ALL-POINTS TECHNOLOGY CORPORATION

VISIBILITY ANALYSIS

LEBANON CENTER CT
917 EXETER ROAD
LEBANON, CT 06249

Prepared for:

Verizon Wireless
99 East River Drive
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Project Introduction

Cellco Partnership, d/b/a Verizon Wireless, is pursuing approval for the development of a new wireless communications facility ("Facility") at 917 Exeter Road in Lebanon, Connecticut (the "Host Property"). At the request of Verizon Wireless, All-Points Technology Corporation, P.C. ("APT") prepared this Visibility Analysis to evaluate the potential visual impacts associated with the proposed Facility from within a two-mile radius (the "Study Area").

Site Description and Setting

The Host Property consists of 38.17 acres of land that is part of the Lyman Memorial High School and Middle School complex which, in addition to the school structures, includes a wind turbine, lattice tower (housing municipal whip antennas), and several outbuildings and athletic fields. See *Figure 1 – Site Location Map.* The Facility Site is located in the southern portion of the Host Property and is currently undeveloped and wooded.

The proposed Facility would include a ±150-foot tall monopole, with appurtenances, surrounded by a fenced, 50-foot by 50-foot, gravel base equipment compound at an approximate ground elevation of 506 feet Above Mean Sea Level ("AMSL"). Verizon Wireless antennas would be installed at a centerline height approximately 10 feet below the top of the monopole while existing municipal whip antennas would be relocated at the top of the proposed monopole and rise to an elevation of ±171.75 feet above ground level ("AGL"). See *Figure 2 – Proposed Equipment Elevation Plan.*

A ±9.5-foot by ±16-foot elevated and covered steel equipment platform would be located within the fenced compound and contain all necessary electrical, telecom and power equipment. A propane fueled emergency back-up generator with a 1,000-gallon propane tank would also be located within the fenced compound. The proposed Facility

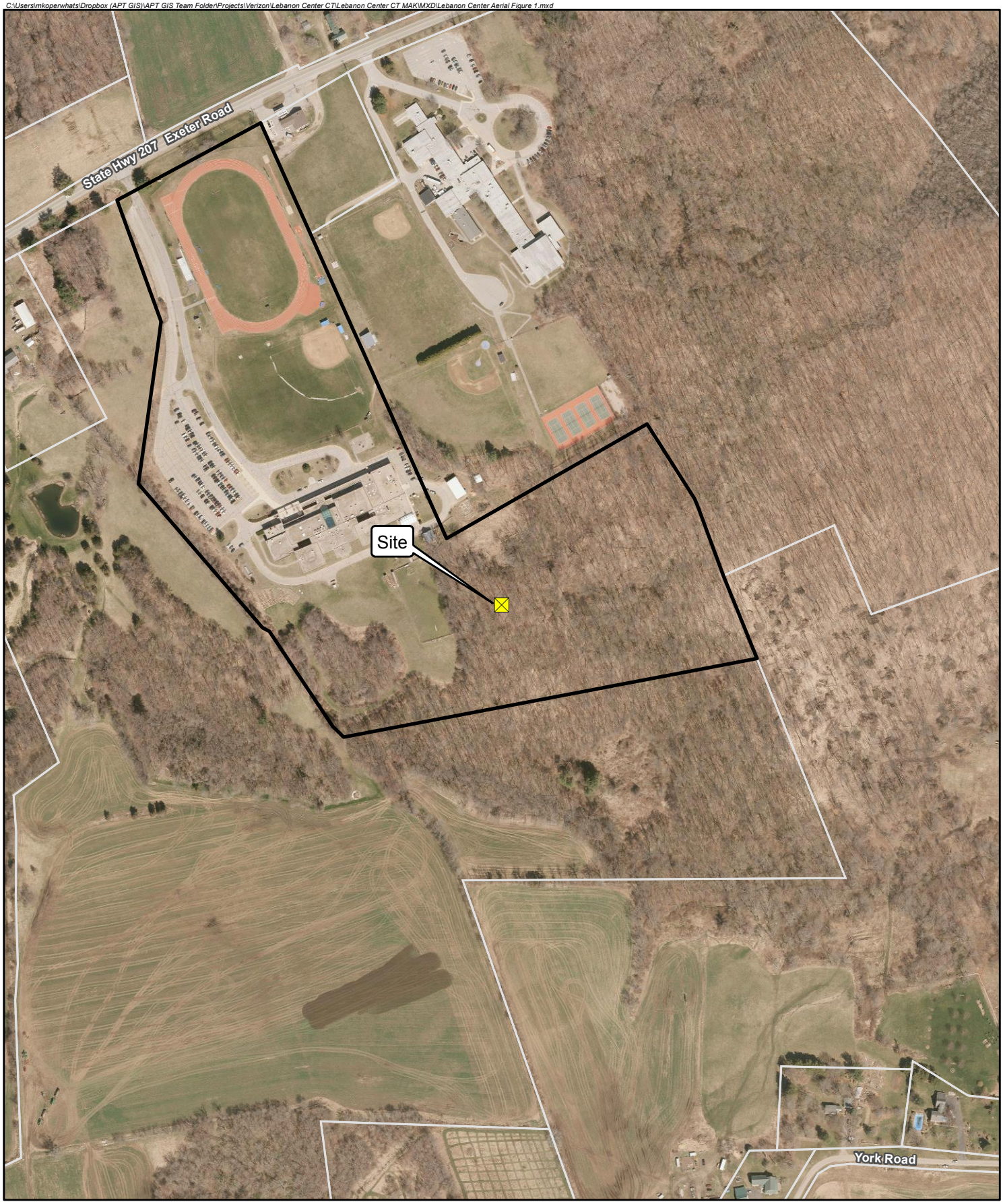
components and their locations are illustrated in *Figure 3 – Proposed Equipment Location Plan.*

Access to the Facility would be provided by a new ±12-foot wide gravel drive (±325 feet long) that splits off the existing High School's paved driveway. New underground utilities would be routed from the equipment compound and follow the proposed access road to an existing utility pole (SNET Pole #73) located on the High School's eastern side where connections would be made. Once the proposed Facility is constructed and municipal whip antennas relocated, the existing lattice tower would be removed.

Land use within the immediate vicinity of the Property is a mix of farmland, undeveloped wooded land and residences. The topography within the Study Area is undulating with rolling to steep hills stretching out in all directions. Ground elevations range from approximately 240 feet AMSL to 580 feet AMSL. The tree cover within the Study Area (consisting primarily of mixed deciduous hardwoods with interspersed stands of conifers) occupies approximately 5,335 acres of the 8,042-acre study area (±63%).

Methodology

APT used the combination of a predictive computer model and in-field analysis to evaluate the visibility associated with the proposed Facility on both a quantitative and qualitative basis. The predictive model provides a measurable assessment of potential visibility throughout the entire Study Area including private properties and other areas inaccessible for direct observations. The in-field analyses included a balloon float and reconnaissance of the Study Area to record existing conditions, verify results of the model, inventory visible and nonvisible locations, and provide photographic documentation from publicly accessible areas. A description of the procedures used in the analysis is provided below.



Legend

- Site
- Subject Property
- Approximate Parcel Boundary (CTDEEP GIS)

Map Notes:
Base Map Source: CT ECO 2016 Imagery
Map Scale:1 inch = 400 feet
Map Date: November 2017

N W E S

400 200 0 400 Feet

Figure 1 - Site Location Map

Proposed Wireless
Telecommunications Facility
Lebanon Center
917 Exeter Road
Lebanon, Connecticut

verizon

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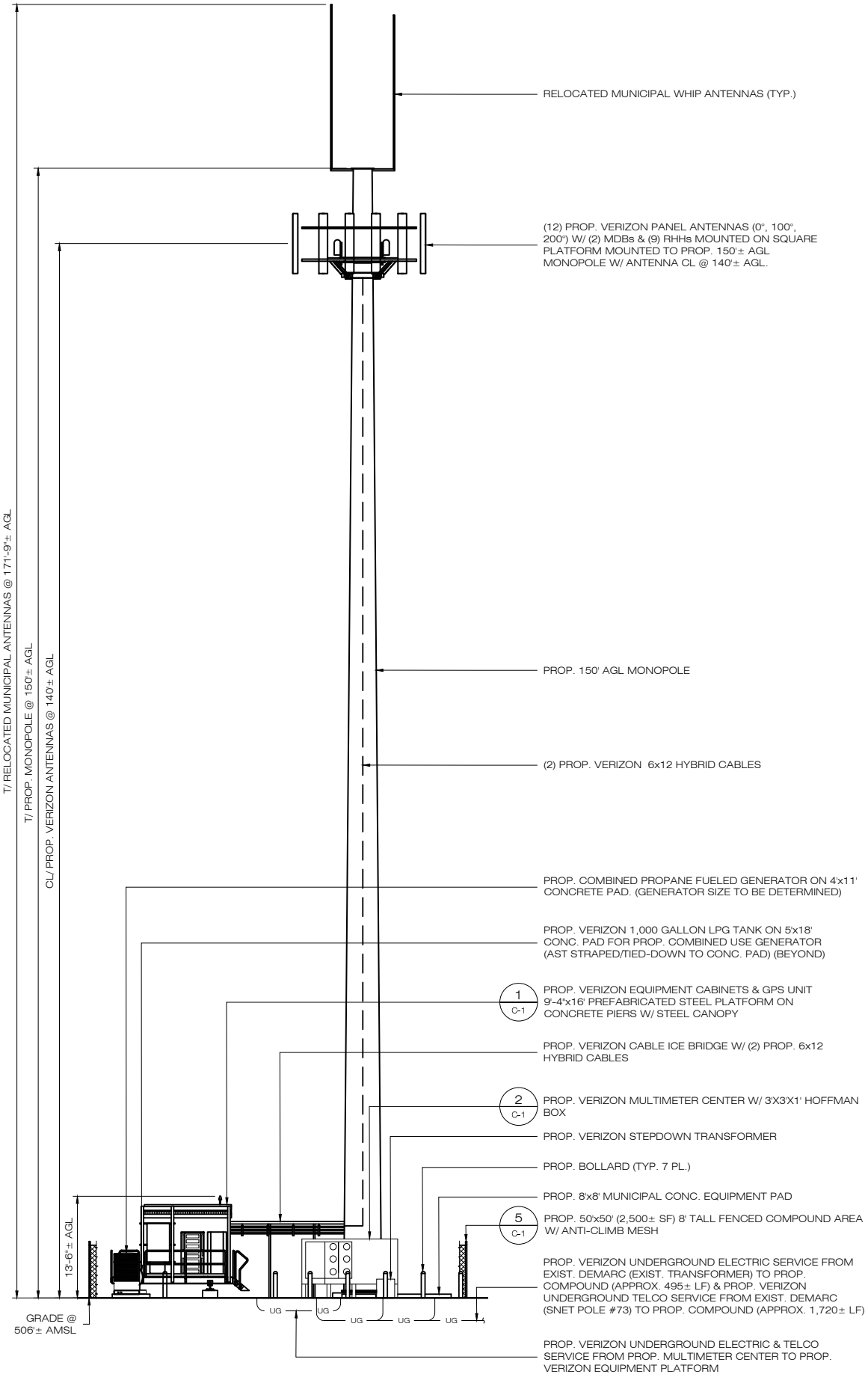
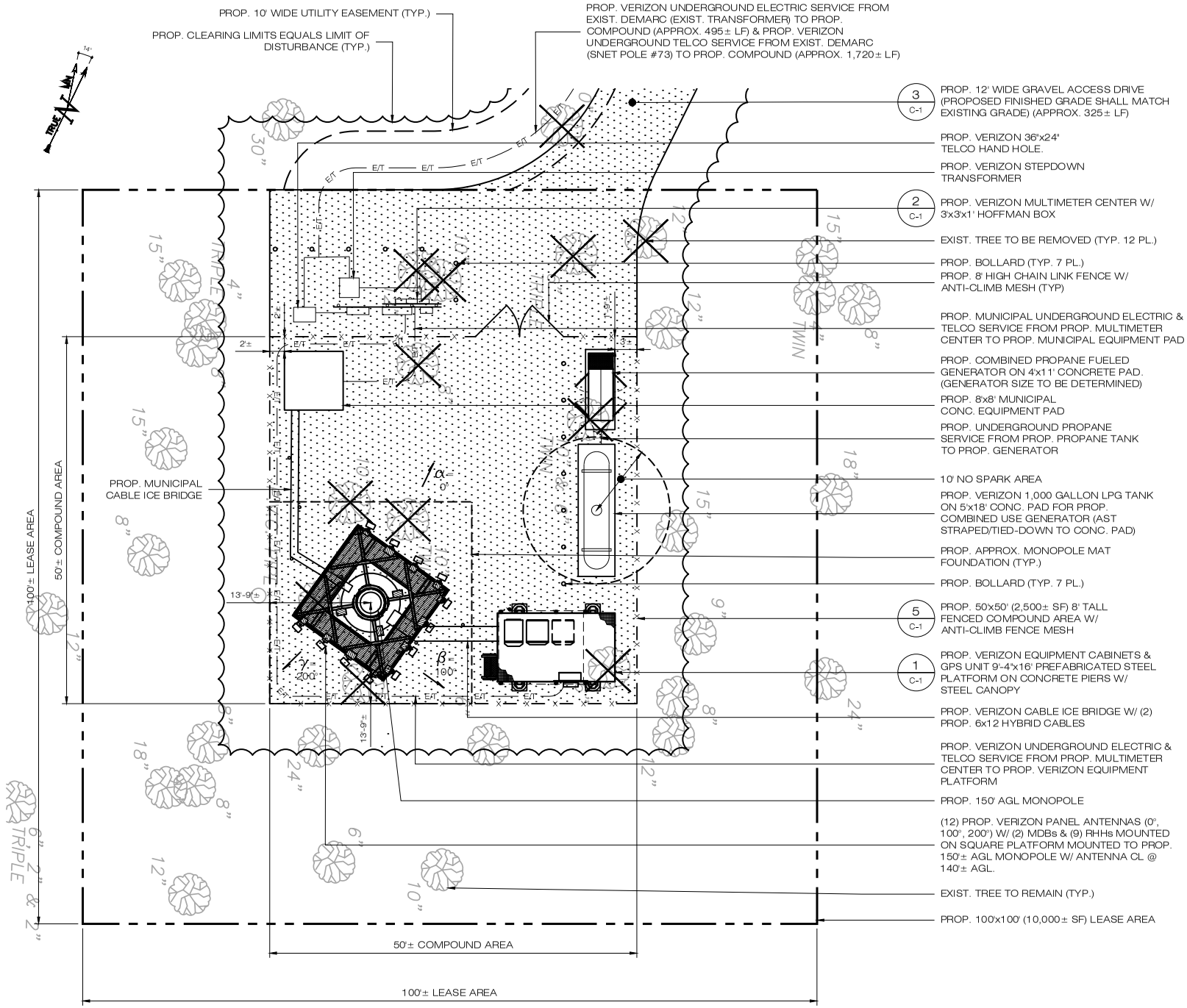


NORTH ELEVATION

FIGURE 2 - PROPOSED EQUIPMENT ELEVATION PLAN

Note: Not to Scale.



COMPOUND PLAN

FIGURE 3 - PROPOSED EQUIPMENT LOCATION PLAN

Note: Not to Scale.

Preliminary Computer Modeling

To conduct this assessment, a predictive computer model was developed specifically for this project using TerrSet, an image analysis program developed by Clark Labs at Clark University, to provide an estimation of potential visibility throughout the Study Area. The predictive model incorporates Project and Study Area-specific data, including the site location, its ground elevation and the proposed Facility height, as well as the surrounding topography, existing vegetation, and structures (which are the primary features that can block direct lines of sight).

Information used in the model included lidar[1]-based digital elevation data and customized land use data layers developed specifically for this analysis. Lidar is a remote-sensing technology that develops elevation data in meters by measuring the time it takes for laser light to return from the surface to the instrument's sensors. The varying reflectivity of objects also means that the returns can be classified based on the characteristics of the reflected light, normally into categories such as "bare earth," "vegetation," "road," or "building." The system is also designed to capture many more data points than older radar-based systems. Thus, the lidar-based digital elevation model ("DEM") has a much finer resolution and can also identify the different features of the landscape at the time that it was captured.

Viewshed analysis using lidar data provide a much more detailed view of the potential obstacles (especially trees and buildings), and therefore the viewshed modeling produces results with many smaller areas of visibility than those produced by using radar-based DEMs. The viewshed results are also checked against the most current aerial photographs

[1] Lidar (a word invented to mean "light radar") may also be referred to as LiDAR, 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.

in case significant changes (a new housing development, for example) have occurred since the time the lidar data was captured.

The lidar-based DEM created for this analysis represents topographic information for the state of Connecticut that was derived through the spatial interpolation of airborne LiDAR-based data collected in 2010 with a sub-meter horizontal resolution. In addition, multiple land use data layers were created from the Natural Resources Conservation Service (through the USDA) aerial photography (flown in 2016) using the image processing tools. TerrSet 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 grassland, impervious surface areas, surface water and other distinct land use features.

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 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 five (5) feet above the ground and the combination of intervening topography, trees and other vegetation, and structures. The Facility however may not necessarily be visible from all locations within those areas identified by the predictive model. 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 square 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 precisely modeled.

Once the data layers were entered, image processing tools were applied and overlaid onto USGS topographic base maps and aerial photographs to achieve an estimate of locations where the Facility might be visible.

Balloon Float and Field Reconnaissance

To supplement and fine tune the results of the computer modeling efforts, APT completed in-field verification activities consisting of a balloon float, vehicular and pedestrian reconnaissance, and photo-documentation.

A balloon float and field reconnaissance were conducted on November 9, 2017 to evaluate the visibility associated with the proposed Facility and to obtain photographs for use in this report. The balloon float consisted of raising two (2) approximately four-foot diameter, helium-filled balloons (one (1) red and one (1) white) tethered to string heights of ±150 feet and ±172 feet AGL, respectively, at the proposed Facility location. The "red balloon" represented the top of the proposed monopole while the "white balloon" was used to simulate the maximum height of the relocated municipal whip antennas. Weather conditions were favorable for the in-field activities, with calm winds (6 mph and below) and mostly sunny skies. Once the balloons were secured, APT conducted a Study Area reconnaissance by driving along the local and State roads and other publicly accessible locations to document and inventory where the balloons could be seen above/through the tree canopy. Visual observations from the reconnaissance were also used to evaluate the results of the preliminary visibility mapping and identify any discrepancies in the initial modeling.

Photographic Documentation

APT drove the public roads within the Study Area during the balloon float and photo-documented representative areas where the balloons were and were not visible. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology. Photographs were taken with a Canon EOS 6D digital camera body and Canon EF 24 to 105 millimeter ("mm") zoom lens. APT used a focal length of 50mm at all but one photo location to provide a consistent field of view to the extent possible. A 35mm focal length was used at photo location 18. In all cases, these focal lengths maintain proportional scale of the subjects in the photograph (the balloons) and corresponding simulation (the tower) relative to the surroundings.

Final Visibility Mapping

Information obtained during the field reconnaissance was incorporated into the mapping data layers, including observations of the balloon float, the photo locations, areas that experienced recent land use changes and those places where the initial model was found to over or under-predict visibility. Once the additional data was integrated into the model, APT re-calculated the visibility of the proposed Facility from within the Study Area to assist in producing the final viewshed map.

Photographic Simulations

Photographic simulations were generated to portray scaled renderings of the proposed Facility from 21 representative locations where the proposed Facility would be visible seasonally or year-round. Using field data, site plan information and 3-dimension (3D) modeling software, spatially referenced models of the Site area and Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs. The scale of the subjects in the

photograph (the balloons) and its corresponding simulation (the tower) are proportional to their surroundings.

For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When viewing in this format size, we believe it is important to provide the largest representational image while maintaining an accurate relation of sizes between objects within the frame of the photograph.

Photo-documentation of the balloon float and photo-simulations of the proposed Facility are presented in the attachment at the end of this report. The balloon float photos provide visual reference points for the approximate height and location of the proposed Facility relative to the scene; note the bottom of the red balloon represents the total height of the proposed monopole at ±150 feet AGL and the bottom of the white balloon represents the total height of the proposed relocated municipal whip antennas at ±172 feet AGL. The photo-simulations are intended to provide the reader with a general understanding of the different views that might be achieved of the Facility. It is important to consider that the publicly-accessible locations selected are typically representative of a "worst case" scenario. They were chosen to present unobstructed view lines (wherever possible), are static in nature and do not necessarily characterize the prevailing views from all locations within a given area. For example, moving a few feet in either direction from a specific photo location may significantly alter the view, including obscuring the Facility altogether. In several cases, a view of the Facility may be limited to the immediate area of the specific photo location presented herein.

Photograph Locations

The table below summarizes the photographs and simulations presented in the attachment to this report including a description of each location, view orientation, the distance from where the photo was taken relative to the proposed Facility and the general characteristics of that view. The photo locations are depicted on the photolog and viewshed maps provided as attachments to this report.

View	Location	Orientation	Distance to Site	View Characteristics
1	West Town Street	Southwest	±1.65 Miles	Year Round
2	Trumbull Highway	Southwest	±1.66 Miles	Year Round
3	West Town Street	Southwest	±1.55 Miles	Year Round
4	Exeter Road	Southwest	±1.42 Miles	Not Visible
5	Trumbull Highway	Southwest	±1.94 Miles	Not Visible
6	Trumbull Highway	West	±2.03 Miles	Not Visible
7	Goshen Hill Road	West	±0.90 Mile	Seasonal
8	Goshen Hill Road	West	±0.89 Mile	Year Round
9	Goshen Hill Road	Northwest	±0.74 Mile	Year Round
10	Goshen Hill Road	Northwest	±0.64 Mile	Year Round
11	Goshen Hill Road	Northwest	±0.84 Mile	Year Round
12	York Road	North	±0.46 Mile	Year Round
13	York Road	Northeast	±0.58 Mile	Seasonal
14	York Road	Northeast	±0.82 Mile	Year Round
15	York Road	Northeast	±0.94 Mile	Not Visible
16	Goshen Hill Road	Northeast	±1.08 Miles	Seasonal
17	Church Road	Northeast	±1.66 Miles	Not Visible
18	Goshen Hill Road*	Northeast	±1.80 Miles	Not Visible
19	Goshen Hill Road	Northeast	±1.85 Miles	Year Round
20	Lebanon Avenue	Northeast	±1.92 Miles	Year Round
21	Exeter Road	East	±1.42 Miles	Not Visible
22	North Street	Northeast	±1.10 Miles	Year Round
23	Exeter Road	East	±0.53 Mile	Year Round
24	Mack Road	Southeast	±0.69 Mile	Year Round
25	Mack Road at Exeter Road	Southeast	±0.36 Mile	Seasonal
26	Exeter Road	Southeast	±0.32 Mile	Year Round
27	Lebanon Middle School	South	±0.29 Mile	Year Round
28	Lyman Memorial High School	Southeast	±0.20 Mile	Year Round

** Photograph taken with a 35mm focal length.*

Visibility Analysis Results

Results of this analysis are graphically displayed on the visibility analysis maps provided in the attachment to the end of this report. The maps also include the locations of photographs and corresponding simulations.

Areas from where the Facility would be visible comprise of ±288 acres of year-round visibility and ±667 acres of seasonal visibility. Cumulatively, this equals less than 12% of the Study Area. The majority of this area consists of undeveloped agricultural land.

As seen on the visibility maps, the majority of year-round views would occur from areas within approximately 1.0 mile to the north and south of the Site where open fields allow for unobstructed views of the top portion of the proposed Facility[2]. More distant isolated views would extend to elevated locations to the northeast (see photos 1 through 3) and areas to the southwest.

Due to the undulating topography and vegetative cover lining roadways throughout the Study Area, seasonal views would generally be limited to locations within ±1.0 mile or less of the proposed Facility.

Based on the results of this analysis, most views from residential and publicly accessed locations are limited to the upper portions of the monopole only as the Facility's location does not allow for direct views of the proposed compound or access road beyond the immediate area of the High School. The proposed removal of 12 trees[3] within the access/compound area will not substantially affect the visibility of the Facility.

[2] Distances described in this section refer to the proposed monopole and Verizon Wireless antenna arrays. The relocated municipal whip antennas would only be visible at distances up to ±0.30 mile.

[3] Trees with 6" or greater diameter at breast height.

Proximity to Schools And Commercial Child Day Care Centers

Views would occur at both the Lebanon Middle School and Lyman Memorial High School which are located on the Host Property. No other schools or child day care centers are located within the 2-mile Study Area.

Limitations

The viewshed maps presented in the attachment to this report depict areas where the proposed 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 intervening topography. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating 2016 aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

The simulations provide a representation of the Facility under similar settings as those encountered during the balloon floats and reconnaissance. Views of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds); the location, angle and intensity of the sun; and the specific viewer location. Weather conditions on the day of the balloon float included partly cloudy skies.

ATTACHMENTS

PHOTO LOG

Legend

Site | Year-Round Visibility | Seasonal Visibility | Not Visible

N W E S

3,200 1,600 0 3,200 Feet

1 inch = 3,200 feet

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EXISTING

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**WEST TOWN STREET**	**50mm**	**SOUTHWEST**	**+/- 1.65 MILES**	**YEAR ROUND**

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PROPOSED

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**WEST TOWN STREET**	**50mm**	**SOUTHWEST**	**+/- 1.65 MILES**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**TRUMBULL HIGHWAY**	**50mm**	**SOUTHWEST**	**+/- 1.66 MILES**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**TRUMBULL HIGHWAY**	**50mm**	**SOUTHWEST**	**+/- 1.66 MILES**	**YEAR ROUND**

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**WEST TOWN STREET**	**50mm**	**SOUTHWEST**	**+/- 1.55 MILES**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**WEST TOWN STREET**	**50mm**	**SOUTHWEST**	**+/- 1.55 MILES**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**EXETER ROAD**	**50mm**	**SOUTHWEST**	**+/- 1.42 MILES**	**NOT VISIBLE**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**TRUMBULL HIGHWAY**	**50mm**	**SOUTHWEST**	**+/- 1.94 MILES**	**NOT VISIBLE**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**TRUMBULL HIGHWAY**	**50mm**	**WEST**	**+/- 2.03 MILES**	**NOT VISIBLE**

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EXISTING

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**GOSHEN HILL ROAD**	**50mm**	**WEST**	**+/- 0.90 MILE**	**SEASONAL**

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PROPOSED

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**GOSHEN HILL ROAD**	**50mm**	**WEST**	**+/- 0.90 MILE**	**SEASONAL**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**GOSHEN HILL ROAD**	**50mm**	**WEST**	**+/- 0.89 MILE**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**GOSHEN HILL ROAD**	**50mm**	**WEST**	**+/- 0.89 MILE**	**YEAR ROUND**

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EXISTING

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**GOSHEN HILL ROAD**	**50mm**	**NORTHWEST**	**+/- 0.74 MILE**	**YEAR ROUND**

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PROPOSED

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**GOSHEN HILL ROAD**	**50mm**	**NORTHWEST**	**+/- 0.74 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**GOSHEN HILL ROAD**	**50mm**	**NORTHWEST**	**+/- 0.64 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**GOSHEN HILL ROAD**	**50mm**	**NORTHWEST**	**+/- 0.64 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**GOSHEN HILL ROAD**	**50mm**	**NORTHWEST**	**+/- 0.84 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**GOSHEN HILL ROAD**	**50mm**	**NORTHWEST**	**+/- 0.84 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**YORK ROAD**	**50mm**	**NORTH**	**+/- 0.46 MILE**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**YORK ROAD**	**50mm**	**NORTH**	**+/- 0.46 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**YORK ROAD**	**50mm**	**NORTHEAST**	**+/- 0.58 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**YORK ROAD**	**50mm**	**NORTHEAST**	**+/- 0.58 MILE**	**SEASONAL**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**YORK ROAD**	**50mm**	**NORTHEAST**	**+/- 0.82 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**YORK ROAD**	**50mm**	**NORTHEAST**	**+/- 0.82 MILE**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	**YORK ROAD**	**50mm**	**NORTHEAST**	**+/- 0.94 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	**GOSHEN HILL ROAD**	**50mm**	**NORTHEAST**	**+/- 1.08 MILES**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

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PROPOSED

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	**GOSHEN HILL ROAD**	**50mm**	**NORTHEAST**	**+/- 1.08 MILES**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	**CHURCH ROAD**	**50mm**	**NORTHEAST**	**+/- 1.66 MILES**	**NOT VISIBLE**

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	**GOSHEN HILL ROAD**	**35mm**	**NORTHEAST**	**+/- 1.80 MILES**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

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PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	**GOSHEN HILL ROAD**	**50mm**	**NORTHEAST**	**+/- 1.85 MILES**	**YEAR ROUND**

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PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	**GOSHEN HILL ROAD**	**50mm**	**NORTHEAST**	**+/- 1.85 MILES**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**LEBANON AVENUE**	**50mm**	**NORTHEAST**	**+/- 1.92 MILES**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**LEBANON AVENUE**	**50mm**	**NORTHEAST**	**+/- 1.92 MILES**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
21	**EXETER ROAD**	**50mm**	**EAST**	**+/- 1.42 MILES**	**NOT VISIBLE**

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verizon

EXISTING

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
22	**NORTH STREET**	**50mm**	**NORTHEAST**	**+/- 1.10 MILES**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTOGRAPHED ON 11/9/2017

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
22	**NORTH STREET**	**50mm**	**NORTHEAST**	**+/- 1.10 MILES**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
23	**EXETER ROAD**	**50mm**	**EAST**	**+/- 0.53 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
23	**EXETER ROAD**	**50mm**	**EAST**	**+/- 0.53 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
24	**MACK ROAD**	**50mm**	**SOUTHEAST**	**+/- 0.69 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
24	**MACK ROAD**	**50mm**	**SOUTHEAST**	**+/- 0.69 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
25	**MACK ROAD AT EXETER ROAD**	**50mm**	**SOUTHEAST**	**+/- 0.36 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
25	**MACK ROAD AT EXETER ROAD**	**50mm**	**SOUTHEAST**	**+/- 0.36 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
26	**EXETER ROAD**	**50mm**	**SOUTHEAST**	**+/- 0.32 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
26	**EXETER ROAD**	**50mm**	**SOUTHEAST**	**+/- 0.32 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
27	**LEBANON MIDDLE SCHOOL**	**50mm**	**SOUTH**	**+/- 0.29 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
27	**LEBANON MIDDLE SCHOOL**	**50mm**	**SOUTH**	**+/- 0.29 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 11/9/2017

EXISTING

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	**LYMAN MEMORIAL HIGH SCHOOL**	**50mm**	**SOUTHEAST**	**+/- 0.20 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

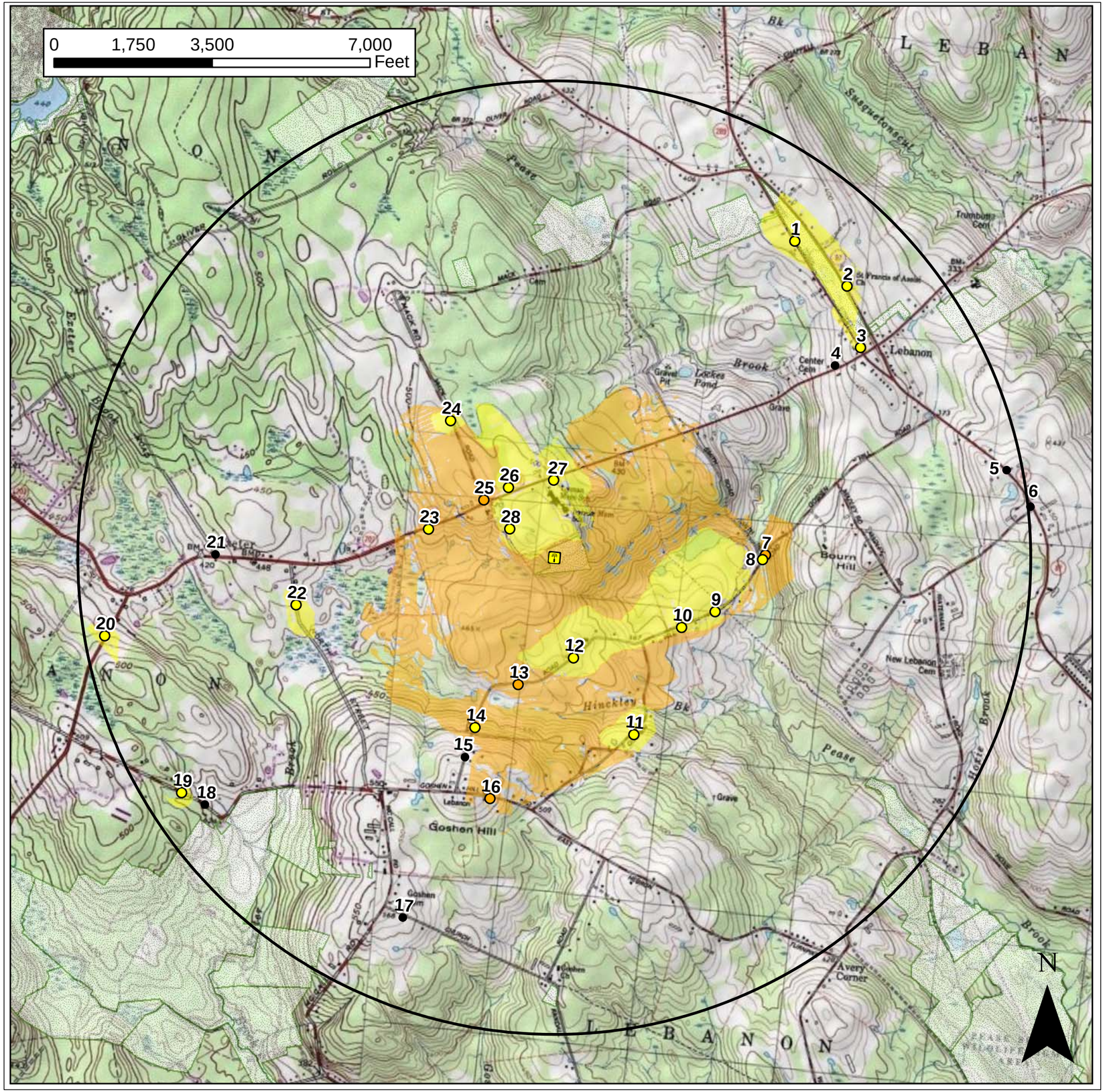
PHOTOGRAPHED ON 11/9/2017

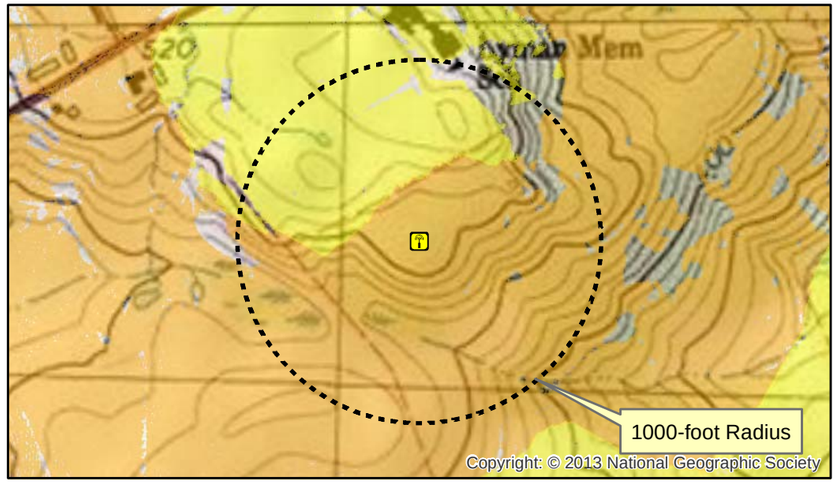
PROPOSED

PHOTO	LOCATION	FOCAL LENGTH	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	**LYMAN MEMORIAL HIGH SCHOOL**	**50mm**	**SOUTHEAST**	**+/- 0.20 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

verizon





Viewshed Map – Topo Base

Proposed Wireless Telecommunications Facility
917 Exeter Road, Lebanon, CT

Proposed facility height is 150 feet AGL.
Forest canopy height is derived from lidar data.
Study area encompasses a two-mile radius and includes 8,042 acres of land.
Map compiled 11/19/2017

Map information field verified by APT on 11/09/17.

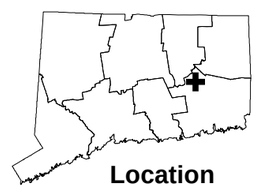
Only those resources located within the extent of the map are depicted. For a complete list of data sources consulted for this analysis, please refer to the Documentation Page.

Legend

- Proposed Tower

Photo Locations

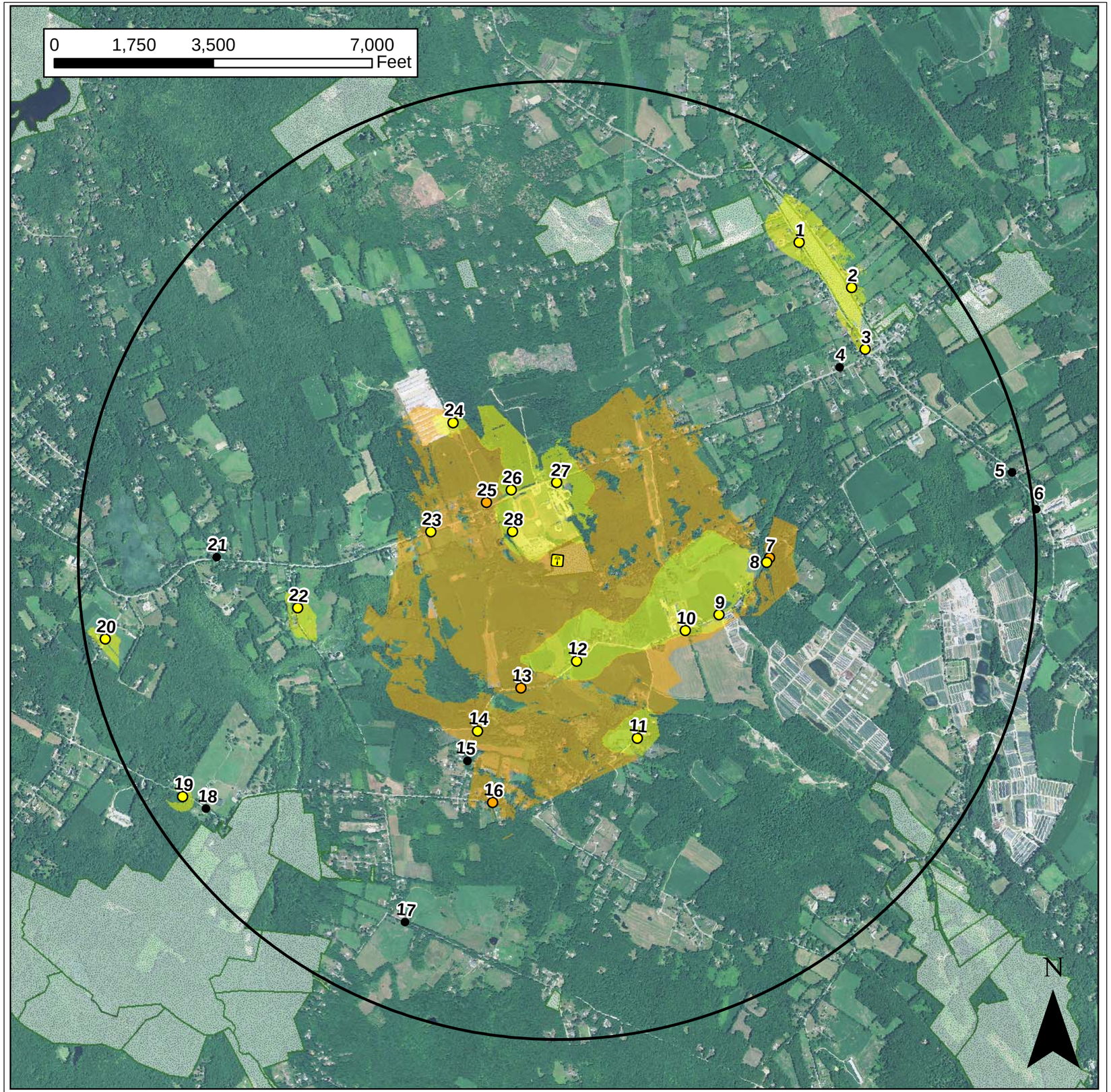
- Not Visible
- Seasonal Views
- Year-Round Views
- Predicted Seasonal Visibility (667 Acres)
- Predicted Year-Round Visibility (288 Acres)
- Towns
- 2-Mile Study Area
- Open Space
- Trails and Bike Paths

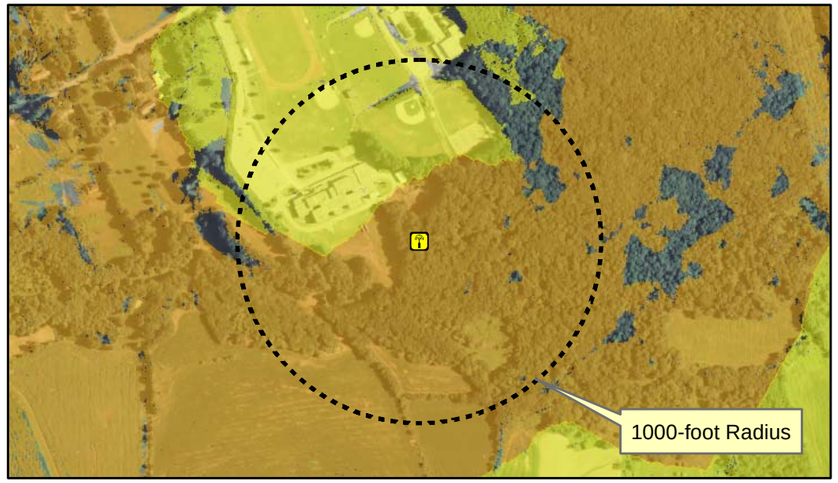


Location

verizon

ALL-POINTS TECHNOLOGY CORPORATION





Viewshed Map – Aerial Base

Proposed Wireless Telecommunications Facility
917 Exeter Road, Lebanon, CT

Proposed facility height is 150 feet AGL.
Forest canopy height is derived from lidar data.
Study area encompasses a two-mile radius and includes 8,042 acres of land.
Map compiled 11/19/2017

Map information field verified by APT on 11/09/17.

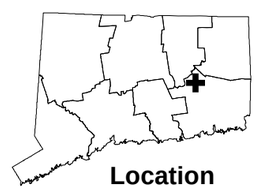
Only those resources located within the extent of the map are depicted. For a complete list of data sources consulted for this analysis, please refer to the Documentation Page.

Legend

- Proposed Tower

Photo Locations

- Not Visible
- Seasonal Views
- Year-Round Views
- Predicted Seasonal Visibility (667 Acres)
- Predicted Year-Round Visibility (288 Acres)
- Towns
- 2-Mile Study Area
- Open Space
- Trails and Bike Paths



Location

verizon

ALL-POINTS TECHNOLOGY CORPORATION

DOCUMENTATION

SOURCES CONSULTED FOR VIEWSHED MAPS
917 Exeter Road
Lebanon, Connecticut

Physical Geography / Background Data
Digital elevation model (DEM) derived from 2010 0.3-meter resolution lidar data collected and processed by NOAA, NRCS, and USDA and obtained from NOAA, which has a horizontal accuracy of 1 meter or less.

Forest areas are generated with TerrSet (Clark University) image processing from 2016 NRCS/NAIP digital orthophotos with 1-foot pixel resolution (leaf-on) and CLEAR 2016 0.34-foot (leaf-off)

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP and the towns

United States Geological Survey
*USGS topographic quadrangle maps – Columbia, Colchester, Willimantic, Fitchville (1984)
Department of Transportation data
^State Scenic Highways (2015)
Heritage Consultants
^Municipal Scenic Roads

Cultural Resources
Heritage Consultants
^National Register
^State Register of Historic Places
^Local Survey Data

Dedicated Open Space & Recreation Areas
Connecticut Department of Energy and Environmental Protection (DEEP)
*DEEP Property (May 2007)
*Federal Open Space (1997)
*Municipal and Private Open Space (1997)
*DEEP Boat Launches (1994)
Connecticut Forest & Parks Association
^Connecticut Walk Books East & West –
The Guide to the Blue-Blazed Hiking Trails of Western Connecticut Western Connecticut, 19th Edition, 2006.

Other
^ConnDOT Scenic Strips (based on Department of Transportation data)

*Available to the public in GIS-compatible format (some require fees)
^ Data not available to general public in GIS format. Reviewed independently and, where applicable, GIS data later prepared specifically for this Study Area.

NOTE Not all the sources listed above appear on the Viewshed Maps. Only those features within the scale of the graphic are shown.

LIMITATIONS
Viewshed analysis conducted using Clark University's TerrSet. The visibility analysis map(s) presented in this report depict areas where the proposed 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 intervening topography, tree canopy and structures. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating the lidar DEM, 2016 digital aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties beyond the host Property was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.