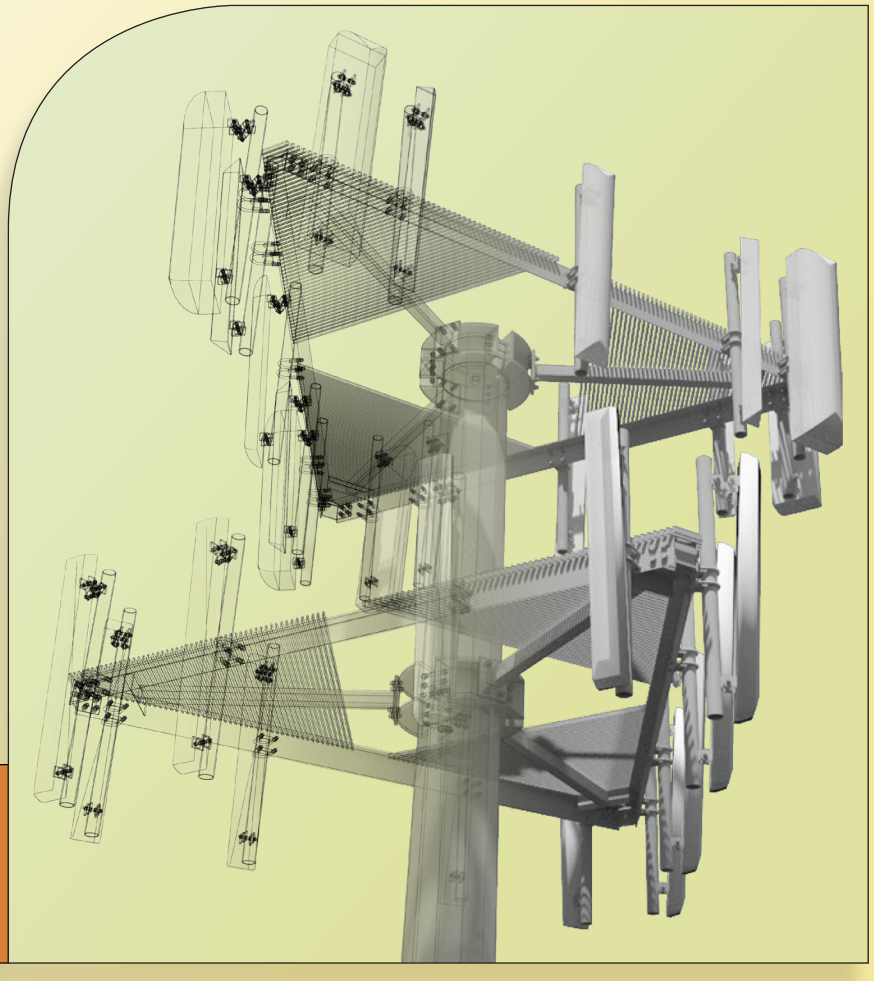
ATTACHMENT 5

Visibility Analysis

MCM SITE NUMBER: CT505
REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896



Prepared in April 2014 by:
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Prepared for Message Center Management

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Project Introduction

Message Center Management ("MCM") is pursuing a Certificate of Environmental Compatibility and Public Need from the Connecticut Siting Council ("Council") for the construction, maintenance and operation of a wireless communications facility ("Facility") on property located at 186 Blackrock Turnpike in Redding, Connecticut ("Host Property"). At the request of MCM, 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 ("Study Area"). In addition to the Town of Redding, small portions of the neighboring Towns of Newtown and Easton are also included within the Study Area.

Site Description and Setting

The 0.62-acre Host Property is located on the east side of Blackrock Turnpike and currently developed with the Redding Fire District 1 Fire Station. An 80± foot tall steel lattice tower is currently located behind (east of) the Fire Station. MCM proposes to install a 150-foot tall steel monopole designed to accommodate up to five commercial service providers and municipal/regional emergency services equipment. The Facility would be enclosed within a 50-foot by 50-foot fenced, gravel-base compound. The proposed Facility would be located just east of the existing structure at an approximate ground elevation of 145 feet Above Mean Sea Level ("AMSL"). The existing lattice tower would subsequently be removed.

Land use within the immediate vicinity is primarily a mix of residential, agricultural and undeveloped forest. The two-mile Study Area includes a total of approximately 8,042 acres. The tree canopy within the Study Area consists mainly of mixed deciduous hardwood species interspersed with scattered stands of conifers, and occupies approximately 6,450 acres (representing about 80% of the Study Area). Topography within the Study Area ranges in ground elevations from approximately 280 feet AMSL to 820 feet AMSL and is generally characterized as hilly to steep terrain with elevated ridges and associated intervening valleys extending generally in a north to south direction. Several historic resources are located within the Study Area, among them properties at 228, 238 and 256 Black Rock Turnpike; 9 Church Hill Road, 105 and 176 Cross Highway; 230 Poverty Hollow Road, the Poverty Hollow Stone Bridge; and the Redding Center Historic District.

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 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.

Preliminary Computer Modeling

Two computer modeling tools are used to calculate those areas from which at least the top of the proposed Facility is estimated to be visible: IDRISI image analysis program (developed by Clark Labs, Clark University) and ArcGIS®, developed by Environmental Systems Research Institute, Inc. Project- and Study Area-specific data were incorporated into the computer model, including the Facility's location, height, and ground elevation, as well as the surrounding topography and existing vegetation which are two 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. The LiDAR-based Digital Elevation Model ("DEM") 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 National Agricultural Imagery Program (USDA) aerial photography (1-foot resolution, flown in 2011) using IDRISI image processing tools. The IDRISI tools develop 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, 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.

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. First, only the topography data layer (DEM) was incorporated to evaluate potential visibility with no intervening vegetative screening. The model is 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. The initial omission of the forest cover data layer results in an excessive over-prediction, but provides an opportunity to identify and evaluate those areas with potentially direct sight lines toward the Facility.

[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.

Eliminating the tree canopy altogether, as performed in the preliminary analysis exaggerates areas of visibility because it assumes unobstructed sight lines everywhere but in those locations where intervening topography rises above the height of the proposed Facility. However, using this technique not only allows for an initial identification of direct sight lines, but also to gain some insight regarding seasonal views when the leaves are not on the trees. This preliminary mapping is especially useful during the in-field activities (described below) to further evaluate "leaf-off" scenarios.

Visibility varies through the year as the leaves drop from deciduous trees. During "leaf on" conditions, individual trees that are grouped proximate to one another form a near opaque wall of vegetation that, once beyond a certain distance, cannot be seen through. Conversely, visibility increases seasonally with obstructed, views occurring during "leaf-off" conditions. Thus two forest data layers are created to represent both year-round ("leaf-on") and seasonal (leafless or "leaf-off") conditions. These data layers are incorporated into the model, analyzed separately and then merged to produce the visibility maps. Calculations resulting from the leaf-on forest data layer depict areas where at least the top of the Facility may be present above the intervening tree canopy. Similarly, computations from the "leaf-off" data layer also depict areas where the top of the Facility is predicted to be visible but it accounts for the increased transparency due to lack of vegetative screening. The Study Area includes mature vegetation with a unique composition and density of woodlands, with mast or pole timber and branching providing the majority of screening in leafless conditions. Beyond the density of woodlands found within the 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. Because tree spacing, dimensions and branching patterns as well as the understory differ greatly over even small areas, the Study Area has its own discrete forest characteristics. To approximate seasonal visibility, a conservative set of values was incorporated into the model, including the assumptions that each deciduous tree is simply a vertical pole with no distinct branching pattern. Given these conservative assumptions, the resultant modeling still over-predicts visibility in "leaf-off" conditions but does provide a better representation than the initial map using topography only.

A purposely low average tree canopy height of 50 feet was then incorporated into the forest data layers and added to the DEM for a second iteration of the visibility map. The model was queried again to determine where the top of the Facility may be seen from any point(s) within the Study Area, given both the intervening existing topography and forest data layers. The results of the preliminary analysis provide a representation of those areas where portions of the Facility could 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 average tree height of 50 feet. This iteration provides a conservative assessment of intervening vegetation for use during the in-field activities to compare the outcomes of the initial computer modeling with direct observations of the balloon float.

As a final step, the forested areas were extracted from the areas of visibility, using a conservative assumption that a person standing within the forest will not be able to view the proposed Facility beyond a distance of approximately 500 feet. Depending on the density of the intervening tree canopy and understory of the surrounding woodlands, it is assumed that some locations within this distance could provide visibility of at least portions of the proposed Facility at any time of the year. In "leaf-on" conditions, this distance may be overly conservative for most locations. However, for purposes of this analysis, it was reasoned that forested land beyond 500 feet of the proposed Facility would consist of light-impenetrable trees of a uniform height.

Additional data was reviewed and incorporated into the visibility analysis, including protected private and public open space, parks, recreational facilities, hiking trails, schools, and historic districts. The Town of Redding maintains substantial areas of open space made available to the public and has over 60 miles of hiking trails within its borders. The nearest trail to the Host Property is the Aspetuck Valley Trail, located nearly 0.9 mile east of the proposed Facility site. Based on a review of publicly-available information, portions of six locally designated scenic roadways are present within the Study Area. The nearest scenic road to the Host Property is the terminus of Cross Highway at its intersection with Church Hill Road and Black Rock Turnpike, approximately 0.35 mile (1,800± feet) to the north/northeast.

In-Field Activities

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.

Balloon Float and Field Reconnaissance

A balloon float and field reconnaissance were conducted on March 18, 2014 to obtain photographs for use in this report. The balloon float consisted of raising an approximately four-foot diameter, red helium-filled balloon tethered to a string height of 150 feet above ground level ("AGL") at the proposed Facility location. Weather conditions were favorable for the in-field activities, with calm winds (less than 6 miles per hour) and mostly clear skies. Once the balloon was 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 balloon 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.

During the balloon float and in-field activities, several trees were randomly surveyed using a hand-held infrared laser range finder and a Suunto Tandem clinometer to ascertain their heights. The heights of trees adjacent to the site were field measured to document the surrounding canopy elevation. Numerous off-site locations were also selected to obtain tree canopy heights, including along roadways, wooded lots, and high- and low-lying areas to provide for the irregularities associated with different land characteristics and uses found within the Study Area. The average canopy height was developed based on measurements and comparative observations, in this case approximately 65 feet AGL. Throughout Connecticut, the tree canopy height varies from about 55 feet to in excess of 80 feet (where eastern white pine becomes a dominant component of the forest type, average tree heights may be even slightly higher). This general uniformity is most likely the result of historic state-wide clear cutting of forests for charcoal production in the late 1800s and early 1900s. Approximately 69% of Connecticut's forests are characterized as mature[2].

[2] USDA Resource Bulletin NE-160, 2004.

Photographic Documentation

During the balloon float and field reconnaissance, APT drove the public roads within the Study Area and recorded observations, including photo-documentation, of those areas where the balloon was and was not visible. Photographs were obtained from several vantage points to document the views of a proposed Facility. The geographic coordinates of the camera's position at each photo location were logged using global positioning system ("GPS") equipment technology.

At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") equipment. Photographs were taken with a Canon EOS 6D digital camera body and Canon EF 24 to 105 millimeter ("mm") zoom lens, with lens set to 50 mm for all but one of the views presented herein. Photo point location 8 was taken using a 24 mm focal length in order to provide a greater depth of field for presentation in this report. Focal lengths ranging from 24 mm to 50 mm approximate views similar to that achieved by the human eye. However, two key aspects of an image can be directly affected by the specific focal length that is selected: field of view and relation of sizes between objects in the frame. A 24 mm focal length provides a wider field of view, representative of the extent the human eyes may see (including some peripheral vision), but the relation of sizes between objects at the edges of the photos can become minimally skewed. A 50 mm focal length has a narrower field of view than the human eye but the relation of sizes between objects is represented similar to what the human eye might perceive.

> *"The lens that most closely approximates the view of the unaided human eye is known as the normal focal-length lens. For the 35 mm camera format, which gives a 24x36 mm image, the normal focal length is about 50 mm.*[3]*"*

When taking photographs for these analyses, APT prefers a focal length of 50 mm; however there are times when wider views (requiring the use of the 24 mm lens setting, in this case) can better reflect "real world" viewing conditions by providing greater context to the scene. Regardless of the lens setting, the scale of the subject in the photograph (the balloon) and corresponding simulation (the Facility) remains proportional to its 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-predict visibility. The revised average tree canopy height data (65 feet AGL) was merged with the DEM and added to the base ground elevations of the forested areas data layer. Once the additional data was integrated into the model, APT re-calculated the visibility of the proposed Facility from within the Study Area to produce the final visibility map.

[3] Warren, Bruce. Photography, West Publishing Company, Eagan, MN, c. 1993, (page 70).

Photographic Simulations

Photographic simulations were generated to portray scaled renderings of the proposed Facility from seven (7) representative locations where the proposed Facility would be visible either on a year-round or seasonal basis. 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[4].

As stated earlier, APT has elected to use a 50 mm focal length whenever possible; however, there are occasions when the use of a wider-angle lens setting is preferred. For presentation purposes in this report, all but one of the photographs were taken with a 50 mm focal length and 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. View 8 was taken with a 24 mm focal length because of its proximity to the Host Property and to balance preserving the integrity of the scene's setting while depicting the subject (the Facility) in a way similar to what an observer might see, to the greatest extent possible.

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. 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 fairly characterize the prevailing views from all locations within a given area. From several locations, moving a few feet in any direction will result in a far different perspective of the Facility than what is presented in the photographs. In several cases, a view of the Facility may be limited to the immediate area of the specific photo location.

The simulations provide a representation of the Facility under similar settings as those encountered during the balloon float and reconnaissance. Views of the Facility can change substantially throughout the season and are dependent on environmental conditions, including (but not necessarily limited to) weather, light conditions, seasons, time of day, and the viewer location.

[4] As a final step, the accuracy and scale of select simulations are tested against photographs of similar existing facilities with recorded camera position, focal length, photo location, and tower location.

Photograph Locations

The table below summarizes characteristics of 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 visibility analysis maps provided as attachments to this report.

View	Location	Orientation	Distance to Site	View Characteristics
1	Meeker Hill Road	Northwest	±.32 Mile	Year-round
2	Redding Ridge Cemetery	North	±0.10 Mile	Year-round
3	Black Rock Turnpike	North	±0.08 Mile	Year-round
4	Silversmith Lane	East	±0.16 Mile	Seasonal
5	Black Rock Turnpike	Southeast	±0.40 Mile	Not Visible
6	Intersection of Black Rock Turnpike & Cross Highway	Southeast	±0.34 Mile	Year-round
7	Sullivan Drive	East	±0.31 Mile	Seasonal
8	Silversmith Lane at Black Rock Turnpike*	East	±0.04 Mile	Year-round
9	Adjacent to #9 Church Hill Road	South	±0.34 Mile	Not Visible
10	Church Hill Road	Southeast	±0.34 Mile	Not Visible

*24mm Lens used for this location

Visibility Analysis Results

Results of this analysis are graphically displayed on the visibility analysis maps provided in the attachment at the end of this report. The maps include a photolog that depict the photo locations. Areas from where the proposed Facility would be visible above the tree canopy year-round comprise a total of approximately 38 acres. When the leaves are off the trees, seasonal views through intervening tree trunks and branches are anticipated to occur over some locations within an area of 264± acres.

In general, the combination of the Facility's location on the broad ridge of Black Rock Turnpike with the surrounding terrain and dense, mature forest results in limiting views to areas within less than 0.5 mile of the Host Property. More distant views of the Facility may also be achieved from elevated fields anywhere from one mile to 1.5 miles mile away, primarily to the west.

Year-round views of the Facility appear to be restricted to locations within 1,000 feet or less of the Host Property including from the adjacent Redding Ridge Cemetery (see photograph 2) and the parking lot of St. Patrick's Church (just west of photograph 3). Select locations approximately 0.3 mile to the southeast (photo 1) and north/northeast (photo 6) would also allow for partial views of the Facility on a year-round basis photos 15 and 16). Seasonal views, when the leaves are off the deciduous trees, extend out beyond the Host Property northward to the intersection of Cross Highway, Church Hill Road and Black Rock Turnpike; eastward on Meeker Hill; southward to a point generally equidistant between Meeker Hill Road and Giles Hill Road; and westward over portions of Silversmith Lane (see photo 4 for example) and Sullivan Drive (represented in photo 7) as well as potentially in wooded locations extending south towards Giles Hill Road.

The visibility 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 and an assumed tree canopy height of 60 feet. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating 2012 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.

Views of the Facility are not anticipated to extend to areas along the Aspetuck Valley Trail or other hiking trails within the Town. Photograph 6 was taken from the intersection of Black Rock Turnpike and Cross Highway, at the terminus of the latter road's historic designation, 1,800± feet from the Host Property. The distance from the Host Property combined with the existing utility infrastructure along Black Rock Turnpike and the amount of intervening trees makes it difficult to distinguish the Facility from this area. With the exception of limited locations within this general area, and where the majority of any views would be restricted seasonally to when leaves are off the trees, none of the scenic roads within the Town would offer views of the Facility. Similarly, APT assessed the potential for visibility during the balloon float from the historic properties identified previously. No views were achieved from publicly-accessible areas surrounding these resources. Photographs 9 and 10 were both taken from the western portion of Church Hill Road, near or at its highest elevation, and reveal no visibility of the balloon, consistent with the visibility maps which depict the northern extent of seasonal visibility in this area. It is possible that limited, seasonal views could be achieved on interior portions of the property at 228 Black Rock Turnpike however no visual evidence was noted from adjacent locations on Black Rock Turnpike or Church Hill Road.

Proximity to Schools And Commercial Child Day Care Centers

No schools or commercial child day care centers are located within 250 feet of the Host Property. The nearest school is the Joel Barlow High School, located approximately 0.8 mile to the southeast of the Host Property at 100 Black Rock Turnpike. The nearest commercial child day care center is the Montessori School of Redding, located at 25 Cross Highway approximately 1.7 mile to the northeast. Note that the Christ Church Parish at 177 Cross Highway approximately 0.4 mile to the northeast maintains a pre-school program. No views of the Facility are anticipated from any of these locations.

ATTACHMENTS

0 1,750 3,500 7,000 Feet

Newtown

Easton

Redding

Lonetown

Pinetree

Rock House

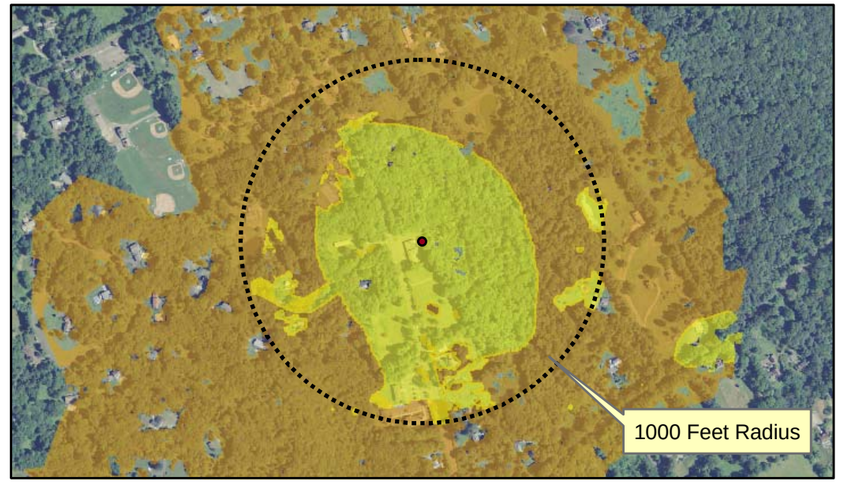
107

58

53

5 6 9 8 10 7 4 1 2 3

N



Visibility Analysis – Aerial Base

Proposed Wireless Telecommunications Facility
Redding Ridge
186 Black Rock Turnpike, Redding, CT

Proposed facility height is 150 feet AGL.
Existing tree canopy height estimated as 65 feet.
Study area encompasses a two-mile radius and includes 8,042 acres of land.

Map compiled 04/10/2014

Map information field verified by APT on 03/18/2014.

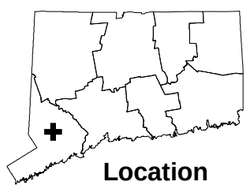
Only those resources located within the extent of the map are depicted. For a complete list of data sources consulted for this analysis, please refer to the Documentation Page.

Legend

- Proposed Tower

Photo Locations

- Not Visible
- Seasonal Views
- Year-round Views
- Trails
- Predicted Seasonal Visibility (264 Ac.)
- Predicted Year-Round Visibility (38 Ac.)
- Towns
- 2-Mile Study Area
- Open Space
- Scenic Roads



Location

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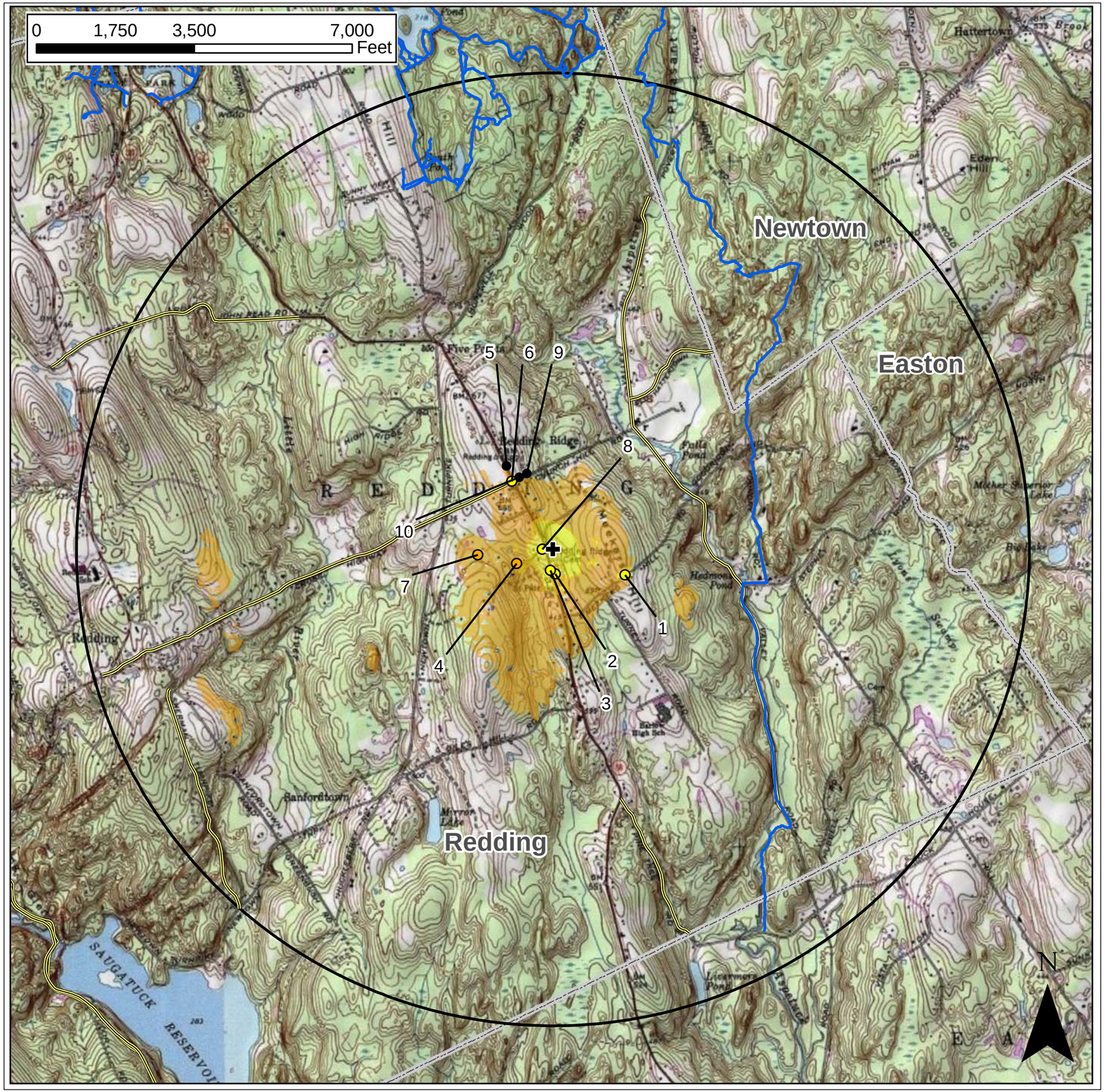
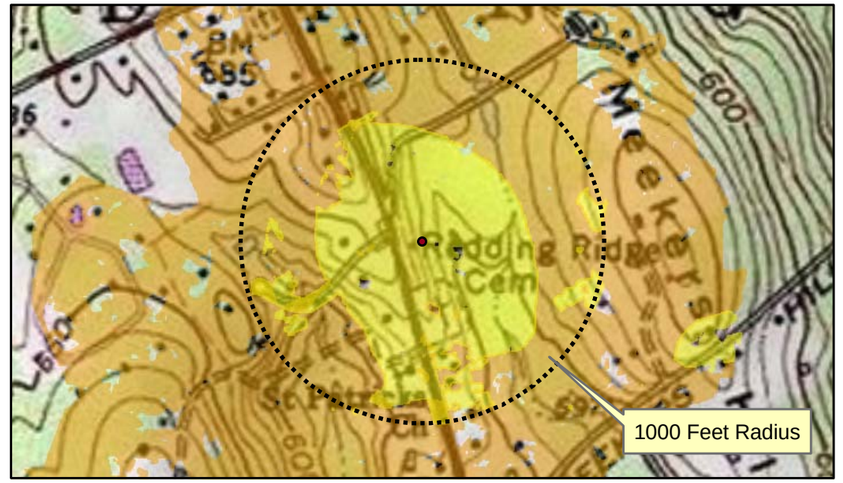




Visibility Analysis – Topo Base

Proposed Wireless Telecommunications Facility
Redding Ridge
186 Black Rock Turnpike, Redding, CT

Proposed facility height is 150 feet AGL.
Existing tree canopy height estimated as 65 feet.
Study area encompasses a two-mile radius and includes 8,042 acres of land.

Map compiled 04/10/2014

Map information field verified by APT on 03/18/2014.

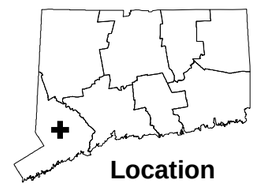
Only those resources located within the extent of the map are depicted. For a complete list of data sources consulted for this analysis, please refer to the Documentation Page.

Legend

- Proposed Tower

Photo Locations

- Not Visible
- Seasonal Views
- Year-round Views
- Trails
- Predicted Seasonal Visibility (264 Ac.)
- Predicted Year-Round Visibility (38 Ac.)
- Towns
- 2-Mile Study Area
- Open Space
- Scenic Roads



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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**MEEKER HILL ROAD**	**NORTHWEST**	**+/- 0.32 MILE**	**YEAR ROUND**

SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**MEEKER HILL ROAD**	**NORTHWEST**	**+/- 0.32 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**REDDING RIDGE CEMTERY**	**NORTH**	**+/- 0.10 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**REDDING RIDGE CEMTERY**	**NORTH**	**+/- 0.10 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**BLACK ROCK TURNPIKE**	**NORTH**	**+/- 0.08 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**BLACK ROCK TURNPIKE**	**NORTH**	**+/- 0.08 MILE**	**YEAR ROUND**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**SILVERSMITH LANE**	**EAST**	**+/- 0.16 MILE**	**SEASONAL**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**SILVERSMITH LANE**	**EAST**	**+/- 0.16 MILE**	**SEASONAL**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**BLACK ROCK TURNPIKE**	**SOUTHEAST**	**+/- 0.40 MILE**	**NOT VISIBLE**

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PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**INTERSECTION OF BLACK ROCK TURNPIKE AND CROSS HIGHWAY**	**SOUTHEAST**	**+/- 0.34 MILE**	**YEAR ROUND**

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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**INTERSECTION OF BLACK ROCK TURNPIKE AND CROSS HIGHWAY**	**SOUTHEAST**	**+/- 0.34 MILE**	**YEAR ROUND**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**SULLIVAN DRIVE**	**EAST**	**+/- 0.31 MILE**	**SEASONAL**

SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**SULLIVAN DRIVE**	**EAST**	**+/- 0.31 MILE**	**SEASONAL**

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**SILVERSMITH LANE AT BLACK ROCK TURNPIKE (24mm Focal Length)**	**EAST**	**+/- 0.04 MILE**	**YEAR ROUND**

SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**SILVERSMITH LANE AT BLACK ROCK TURNPIKE (24mm Focal Length)**	**EAST**	**+/- 0.04 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

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DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**ADJACENT TO 9 CHURCH HILL ROAD**	**SOUTH**	**+/- 0.34 MILE**	**NOT VISIBLE**

DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**CHURCH HILL ROAD**	**SOUTHEAST**	**+/- 0.34 MILE**	**NOT VISIBLE**

DOCUMENTATION

SOURCES CONSULTED FOR VISBILITY ANALYSIS MAPS
Redding Ridge
186 Black Rock Turnpike
Redding, Connecticut

Physical Geography / Background Data

Center for Land Use Education and Research, University of Connecticut (http://clear.uconn.edu)
- *Land Use / Land Cover (2006)
- *Coniferous and Deciduous Forest (2006)
- *LiDAR data – topography (2000)

United States Geological Survey
- *USGS topographic quadrangle maps – Botsford; Bethel (1984)

National Resource Conservation Service
- *NAIP aerial photography (2012)

Department of Transportation data
- ^State Scenic Highways (updated monthly)

Plan of Conservation and Development, 2008; History of Redding Website 4/10/14
- ^Municipal Scenic Roads

Cultural Resources

Heritage Consultants
- ^National Register
- ^ 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 Book West – The Guide to the Blue-Blazed Hiking Trails of Western Connecticut, 19th Edition, 2006.
- ^*The Book of Trails, 4th Edition,* (including Updates), by Joan Ensor and John G. Mitchell, 2005.

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.

LIMITATIONS

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 and an assumed tree canopy height of 65 feet. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating 2012 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.

The photo-simulations in this report are provided for visual representation only. Actual visibility depends on various environmental conditions, including (but not necessarily limited to) weather, season, time of day, and viewer location.