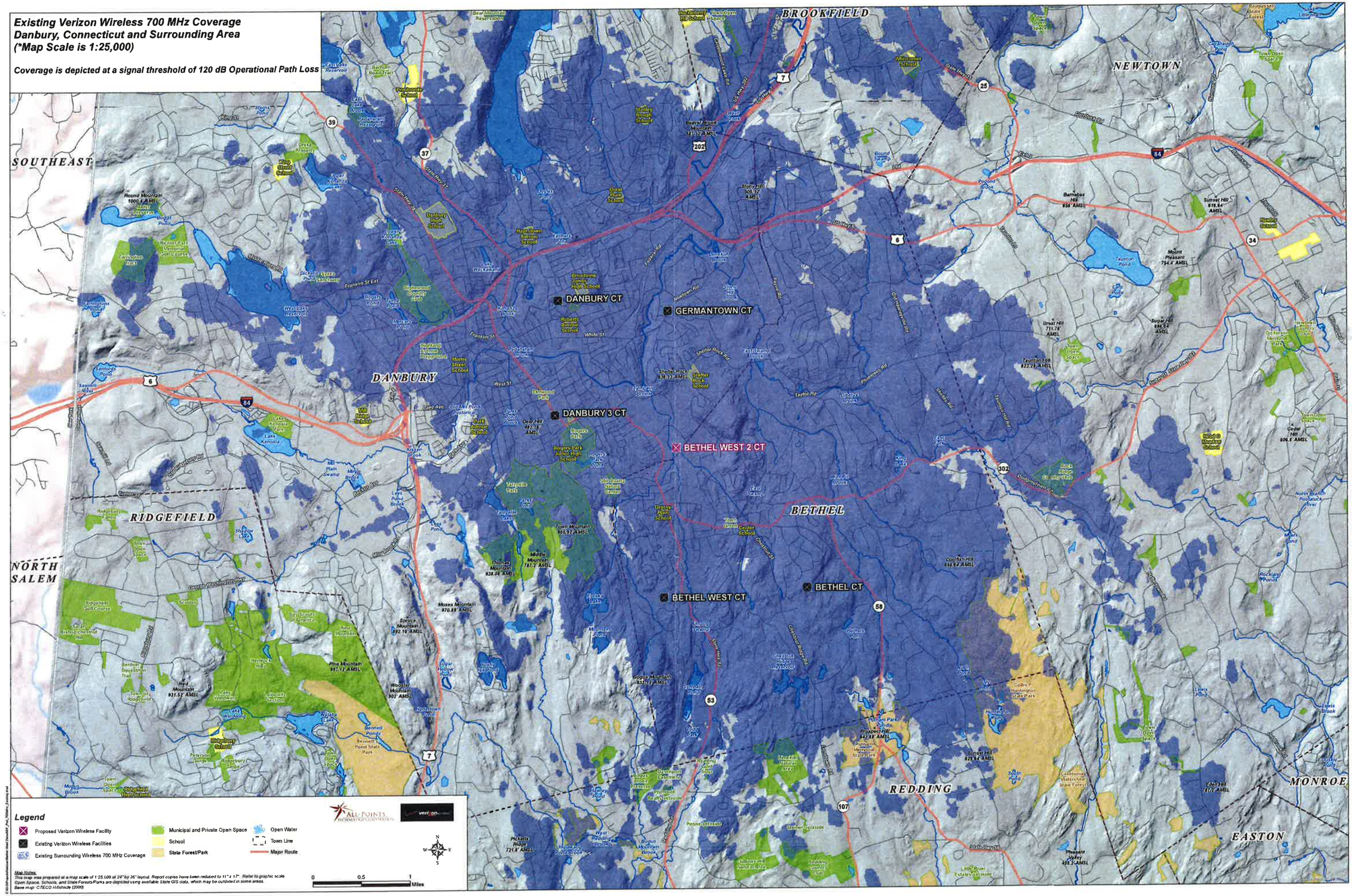
Kenneth C. Baldwin

KCB/kmd
Enclosures
Copy to (*via hand delivery*):
Matt Knickerbocker, First Selectman, Town of Bethel
Arnold Finaldi, Chair, Danbury Planning Commission
Robert C. Melillo, Chair, Danbury Zoning Commission
Bernard P. Gallo, Chair, Danbury Environmental Impact Commission
Patricia Rist, Chair, Bethel Planning and Zoning Commission
Don Goodrich, Chair, Bethel Inland Wetlands Commission
Sandy M. Carter

ATTACHMENT 1

Existing Verizon Wireless 700 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

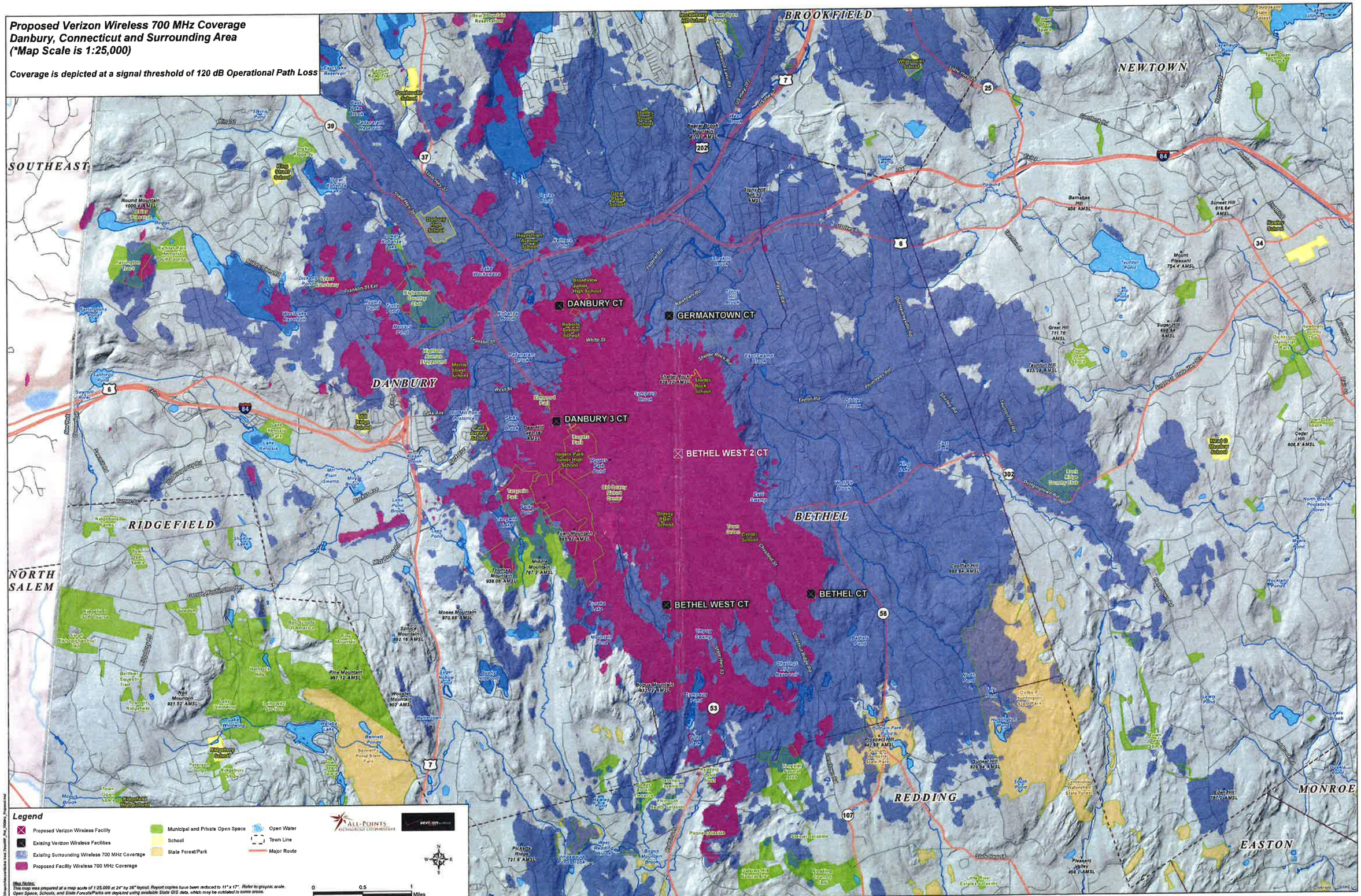
Coverage is depicted at a signal threshold of 120 dB Operational Path Loss



Map Notes:
This map was prepared at a map scale of 1:25,000 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)

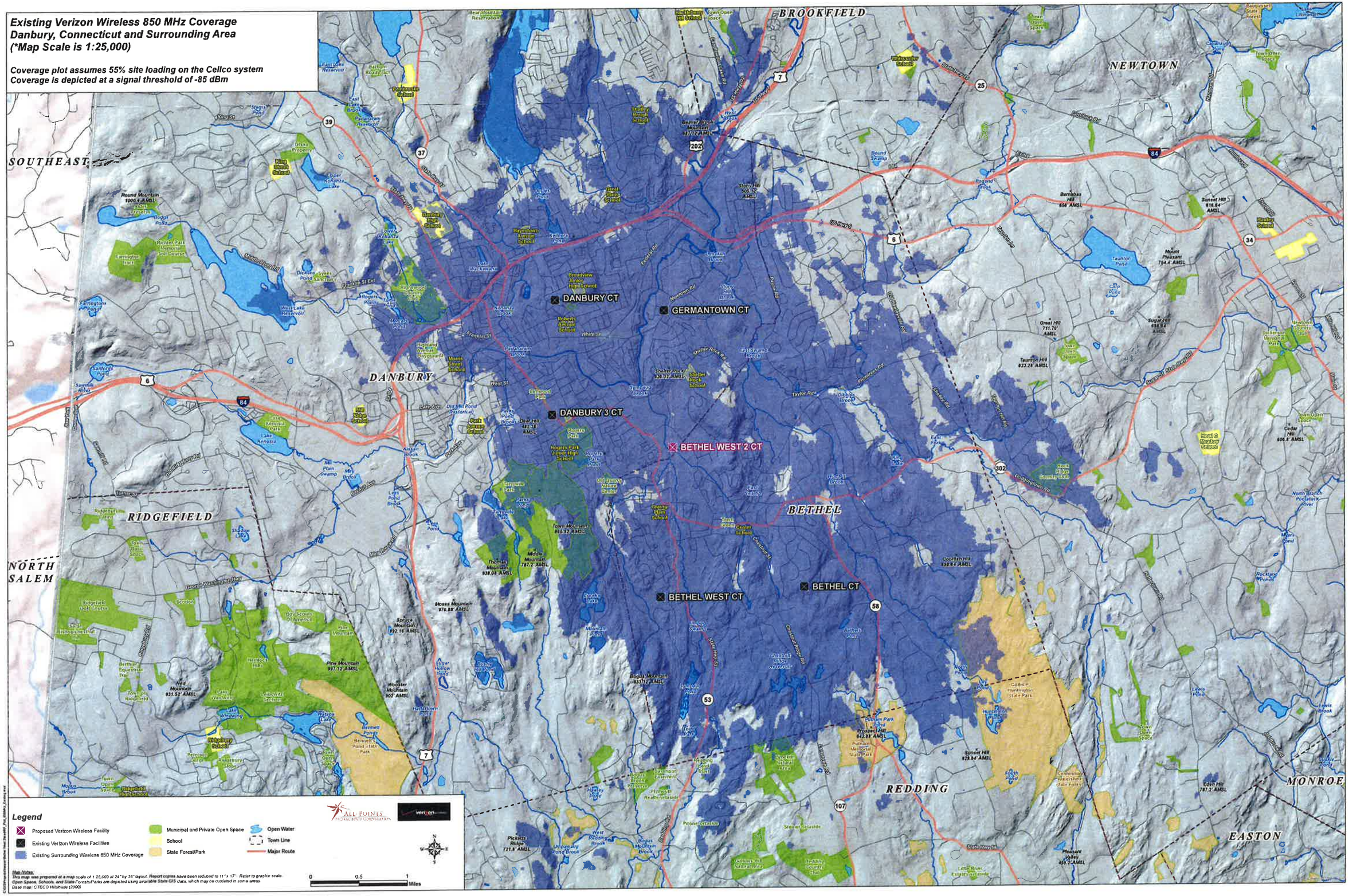
Proposed Verizon Wireless 700 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

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



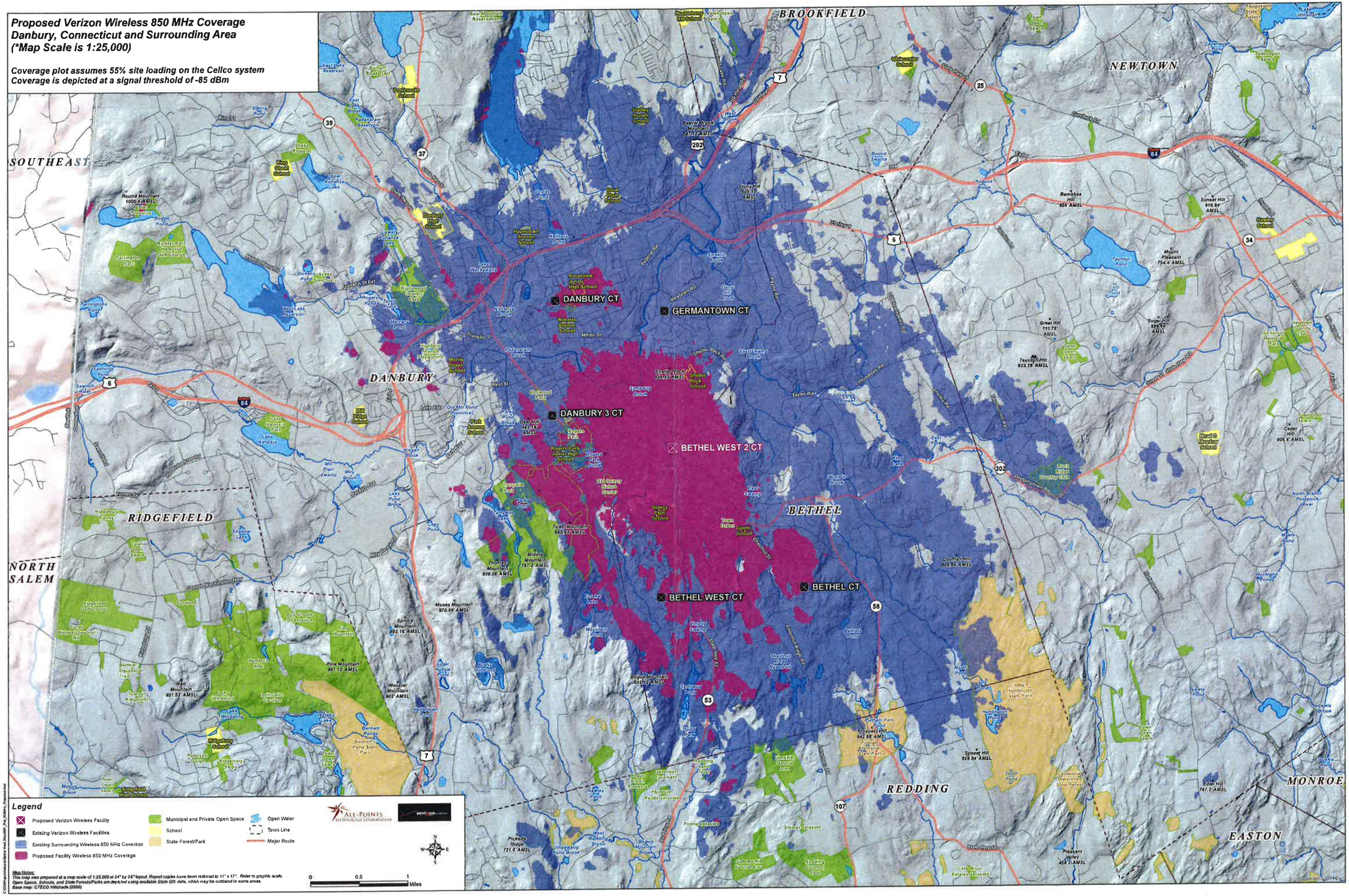
Existing Verizon Wireless 850 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

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



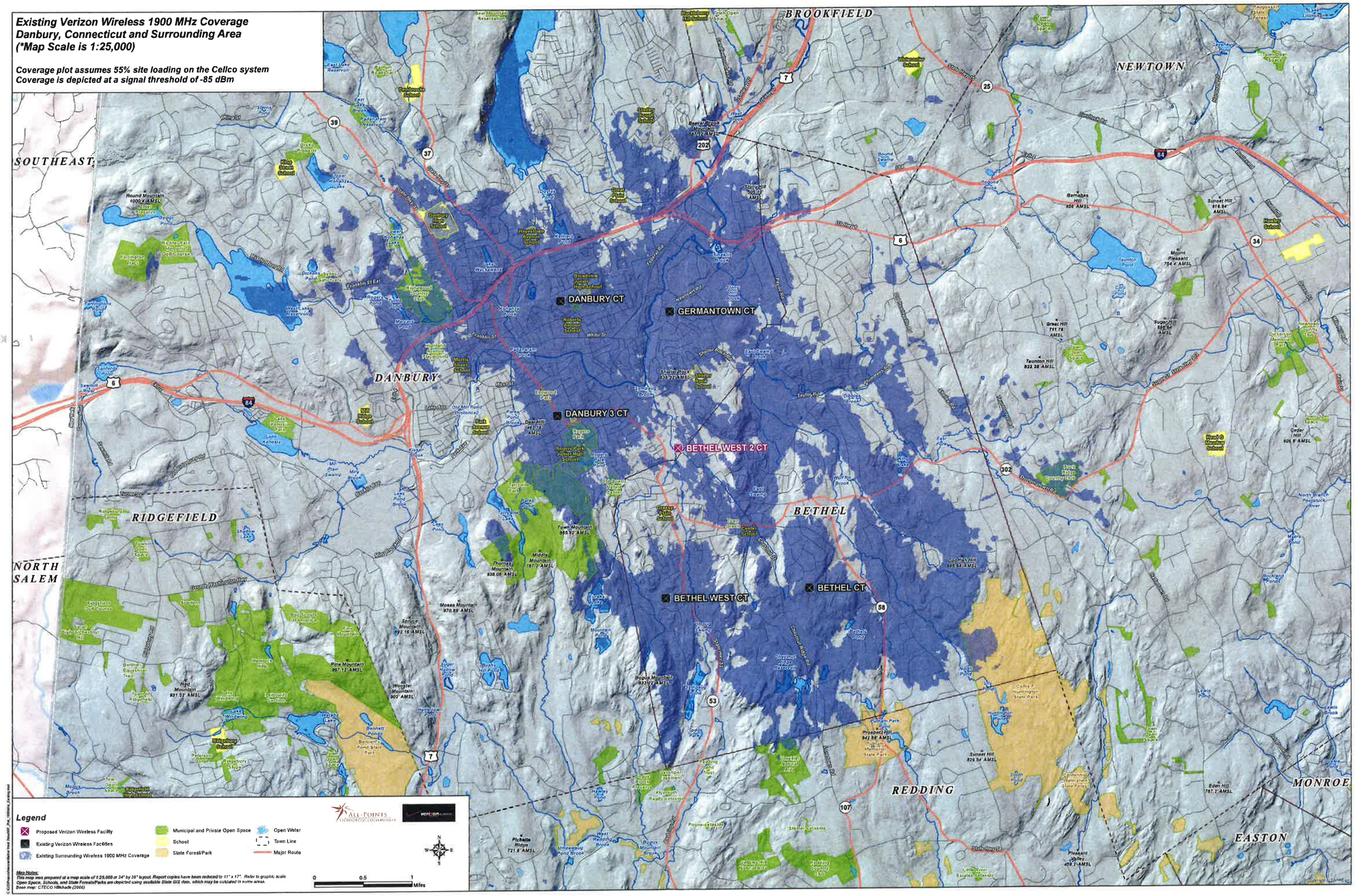
Proposed Verizon Wireless 850 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

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



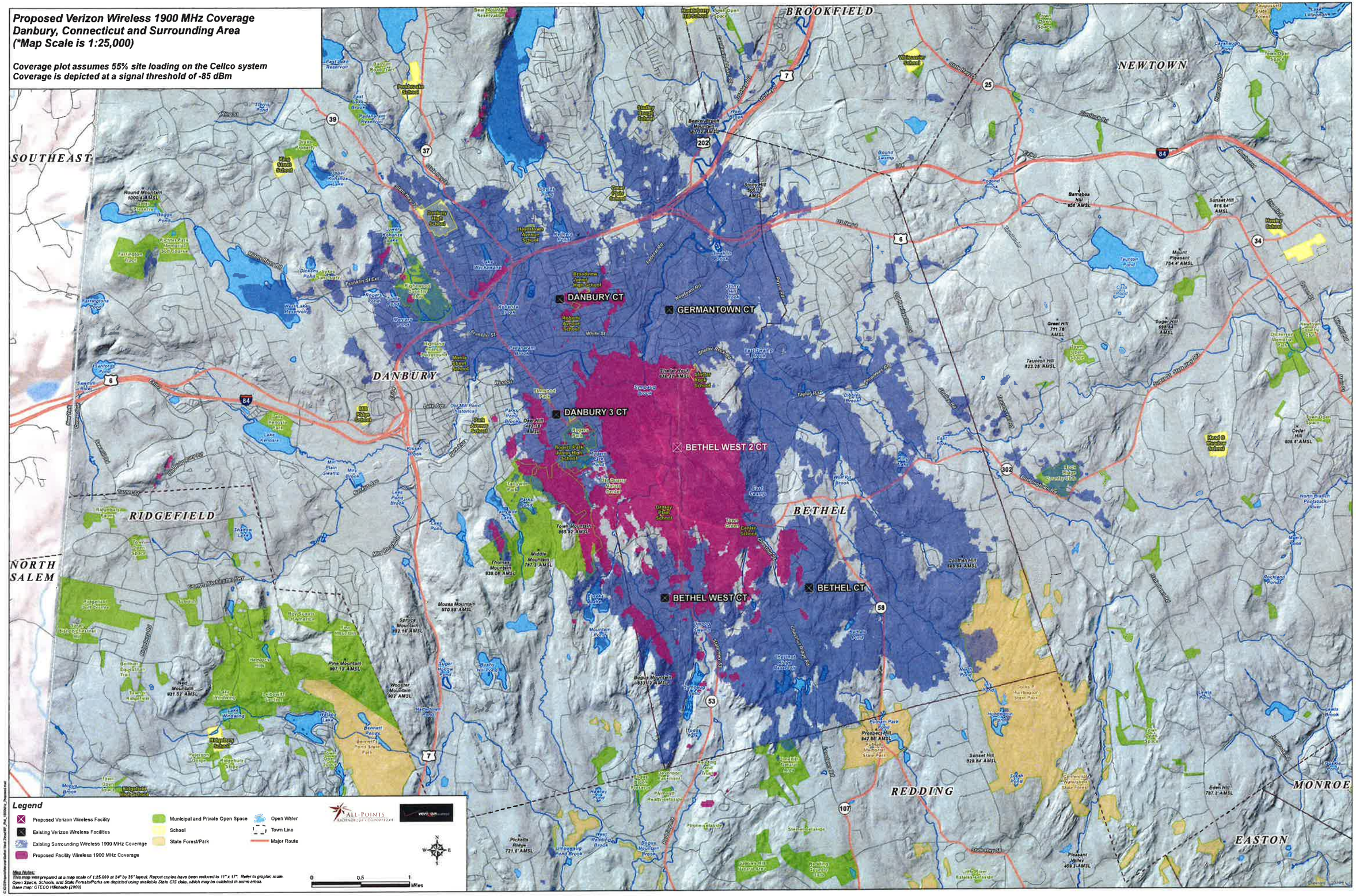
Existing Verizon Wireless 1900 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

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



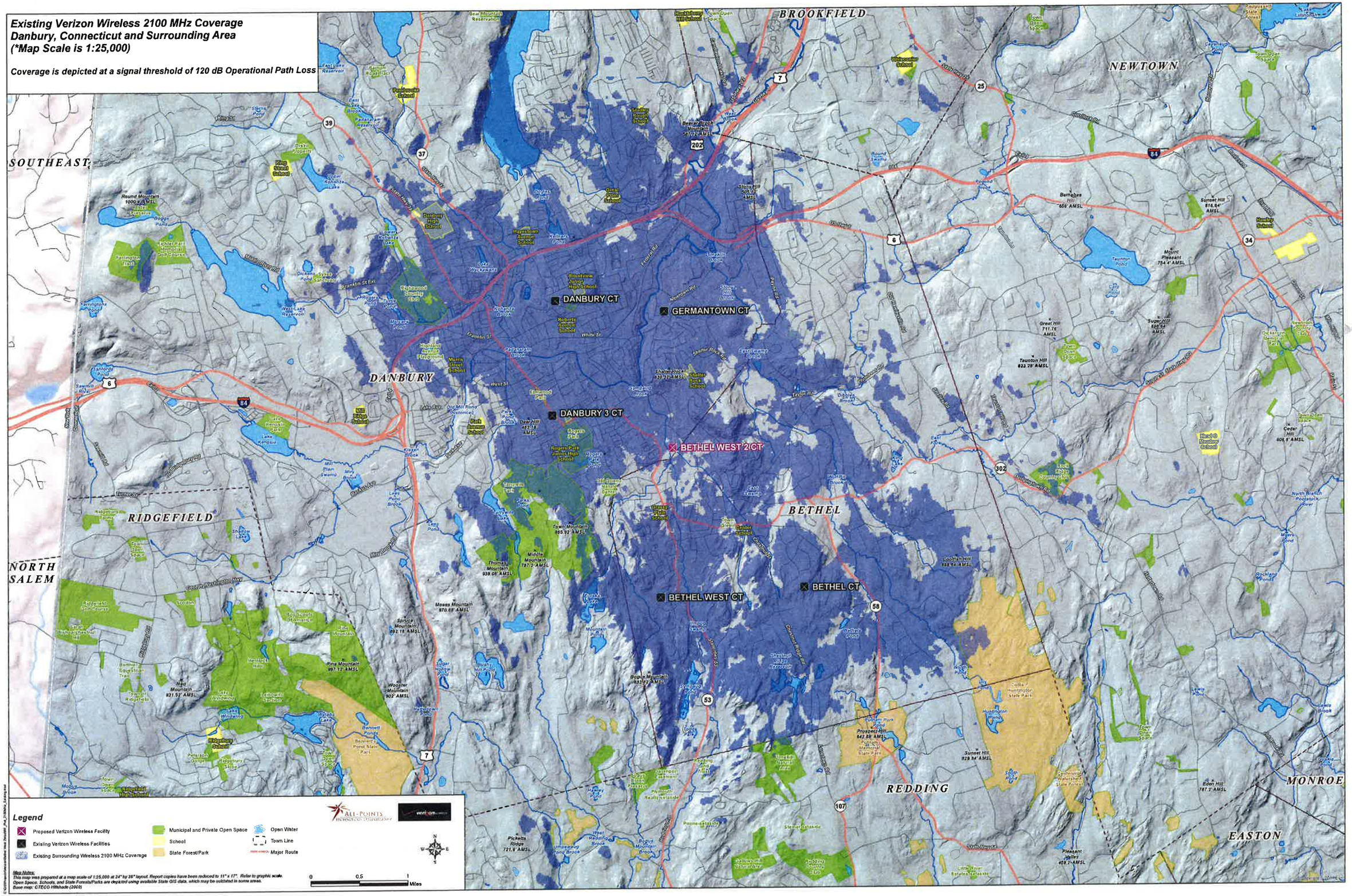
Proposed Verizon Wireless 1900 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

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



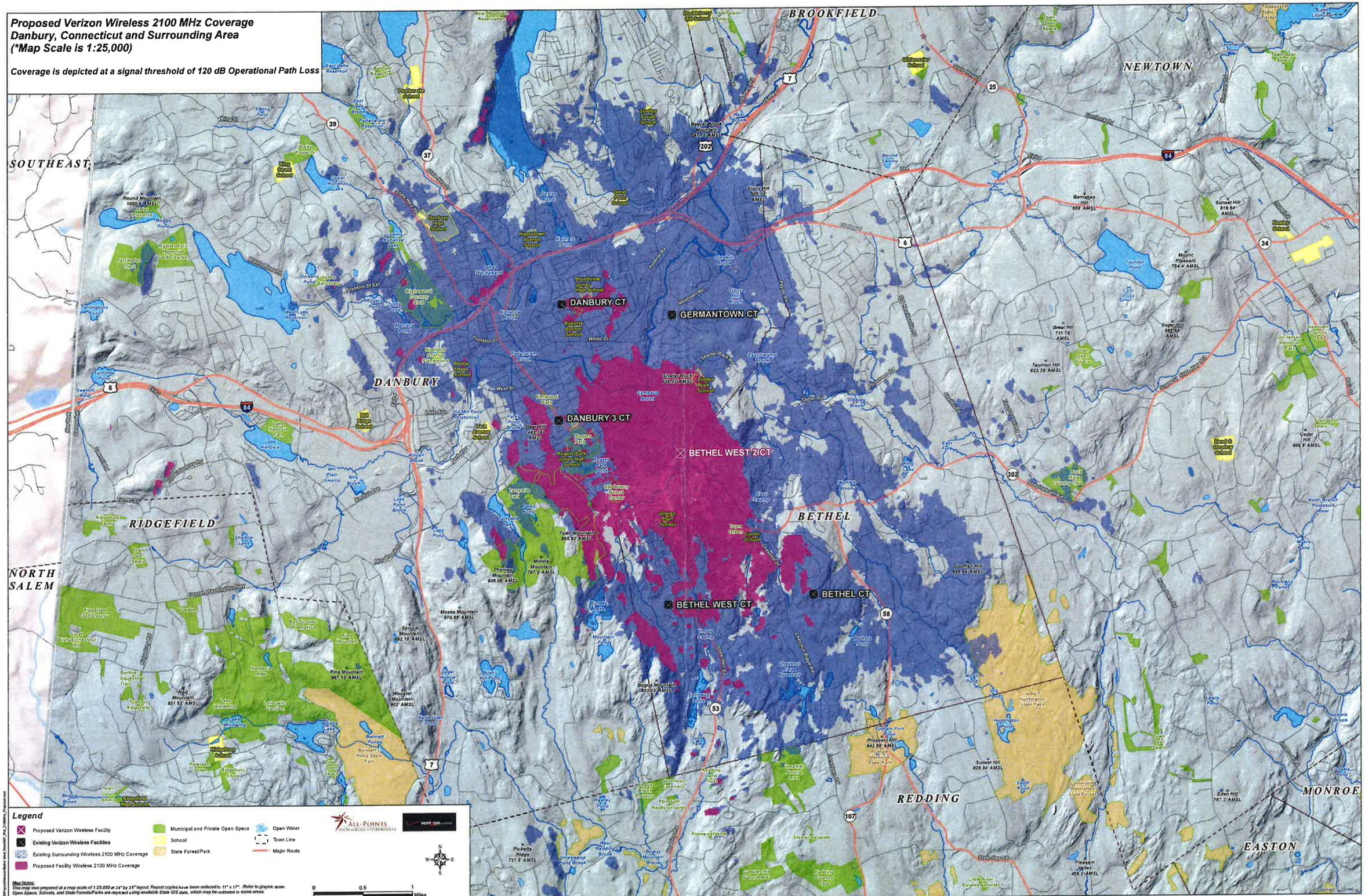
Existing Verizon Wireless 2100 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

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



Proposed Verizon Wireless 2100 MHz Coverage
Danbury, Connecticut and Surrounding Area
(*Map Scale is 1:25,000)

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



ATTACHMENT 2

Cellco Partnership

d.b.a. verizon wireless

WIRELESS COMMUNICATIONS FACILITY

BETHEL W2
15 GREAT PASTURE ROAD
DANBURY, CT 06810

SITE DIRECTIONS

FROM: 99 EAST RIVER DRIVE, EAST HARTFORD, CONNECTICUT **TO:** 15 GREAT PASTURE ROAD, DANBURY, CONNECTICUT

1. Head NORTHEAST on E RIVER DR toward DARLIN ST	0.3 mi.
2. Turn LEFT to stay on E RIVER DR	0.08 mi
3. Take the 1st LEFT onto CONNECTICUT BLVD	0.1 mi.
4. Turn LEFT to merge onto I-84	54.2 mi
5. Merge onto NEWTOWN RD	1.7 mi.
6. Turn LEFT onto OLD SHELTER ROCK RD	0.6 mi.
7. OLD SHELTER RD becomes CROSS ST	0.2 mi.
8. Turn LEFT onto SHELTER ROCK RD	0.04 mi.
9. Turn SLIGHT RIGHT onto SHELTER ROCK LN	0.4 mi.
10. Turn LEFT onto GREAT PASTURE RD	0.2 mi.

GENERAL NOTES

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

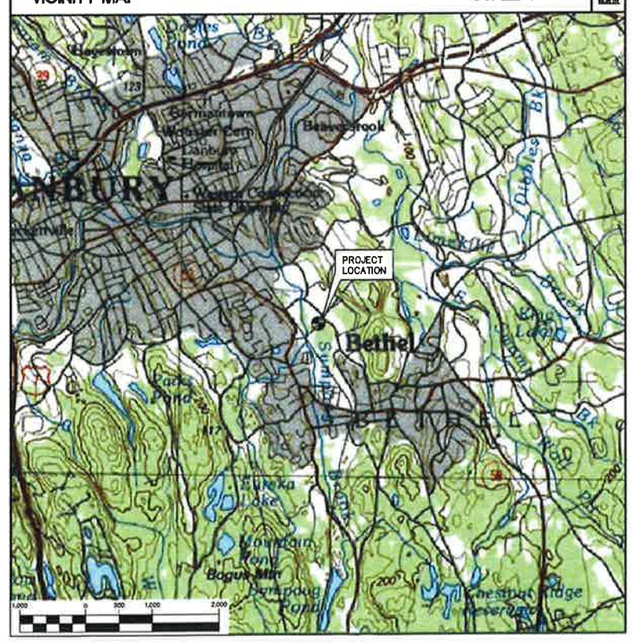
SITE INFORMATION

THE SCOPE OF WORK SHALL INCLUDE:

1. THE CONSTRUCTION OF A 50'x50' FENCED WIRELESS COMMUNICATIONS COMPOUND.
2. A TOTAL OF UP TO TWELVE (12) DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED AT A CENTERLINE ELEVATION OF 120'-0"± AGL ON A 120'-0"± PROPOSED STEEL MONOPOLE TOWER.
3. POWER AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND EXISTING UTILITY DEMARCS LOCATED ON OR ADJACENT TO THE SUBJECT PROPERTY, TO THE PROPOSED UTILITY BACKBOARD LOCATED ADJACENT TO THE PROPOSED FENCED COMPOUND. FINAL DEMARC LOCATION AND UTILITY ROUTING TO PROPOSED BACKBOARD WILL BE VERIFIED/DETERMINED BY LOCAL UTILITY COMPANIES. UTILITIES WILL BE ROUTED UNDERGROUND FROM UTILITY BACKBOARD TO THE PROPOSED NOMINAL 12'x26' WIRELESS EQUIPMENT SHELTER LOCATED WITHIN FENCED COMPOUND AREA.
4. FINAL DESIGN FOR TOWER AND ANTENNA MOUNTS SHALL BE INCLUDED IN THE D&M PLANS.
5. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 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.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NAME:	BETHEL W2
SITE ADDRESS:	15 GREAT PASTURE ROAD DANBURY, CT 06810
PROPERTY OWNER:	EPPOLITI INDUSTRIAL REALTY INC. 37 DANBURY ROAD #203 RIDGEFIELD, CT 06877
LESSEE/TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
CONTACT PERSON:	SANDY CARTER CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
TOWER COORDINATES:	LATITUDE 41°-22'-58.80" LONGITUDE 73°-25'-20.0" GROUND ELEVATION: 360'± A.M.S.L. PROVIDED BY VERIZON WIRELESS.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
C-1	SITE LOCATION PLAN	0
C-2	COMPOUND PLAN, ELEVATION AND ANTENNA MOUNTING CONFIGURATION	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	02/13/15	KAW	DMD	CSC TECH REPORT PLANS
0	02/12/15	KAW	DMD	CSC TECH REPORT PLANS - ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

Cellco Partnership d.b.a. verizon wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

Cellco Partnership d/b/a Verizon Wireless
WIRELESS COMMUNICATIONS FACILITY
BETHEL W2
15 GREAT PASTURE ROAD
DANBURY, CT 06810

DATE: 02/11/15
SCALE: AS NOTED
JOB NO. 14216.000

TITLE SHEET

T-1

Sheet No. 1 of 3

PROPOSED CELLCO PARTNERSHIP GAS METER TO BE INSTALLED IN VACANT SPOT NEXT TO EXISTING GAS METERS AT GRADE.

PROPOSED CELLCO PARTNERSHIP NATURAL GAS UTILITY TO BE ROUTED UNDERGROUND FROM PROPOSED CELLCO PARTNERSHIP GAS METER TO THE PROPOSED CELLCO PARTNERSHIP EQUIPMENT SHELTER.

EXISTING CTDEEP DIG RESTRICTED AREA, TYP.

EXISTING PAVED PARKING AREA

GREAT PASTURE ROAD

EXISTING BUILDING

EXISTING BUILDING

20'

EXISTING CL&P UTILITY POLE #1979.

PROPOSED CELLCO PARTNERSHIP 20' WIDE ACCESS/UTILITY EASEMENT ALONG EXISTING PAVED DRIVE.

EXISTING PAVED DRIVE.

1 C-2

EXISTING TREE LINE, TYP.

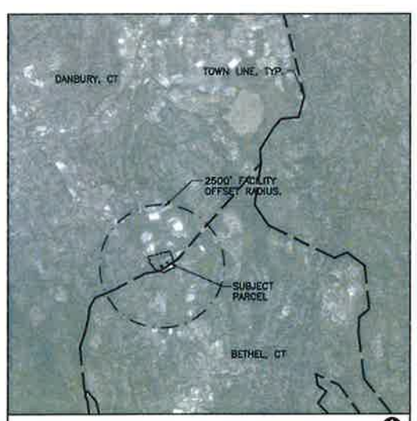
EXISTING PROPERTY LINE, TYP.

APPROXIMATE TOWN LINE DANBURY
APPROXIMATE TOWN LINE BETHEL

PROPOSED CELLCO PARTNERSHIP TELCO AND ELECTRIC UTILITY TO BE ROUTED UNDERGROUND FROM CL&P UTILITY POLE #1979 TO THE PROPOSED CELLCO PARTNERSHIP COMPOUND.

EXISTING TOWN LINE, TYP.

PARCEL ACREAGE IS 14.0 ACRES



MUNICIPALITY NOTIFICATION LIMIT MAP

1 C-1 SITE LOCATION PLAN
SCALE: 1"=60'

APPROXIMATE NORTH

GRAPHIC SCALE
60 30 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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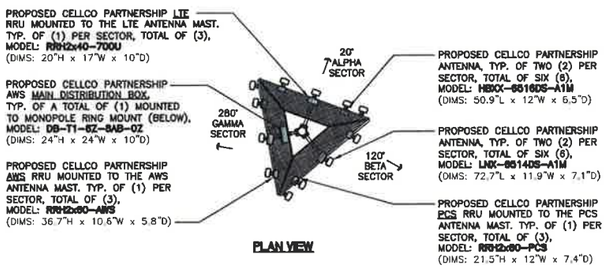
DANBURY, CT 06810

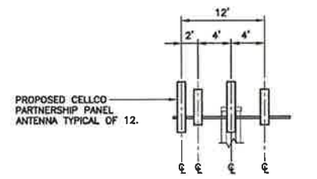
DATE: 02/11/15
SCALE: AS NOTED
JOB NO. 14215.000

SITE LOCATION PLAN

C-1

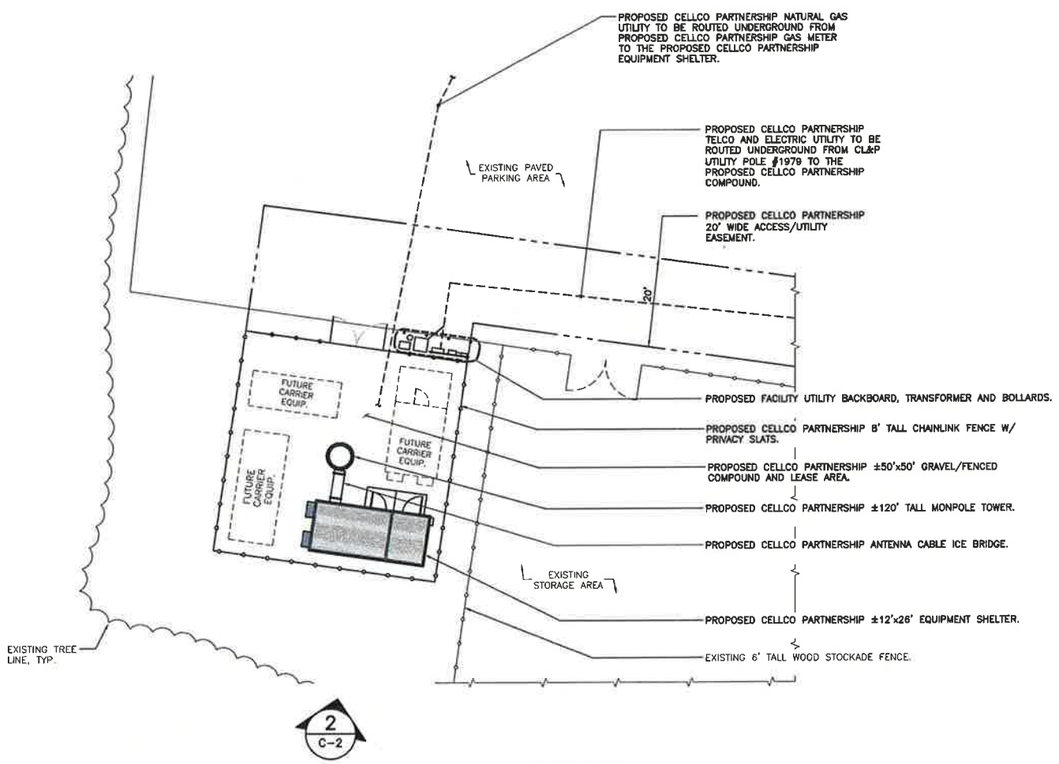
Sheet No. 2 of 3





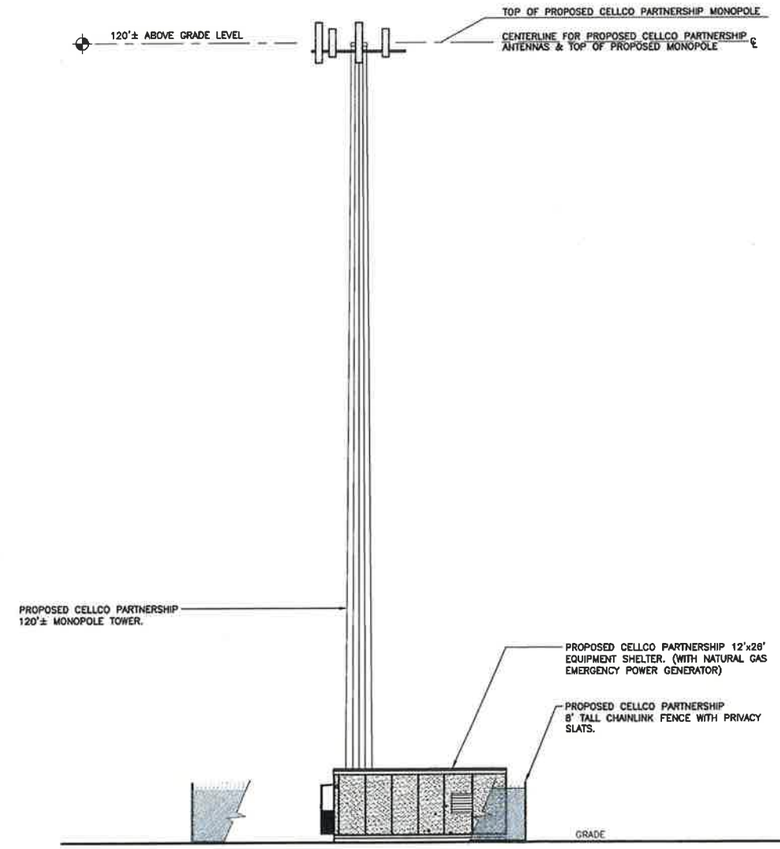
3 / C-2 ANTENNA MOUNTING CONFIGURATION

SCALE: 1/8" = 1'



1 / C-2 COMPOUND PLAN

SCALE: 1" = 15'



2 / C-2 SOUTH ELEVATION

SCALE: 1" = 10'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	02/23/15	KAW	DMD	CSC TECH REPORT PLANS
0	02/12/15	KAW	DMD	CSC TECH REPORT PLANS - ISSUED FOR CLIENT REVIEW

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BETHEL W2

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DANBURY, CT 06810

DATE: 02/11/15
SCALE: AS NOTED
JOB NO. 14216.000

COMPOUND PLAN, ELEVATION AND ANTENNA MOUNTING CONFIG.

C-2

Sheet No. 3 of 3

ATTACHMENT 3

ALL-POINTS TECHNOLOGY CORPORATION

PRELIMINARY VISUAL ASSESSMENT

To: Ms. Alexandria Carter
Verizon Wireless

Date: February 17, 2015

Re: Proposed Wireless Telecommunications Facility
15 Great Pasture Road
Danbury, 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 15 Great Pasture Road in Danbury, Connecticut (the "host Property"). The proposed Facility would consist of a 120-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.

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. For purposes of this preliminary evaluation, a conservative average tree canopy height of 50 feet was incorporated.

Information used in the model included LiDAR[1]-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 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 a necessary component for cross-checking the model's initial results.

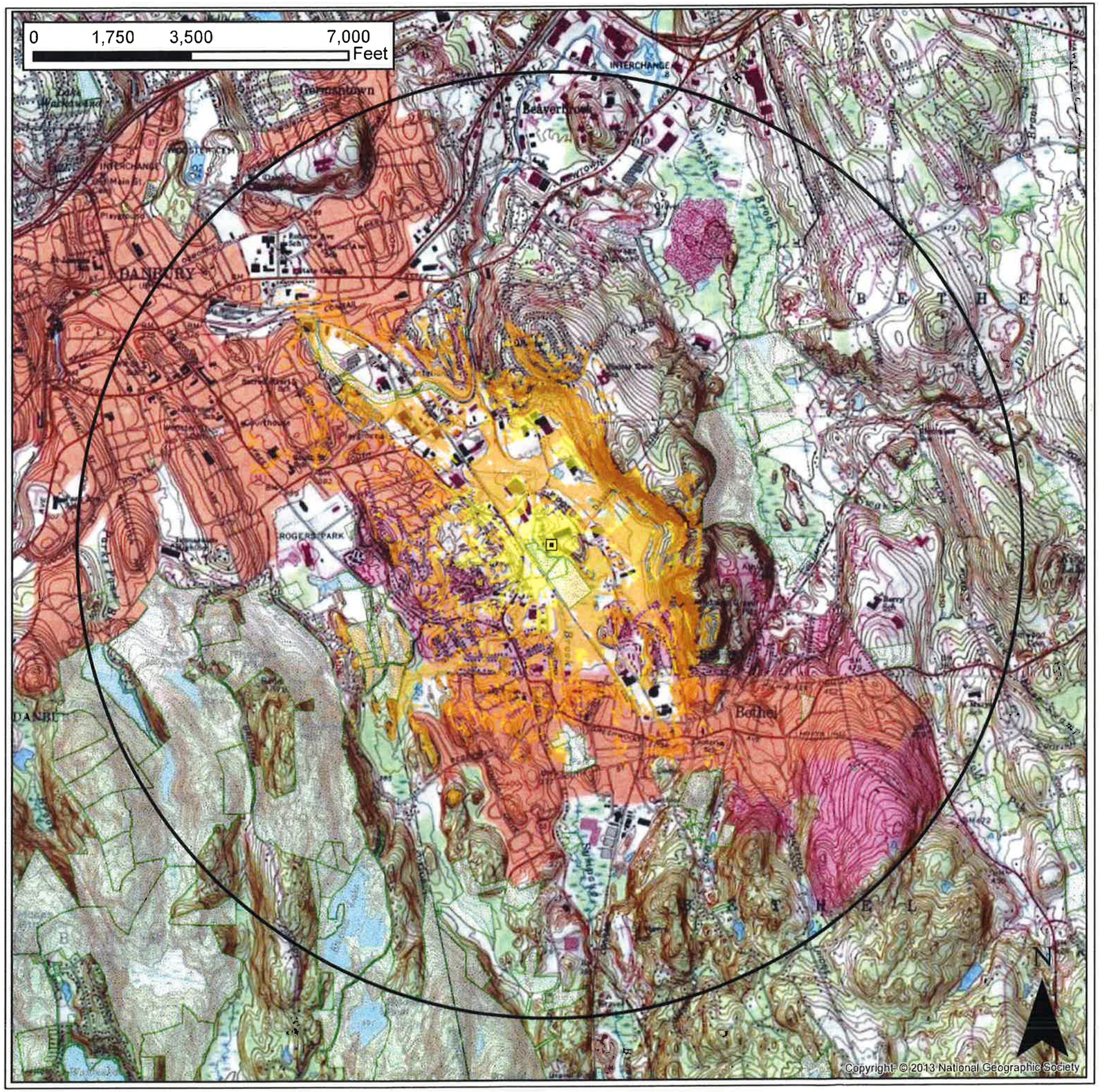
The preliminary viewshed mapping results indicate that year-round visibility appears to be confined to areas within less than 0.25 mile of the proposed Facility location and covering approximately 50 acres. Despite considerable commercial and residential development with the Study Area, tree cover is fairly dense, 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 when the leaves are off the trees could total an additional 410± acres of land.

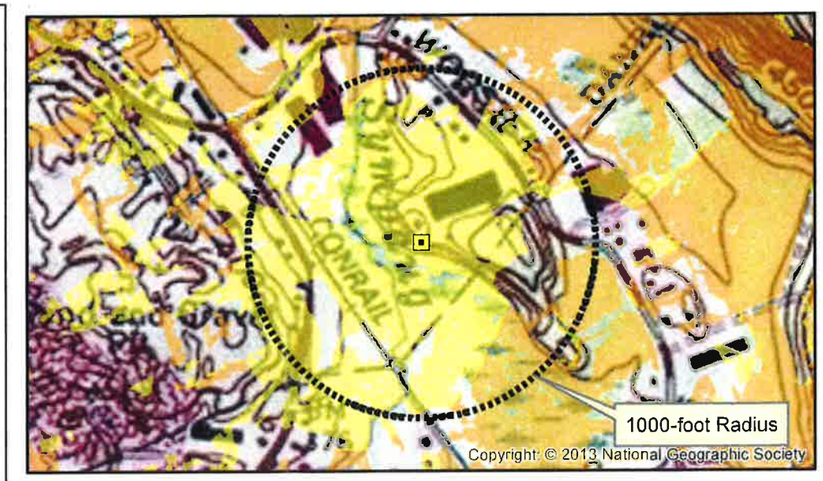
The map provides a preliminary basis for understanding the extent of visibility that may occur throughout the Study Area, but it does not address the character of those potential views. Note that the results of the computer model have not been field verified. The modest average tree height value of 50

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
15 Great Pasture Road, Danbury, CT

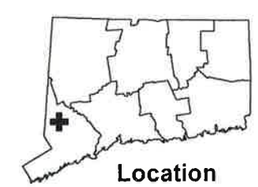
This Visibility Analysis map relies solely on computer modeling and interpretation of aerial photographs and topographic maps. The information presented herein has not been field verified.

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 120 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, Trails, County Recreation Areas, and Town Boundary data obtained from CTDEEP and the towns.

Legend

- Proposed Tower
- Predicted Seasonal Visibility (410 Acres)
- Predicted Year-Round Visibility (50 Acres)
- Towns
- 2-Mile Study Area
- Open Space



Location

verizon wireless

ALL-POINTS TECHNOLOGY CORPORATION

ATTACHMENT 4

Site Name: BETHEL WEST 2, CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW PCS	1970	15	310	4650	120	0.1161	1.0	11.61%
VZW Cellular	869	9	354	3186	120	0.0796	0.579333333	13.73%
VZW AWS	2145	1	1750	1750	120	0.0437	1.0	4.37%
VZW 700	746	1	602	602	120	0.0150	0.497333333	3.02%
Total Percentage of Maximum Permissible Exposure								32.74%

*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^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used.

ATTACHMENT 5

Cellco Partnership d/b/a Verizon Wireless
15 Great Pasture Road
Danbury, Connecticut

Bethel West 2 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 northeast Danbury 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 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 Bethel West 2 Facility

Cellco currently maintains five (5) wireless telecommunications facilities within approximately two (2) miles of the proposed Bethel West 2 Facility. These facilities are identified as Cellco's Danbury, Danbury 3, Bethel West, Bethel and Germantown cell sites. Cellco's Danbury facility consists of antennas on the roof of Danbury Hospital, 24 Hospital Avenue in Danbury. Cellco's Danbury 3 facility consists of antennas on the roof of a building at 30 Main Street in Danbury. Cellco's Bethel West facility consists of antennas at the 136-foot level on the 160-foot tower at 11 Francis Clarke Circle in Bethel. Cellco's Bethel facility consists of antennas at the 95-foot level on the existing 125-foot tower at 38 Sprint Hill Road in Bethel. Cellco's Germantown facility consists of antennas at the 90-foot level on the existing

96-foot tower at 48 Newtown Road in Danbury.

These existing facilities currently provide wireless service in the area around the proposed Bethel West 2 Facility location. Cellco's existing Bethel (Alpha sector antenna), Bethel West (Alpha sector antennas) and Danbury 3 (Beta sector antennas) are currently operating at or near their capacity limits, resulting in a significant reduction in reliable wireless service in the area. In addition, Cellco is experiencing significant gaps in wireless service in the area at its 1900 MHz and 2100 MHz frequencies. There are no other existing towers or other sufficiently tall structures available in the Bethel West 2 search 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 Bethel West 2 Search Area

The purpose of the proposed Bethel West 2 Facility is to provide some coverage relief at 1900 MHz and 2100 MHz frequencies and additional network capacity along portions of Routes 53 and 305 in the area, and to the surrounding industrial, commercial and residential land uses in northeast Danbury and northwest Bethel. (*See* attached Search Area Maps).

Sites Investigated

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

1. **15 Great Pasture Road, Danbury, CT:** Cellco entered into a lease agreement with the owner for this parcel, the Bethel West Facility.

2. **14U Paul Street, Bethel, CT:** This parcel was rejected because it is located in a flood zone associated with Sympaug Brook.

3. **1 Paul Street, Bethel, CT:** The property owner of this parcel was not interested in leasing space to Cellco for a tower site.

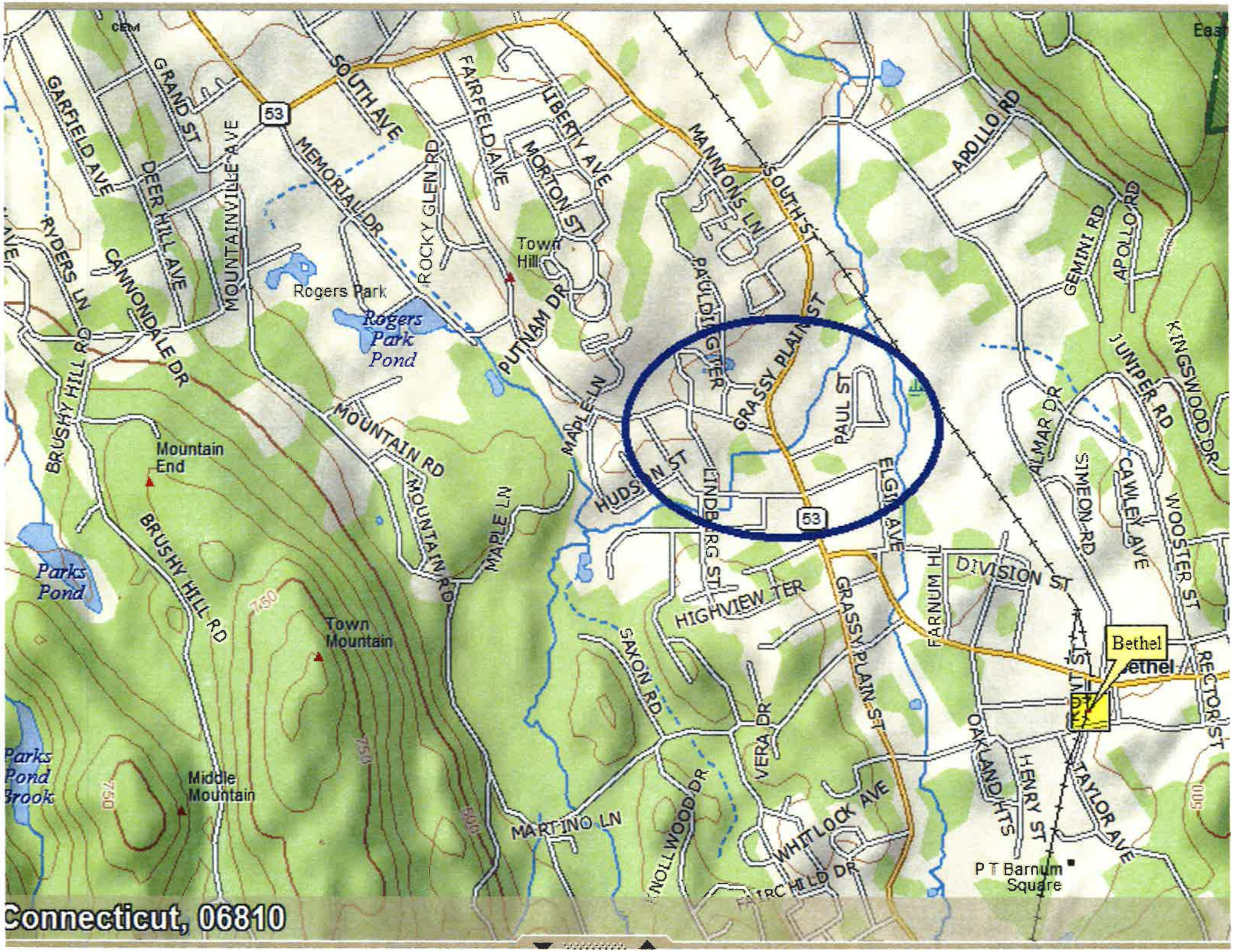
4. **5 Paul Street, Bethel, CT:** The property owner of this parcel was not interested in leasing space to Cellco for a tower site.

5. **Wooster Street, Lot 2, Bethel, CT:** This parcel is owned by the Town of Bethel and was rejected because it is located in an established residential area and contains significant wetland areas.

6. **31 Durant Avenue, Bethel, CT:** The property owner of this parcel was not interested in leasing space to Cellco for a tower site.

7. **41 Durant Avenue, Bethel, CT:** The property owner of this parcel was not interested in leasing space to Cellco for a tower site.

8. **11 Diamond Avenue, Bethel, CT:** The property owner of this parcel was not interested in leasing space to Cellco for a tower site.



GARFIELD AVE
GRAND ST
DEER HILL AVE
MOUNTAINVILLE AVE
RYDERS LN
CANNONDALE DR
BRUSHY HILL RD
SOUTH AVE
MEMORIAL DR
ROCKY GLEN RD
FAIRFIELD AVE
LIBERTY AVE
MORTON ST
MANNIONS LN
SOUTH ST
APOLLO RD
GEMINI RD
APOLLO RD
Town Hill
Rogers Park
Rogers Park Pond
PUTNAM DR
PAULDING TER
GRASSY PLAIN ST
PAUL ST
JUNIPER RD
KINGSWOOD DR
ALMAR DR
SIMEON RD
CAWLEY AVE
WOOSTER ST
MOUNTAIN RD
MAPLE LN
HUDSON ST
LINDBERG ST
ELGIN AVE
Mountain End
BRUSHY HILL RD
MOUNTAIN RD
MAPLE LN
Parks Pond
Town Mountain
HIGHVIEW TER
GRASSY PLAIN ST
FARNUM HL
DIVISION ST
Bethel
RECTOR ST
SAXON RD
VERA DR
OAKLAND HTS
HENRY ST
TAYLOR AVE
Parks Pond Brook
Middle Mountain
MARTINO LN
KNOLLWOOD DR
WHITLOCK AVE
FAIRCHILD DR
P T Barnum Square
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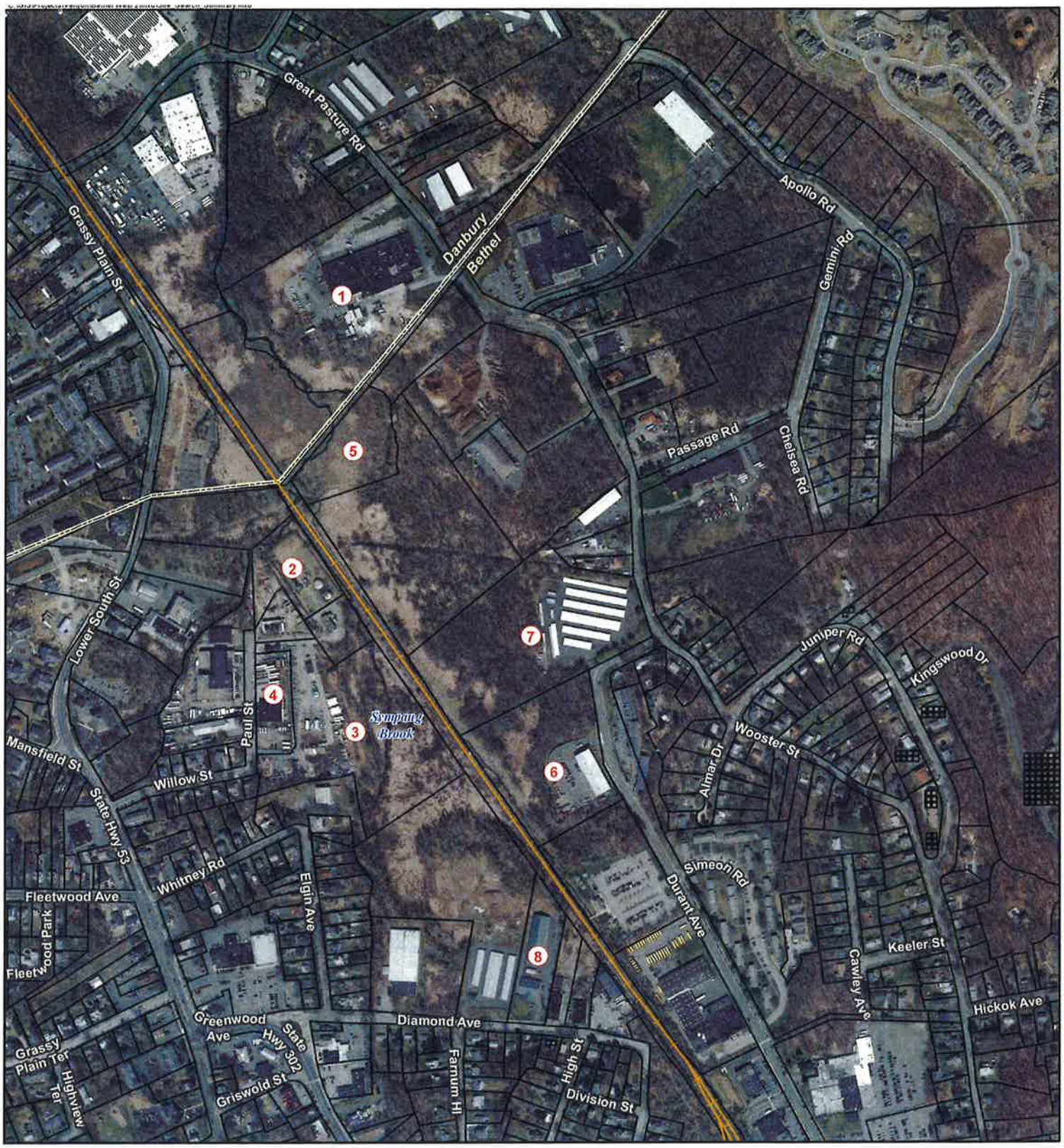

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5. Wooster Street, Lot 2, Bethel, CT
6. 31 Durant Avenue, Bethel, CT
7. 41 Durant Avenue, Bethel, CT
8. 11 Diamond Avenue, Bethel, CT

Legend

- Railroad
- Approximate Parcel Boundary (CTDEEP)
- Municipal Boundary

Site Search Summary Map

Proposed Wireless
Telecommunications Facility
Bethel West 2 CT
15 Great Pasture Road
Danbury, Connecticut

N W E S

600 300 0 600 Feet

1 in = 600 ft

Base Map Source: 2012 Aerial Photograph (CT ECO)
Map Date: February 2015

verizon wireless
ALL-POINTS