

Visual Resource Evaluation Report



Proposed Telecommunication Facility

North Haven

50 Devine Street
North Haven, Connecticut 06473

Prepared For:

Phoenix Partnership, LLC
110 Washington Avenue
North Haven, CT 06473

Prepared By:



*11 Herbert Drive
Latham, New York 12110*

Infinity Project # 226-003

Site Report Issued: May 5, 2009

PROJECT SUMMARY

Phoenix Partnership, LLC is currently proposing and seeking a permit for the construction of a 120-foot self supporting Monopole Telecommunications Facility to be located at 50 Devine Street in North Haven, Connecticut (Appendix A – Viewshed and Site Location Maps). *Infinigy Engineering & Surveying (Infinigy)* was retained by Phoenix Partnership, LLC, to conduct a Visual Resource Evaluation encompassing a five-mile radius (Study Area) from the Proposed Site known as North Haven.

The Proposed Project Facility includes a 120-foot monopole proximate to the eastern boundary of the Subject Property, adjacent to the eastern edge of existing pavement, in an area of known excavation and fill. The tower will be situated in the center of the 70-foot by 70-foot fenced equipment compound area. The proposed tower and fenced equipment compound are designed to provide space for future carrier's equipment and antenna structures. Access to the telecommunications facility will be from the existing paved parking areas. The proposed access and utility easement consists of a 15-foot wide access area and a 15-foot by 20-foot turn around area. The Site is located at an elevation of approximately 8 feet above mean sea level (AMSL).

PROJECT SITE SETTING

The Host Property consists of a ± 6.0 acre parent parcel of land zoned as General Industrial and identified on Tax Map Parcel #51, Lot# 021 on the current official tax map of the County of New Haven, is located between the former Humphrey Chemical Company, active portions of both ConRail and Amtrak Rail Lines and a vacant lot identified as "60 Devine Street" in the Town of North Haven, New Haven County, Connecticut. A Site Location Map is included in Appendix A. In addition to the proposed telecommunication facility, the host property is currently occupied by an approximately 40,000 square foot, single story steel warehouse building and associated asphalt driveways, and landscapes areas. Photographs of the proposed project area are included in Appendix C – Field Verified Viewshed Map.

The Site is generally characterized as a relatively level parcel consisting of a commercial building and surrounding asphalt parking and landscaped areas. Land use within the area surrounding the host parcel is a mixture of sparse residential, mixed commercial and light industrial uses. The topography of the Study Area is characterized by a north-south trending river valley area utilized as a transportation corridor surrounded by rolling hills and low mountain ridges. The overall topography of the area ranges in elevation from approximately 10 feet AMSL at the Project Site and along the Quinnipiac River to approximately 660 feet AMSL within Sleeping Giant State Park approximately 3.1 miles north of the Project Site.

The existing vegetative cover within the Study Area can be described as a combination of dense urban setting uses along the river valley and transportation corridor interspersed with lighter density residential communities towards the elevated areas further from the Project Site. The highland areas of the Study Area are comprised of mixed deciduous and coniferous (evergreen) forest.

METHODOLOGY

To estimate the visibility associated with the Site, *Infinigy* evaluates the Project Site in two phases consisting of determining potential visibility using topographic relief as well as vegetative cover and a field investigation to verify the results of the topographic mapping. Zones of potential visibility within the Study Area are identified during the predictive mapping that is completed. Utilizing the visibility report generated by through topographic mapping and conservative tree cover estimates, *Infinigy* conducts a field investigation known as a “balloon float” to verify the findings of the visibility report. During the balloon float, a thorough drive through field investigation of the Study Area is completed to verify the visibility data, field check tower height, location and structure representations as well as document publicly accessible areas through a photographic log. Data obtained during the field investigation is analyzed and incorporated into the final viewshed map (Appendix A – Site Location Map).

COMPUTER MODELING VISIBILITY ANALYSIS

A computer modeling tool, ESRI’s ArcView Spatial Analyst software, is utilized to calculate the areas from which the Site is expected to be visible. Information specific to the Site such as tower height and structure, significant objects and/or structures that would obstruct potential views, ground elevation, and surrounding topography is entered into the computer modeling program and interpreted during the modeling process.

Subsequent to data entry, constraints are applied to the computer model to more accurately define the potential visibility of the Site within the Study Area. During the initial computer analysis, the tree canopy is omitted and the only visual constraint evaluated is topography. This initial analysis provides a reference point that can be used to assist in the determination of seasonal visibility fluctuations. The actual average tree height for the Study Area is determined during the field investigation by visually inspecting the thoroughfares. The average tree canopy height, in the case of the proposed North Haven site, was determined to be 50 feet, was then incorporated into the final Viewshed Map.

An additional data layer depicting significant resource areas such as State Forests and Parks, recreational facilities, registered Historic sites, open space lands and other sensitive receptors was obtained from the Connecticut State Department of Environmental Protection (CTDEP). The data layer is added to the Viewshed map and is useful in identifying potential impacts to sensitive receptors within the Study Area.

STUDY AREA FIELD INVESTIGATION & BALLOON FLOAT

On April 24, 2009 *Infinigy* verified the computer modeling report and evaluated the potential visibility of the proposed Site by conducting a field investigation of the Study Area including a balloon float and drive through reconnaissance survey. The balloon float consists of fully inflating, raising and maintaining a tethered, 10-foot by 3-foot diameter weather balloon at the proposed Site at a height of 120 feet. The balloon was then stabilized while *Infinigy* personnel drove through local public thoroughfares throughout the Study Area to field verify

the visibility map and inventory areas of visibility. On the day of the field investigation, the temperature was approximately 71 degrees and the skies were clear and sunny with approximate wind speeds of 2 mph out of the south southwest.

PHOTOGRAPHIC EVALUATION LOG

In an effort to further define and evaluate the Viewshed map result, during the field investigation; *Infinigy* personnel conducted a drive through reconnaissance survey throughout the Study Area. Emphasis was placed on residential areas and additional areas that were determined to be potentially sensitive view shed receptors. Photographs were taken from a variety of locations, settings and vantage points to assist in evaluating where the balloon was visible from, including factors such as visibility above and below the tree canopy. A photographic log was maintained including locations, orientation and environmental factors, if applicable.

Photographs of the balloon from the locations summarized in the table below were taken with a NIKON Coolpix 7600 7.1 Megapixel camera which has a focal length equivalent to 35 mm camera with 38 to 115 mm zoom. Research suggests that the lens that most closely represents the unaided human eye is known as normal focal length lens. For a 35mm camera which produces a 24 x 36 mm image, the normal focal length is approximately 50mm. For the purposes of the Visual Resource Evaluation, the optical zoom lens for the NIKON Coolpix 7600 was set at the 50mm range for the purposes of most accurately representing the unaided human eye.

During the Study Area field investigation, the latitude and longitude of each photograph were recorded using a handheld GPS receiver unit. The geographic coordinate data of each location was then plotted on the Photo Location Map, included as Appendix B.

PHOTOGRAPHIC LOG

Photo	View Direction	Location	Coordinates	Visible
1 (Simulation 1)	West	Route 40 North Ramp	N 41° 22'589" W 72° 52'297"	Visible
2 (Simulation 2)	NNE	Route 5	N 41° 22'383" W 72° 53'097"	Visible
3 (Simulation 3)	East	Devine Street	N 41° 22'677" W 72° 52'737"	Visible
4	SSW	Route 5	N 41° 23'438" W 72° 52'313"	Not Visible
5 (Simulation 4)	Southeast	Hartford and Devine Street	N 41° 22'889" W 72° 52'972"	Visible
6	Southeast	Route 15 and Ridge Road Overpass	N 41° 23'162" W 72° 53'383"	Not Visible
7 (View Attached)	SW	Stoddard Avenue and Elm	N 41° 23'168" W 72° 51'819"	Not Visible Screened by vegetation
8 (View Attached)	Northwest	North Haven High School	N 41° 22'389" W 72° 51'823"	Limited visibility through winter vegetation
9 (View Attached)	NNE	Route 5	N 41° 20'924" W 72° 53'589"	Limited visibility through winter vegetation
10 (View Attached)	NNE	Route 5	N 41° 22'027" W 72° 53'240"	Not Visible
11	SSE	Hartford Turnpike	N 41° 24'979" W 72° 51'720"	Not Visible
12	SSE	Corner of Mount Carmel Road and Hartford Turnpike	N 41° 25'965" W 72° 51'149"	Not Visible
13	South	Mansfield and Kings Highway	N 41° 23'970" W 72° 52'954"	Not Visible
14	WSW	Mill Road School	N 41° 23'139" W 72° 50'313"	Not Visible
15 (View Attached)	South	Route 5	N 41° 23'139" W 72° 52'469"	Visible
16 (View Attached)	South	Route 5	N 41° 22'912" W 72° 52'599"	Limited visibility through winter vegetation
17 (Simulation 5)	South	Route 5	N 41° 22'826" W 72° 52'630"	Limited visibility through winter vegetation

PHOTOGRAPHIC SIMULATION METHODOLOGY

The proposed Tower is constructed in 3D modeling software according to client specifications which include variables such as tower height and structure, various antennae design layouts and associated ground equipment. Terrain and aerial imagery are imported from public sources. The proposed tower is then located at the appropriate ground location at the latitude and longitude coordinates provided by the client.

Cameras are then set up within the modeling software using coordinates provided to match locations of field photography. The “virtual camera” view moves the proposed tower to the appropriate distance and elevation relative to the viewer as well as the approximate view to the left or right. Field Photography is subsequently imported into the modeling software to align the proposed tower with the balloon in the image. This is done to more accurately assess the proposed location, as the modeling software assumes the balloon will be centered in the field of view. The proposed Tower, now accurately constructed as a 3D model within the software, is exported out of the modeling software using the camera shots created with the “virtual camera” set up to match field photo locations. Using 2D graphics software, the field photography and 3D modeling data are combined, removing data that would not be visible due to tree lines or structures (aerial photography is used to determine locations of obstructions relative to tower) and adding light and shadows.

Infinigy utilizes the location of the balloon as well as the simulation methodology previously discussed to accurately simulate the visual presence the tower will have from that location.

Photographic simulations were generated for five (5) of the seventeen (17) locations identified above. Additionally, locations where the proposed tower was field verified to be visible or areas of significance, were enhanced to identify the location of the proposed tower and included within Appendix D - Photographs & Simulations. The photographic simulations represent an accurately scaled depiction of the proposed monopole tower. The locations and the orientations of the simulation photos are detailed below:

1. View from Route 40 North Ramp facing west
2. View from Route 5 facing North Northeast
3. View from Devine Street facing East
4. View from Hartford Street and Devine Street facing Southeast
5. View from Route 5 facing South

CONCLUSIONS

The Viewshed Map presents a conservative description of the analysis within the five (5) mile Study Area through publicly available thoroughfares. Based upon this analysis, any area where the data illustrates any portion of the proposed structure is visible is presented as a “visible” area. At the time of the site investigation the seasonal conditions were winter, leaf off conditions, which typically provides the “worst-case” scenario for determining potential visibility.

In addition to the protected Municipal and Non-municipal properties that are identified on the Viewshed Map, the map also illustrates the areas where views of the proposed structure are blocked due to topography (lavender), vegetation and/or structures (dark gray hatching) and where the proposed structure *will be* visible (pink).

Based upon this analysis, the proposed structure will not be visible in areas located at a distance of two (2) miles or greater from the proposed site. For this reason and to more accurately represent the acreage determinations that are discussed below, the total acreage referenced for the Study Area that is further discussed below is based upon a two (2) mile (approximately 8,042 acres) radius instead of the initial five (5) mile radius. Based upon this two (2) mile Study Area, areas from which the proposed structure will be visible above or through the tree canopy, during leaf off conditions, comprise approximately 78 acres, less than one percent of the 8,042 acre Study Area. Of this total, approximately 6 acres are situated on the host parcel known as “50 Devine Street” which consists mainly of a developed commercial and light industrial area.

As illustrated on the Viewshed Map, the majority of the area from which the proposed structure will be visible is within the one (1) mile radius and is confined to the transportation corridors of Route 91, Route 40 and Route 5 with the exception of smaller areas of visibility located to the north and southeast. Additionally, along the transportation corridors the view is largely confined to the elevated highways and overpasses. It is estimated that only limited residences within the Study Area will have year round views of the proposed structure. These residences are located along Route 5 within mixed commercial/residential areas.

No views of the proposed structure are anticipated from the Pines Bridge Historic District located approximately 0.70 miles north, the Wilbur Cross Highway or the surrounding Sleeping Giant, Quinnipiac or Wharton Brook State Parks located between two (2) and five (5) miles to the north.

The majority of the areas where the proposed structure will be visible are transportation corridors and commercially dense areas with only limited residential uses. Based upon this visual analysis, the proposed 120’ monopole will not have a significant adverse impact on the surrounding area.

APPENDICES

- Appendix A – Site Location Map
- Appendix B – Photo Location Map
- Appendix C – Field Verified Viewshed Map
- Appendix D – Photographs & Simulations

APPENDIX A
SITE LOCATION MAP

CLIENT NAME:
Phoenix Partnership, LLC

SITE LOCATION:
50 Devine Street
North Haven, CT

PROJECT NAME:
North Haven

PROJECT NO.
226-003



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MN (13.9° W)



Data Zoom 10-1

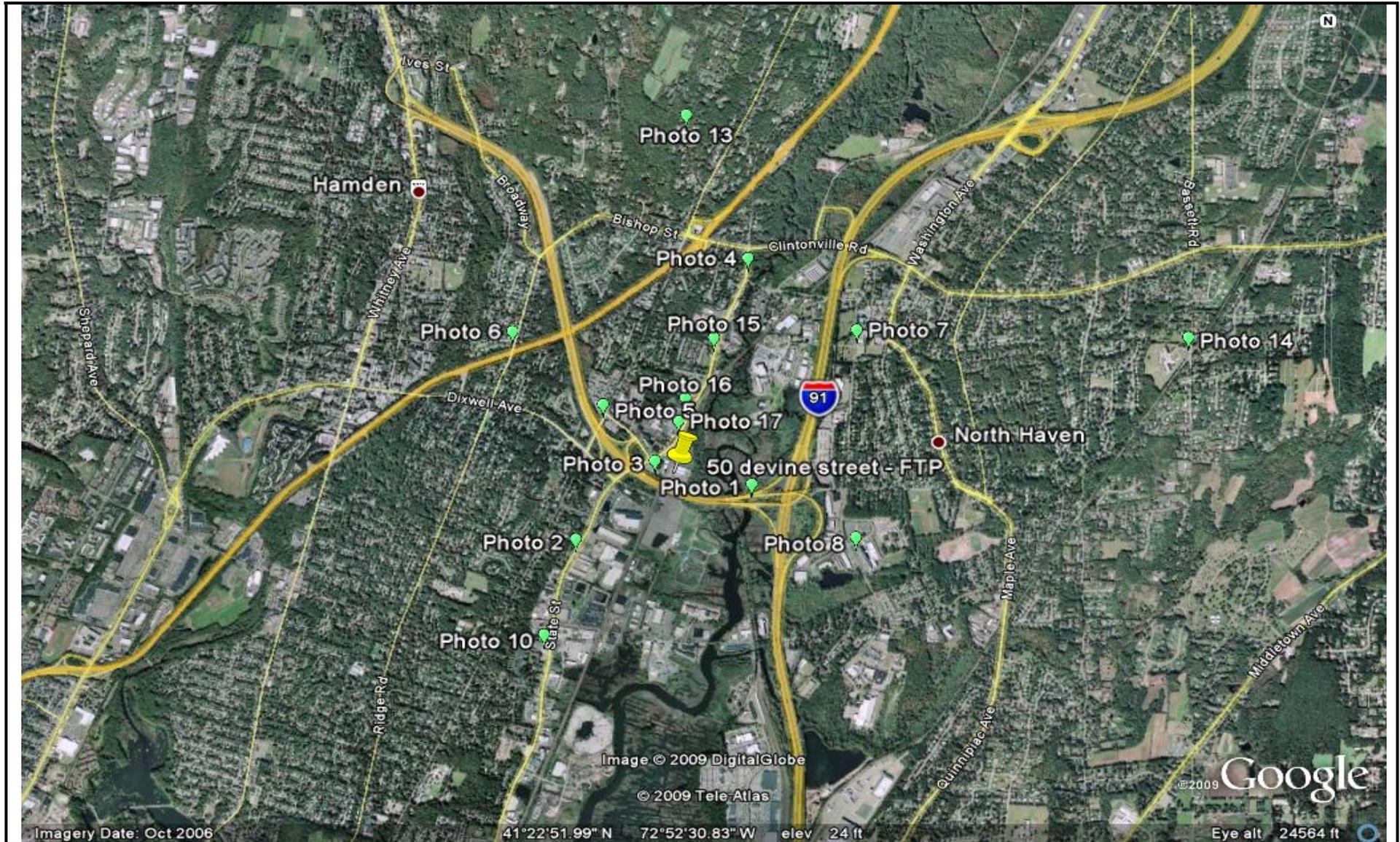
APPENDIX B
PHOTO LOCATION MAP

CLIENT NAME:
Phoenix Partnership, LLC

SITE LOCATION:
50 Devine Street
North Haven, CT

PROJECT NAME:
North Haven

PROJECT NO.:
226-003

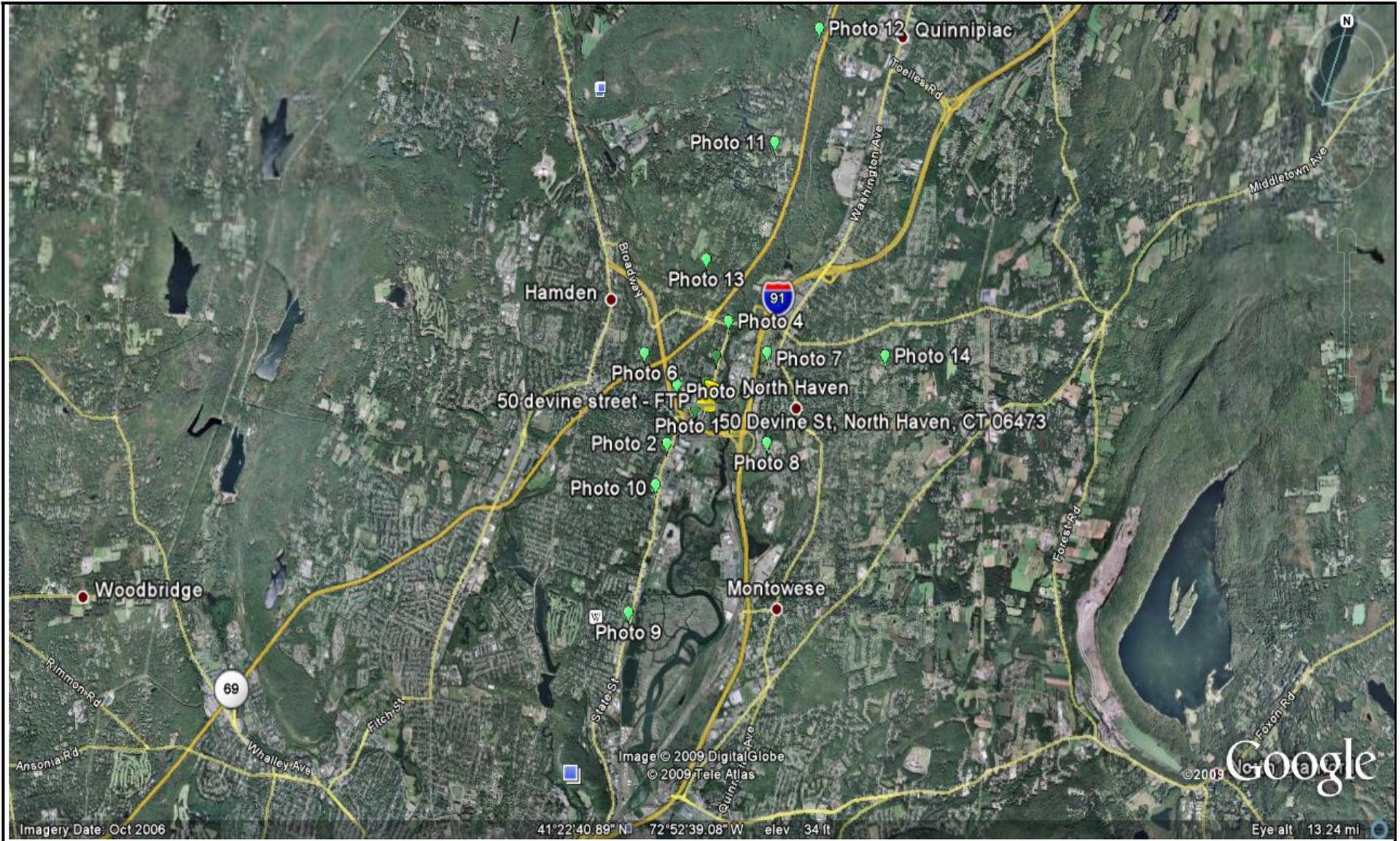


CLIENT NAME:
Phoenix Partnership, LLC

SITE LOCATION:
50 Devine Street
North Haven, CT

PROJECT NAME:
North Haven

PROJECT NO.:
226-003



APPENDIX C

FIELD VERIFIED VIEWSHED MAP

VIEWSHED ANALYSIS

5-MILE VIEWSHED
PROPOSED HEIGHT 120'

NORTH HAVEN
50 DEVINE STREET
NEW HAVEN, CT 06473
N: 41-22-39.4
W: 72-52-33.8

APRIL 29th, 2009

LEGEND

-  Proposed tower is blocked by topography - will not be visible from these areas.
-  Not Visible due to vegetation, tall structures or buildings.
-  Visible areas
- Protected Properties (Municipal)**
 -  Cemetery
 -  Conservation
 -  Existing Preserved Open Space
 -  Recreation
 -  School
- Protected Properties (CT DEP)**
 -  State Forest
 -  State Park
 -  Historic Preserve
 -  State Park Trail
 -  Waterbody
 -  Wildlife Area
 -  Wetlands

COMPLETED BY:

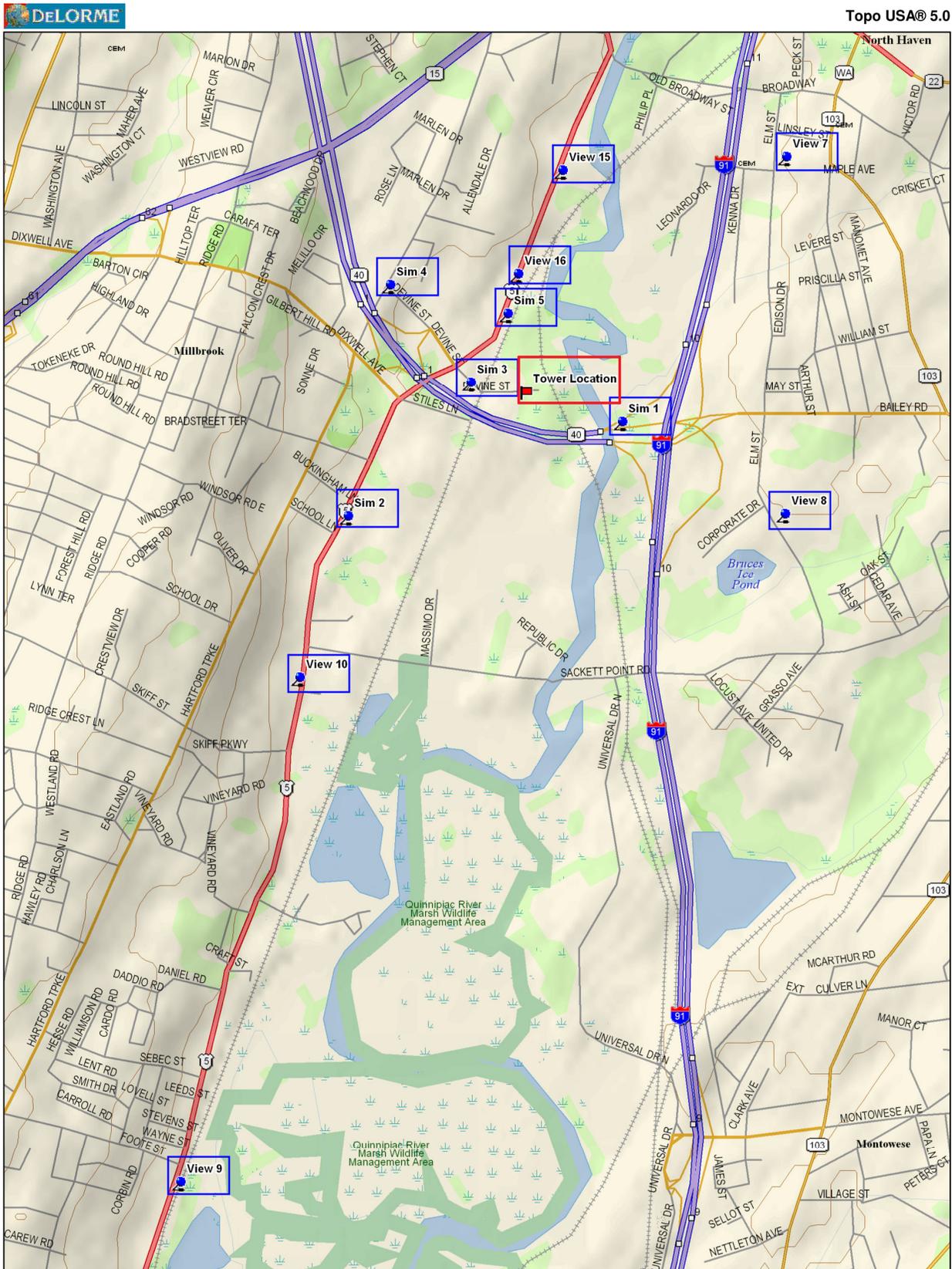


APPENDIX D

PHOTOGRAPHS AND SIMULATIONS

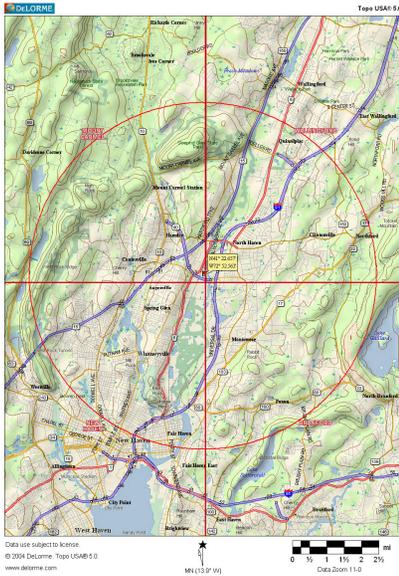
Photographic Locations

Town of
North Haven
Connecticut



Photographic Documentation and Simulation 1

Town of
North Haven
Connecticut



Devin Street
North Haven CT

Proposed Monopole

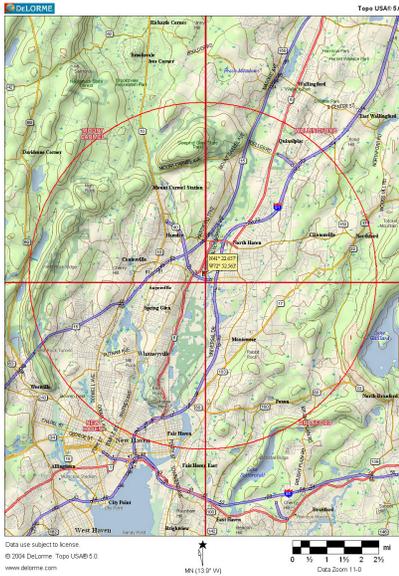


Phoenix Partnership

PHOTO TAKEN FROM ROUTE 40 NORTH RAMP, LOOKING WEST.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.24 MILE+/-

Photographic Documentation and Simulation 2

Town of
North Haven
Connecticut



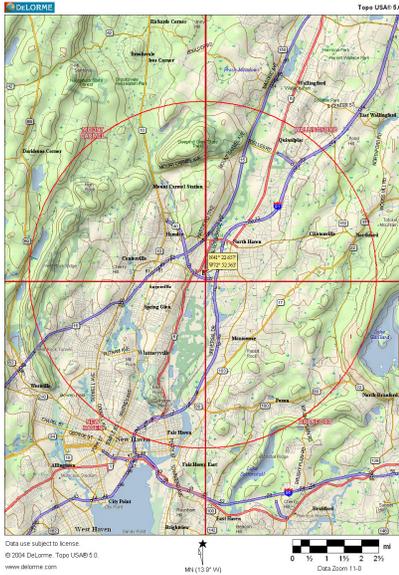
**Devin Street
North Haven CT
Proposed Monopole**



PHOTO TAKEN FROM ROUTE 5, LOOKING NORTH NORTHEAST.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.56 MILE+/-

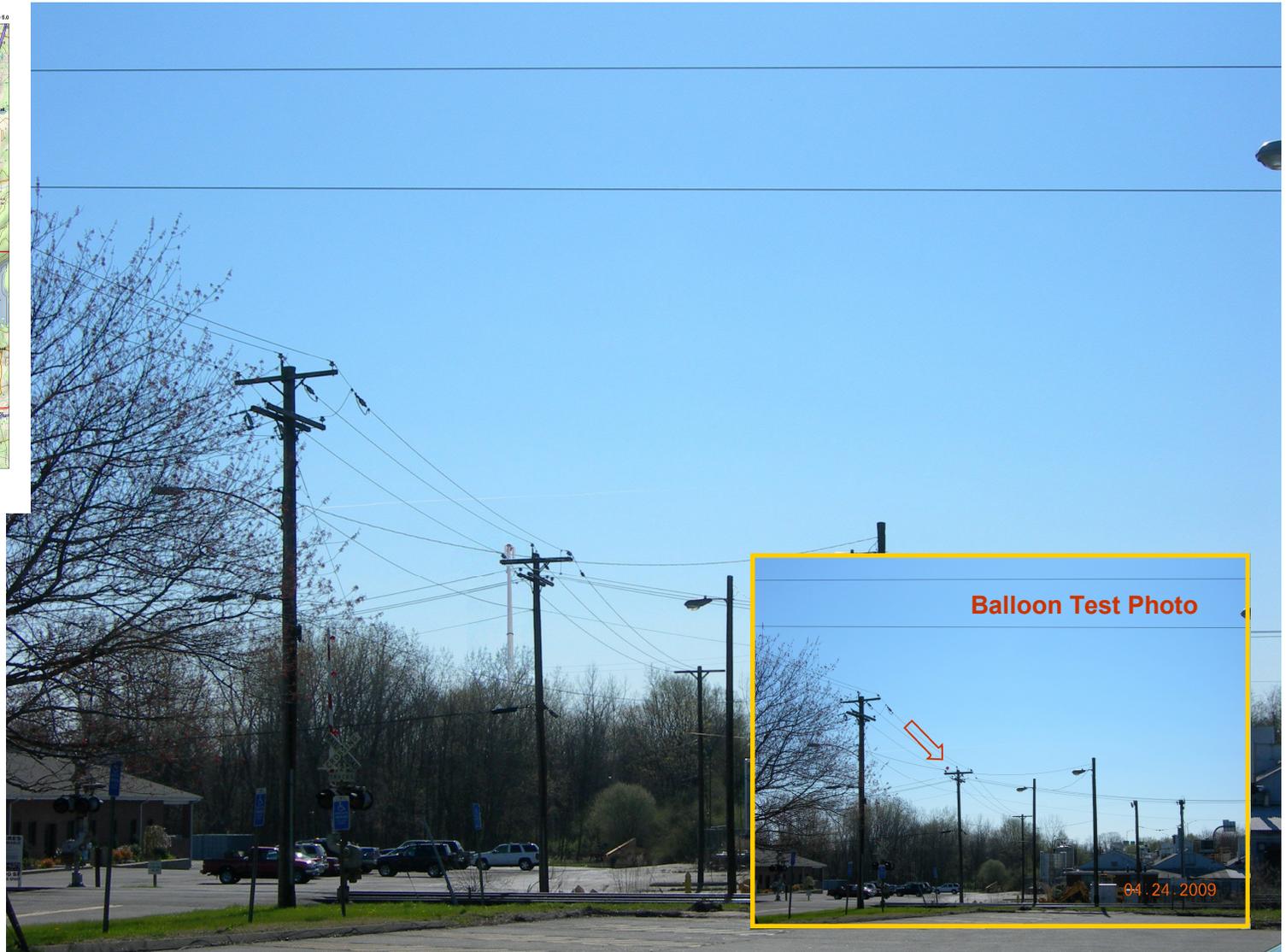
Photographic Documentation and Simulation 3

Town of
North Haven
Connecticut



**Devine Street
North Haven CT**

Proposed Monopole

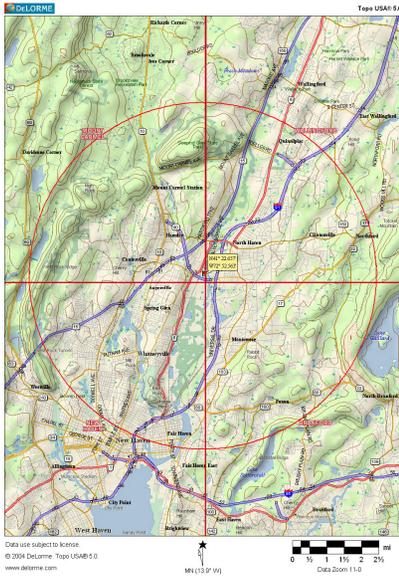


Phoenix Partnership

PHOTO TAKEN FROM DEVINE STREET, LOOKING EAST.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.15 MILE+/-

Photographic Documentation and Simulation 4

Town of
North Haven
Connecticut



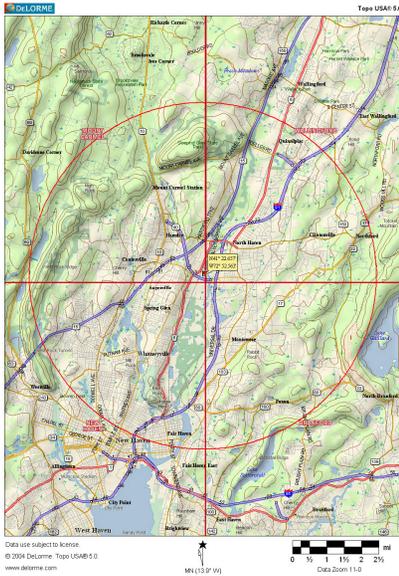
**Devin Street
North Haven CT
Proposed Monopole**



PHOTO TAKEN FROM HARTFORD DRIVE AND DEVINE STREET, LOOKING SOUTHEAST.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.44 MILE+/-

Photographic Documentation and Simulation 5

Town of
North Haven
Connecticut



**Devin Street
North Haven CT**

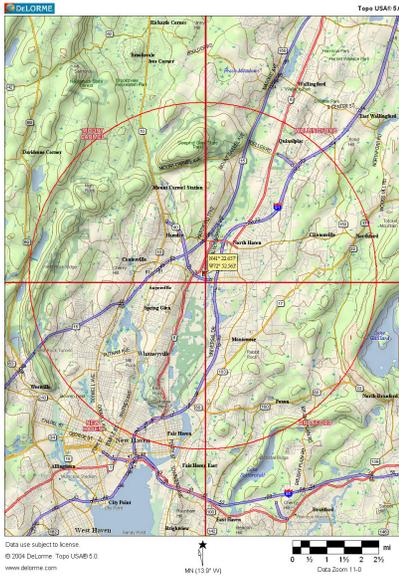
Proposed Monopole



PHOTO TAKEN FROM ROUTE 5, LOOKING SOUTH.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.20 MILE+/-

Photographic Documentation View 7

Town of
North Haven
Connecticut



**Devin Street
North Haven CT**

Proposed Monopole

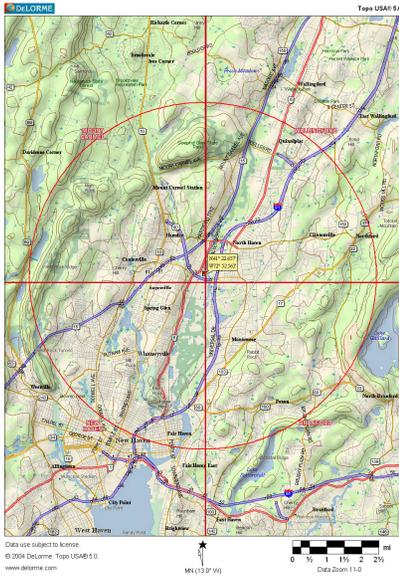


Phoenix Partnership

**PHOTO TAKEN FROM STODDARD AVENUE AND ELM, LOOKING SOUTHWEST. BALLOON NOT VISIBLE.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.87 MILE+/-**

Photographic Documentation View 8

Town of
North Haven
Connecticut



**Devin Street
North Haven CT**

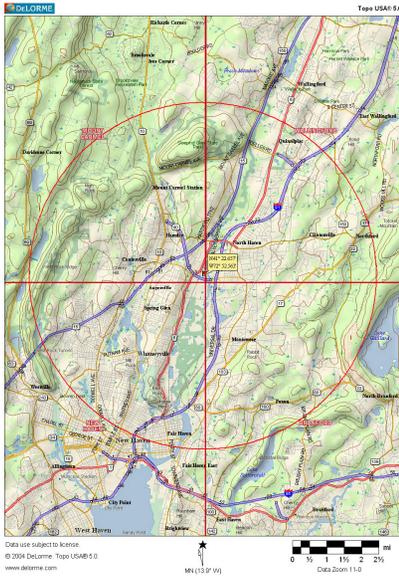
Proposed Monopole



PHOTO TAKEN FROM NORTH HAVEN HIGH SCHOOL, LOOKING NORTHWEST.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.71 MILE+/-

Photographic Documentation View 9

Town of
North Haven
Connecticut



Devin Street
North Haven CT

Proposed Monopole

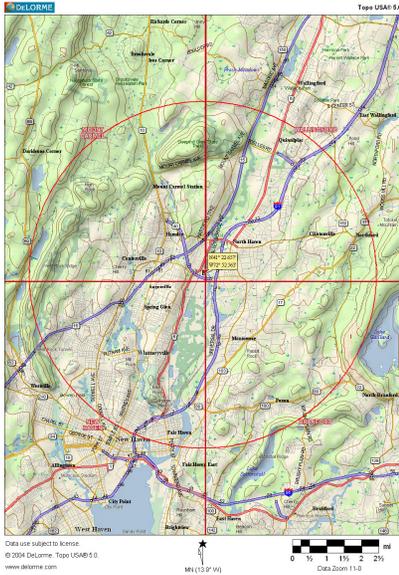


Phoenix Partnership

PHOTO TAKEN FROM ROUTE 5, LOOKING NORTH.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 2.18 MILE+/-

Photographic Documentation View 10

Town of
North Haven
Connecticut



Devin Street
North Haven CT

Proposed Monopole

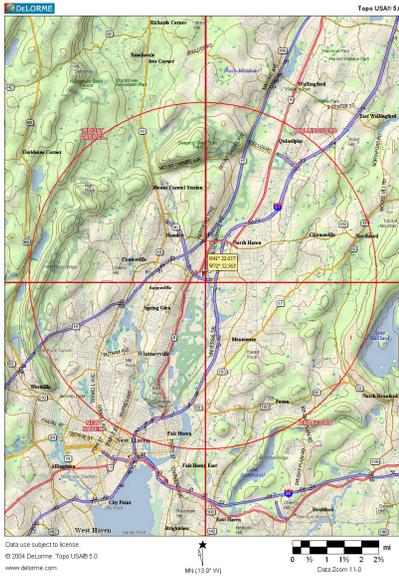


Phoenix Partnership

PHOTO TAKEN FROM ROUTE 5, LOOKING NORTHEAST. BALLOON NOT VISIBLE.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.94 MILE +/-

Photographic Documentation View 15

Town of
North Haven
Connecticut



Devin Street
North Haven CT

Proposed Monopole



LOCATION OF 120'
BALLOON FLIGHT

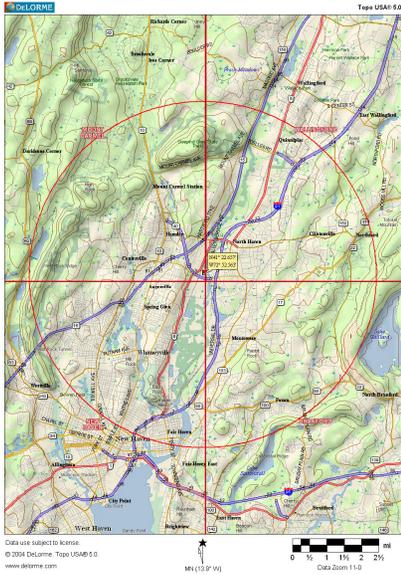
04.24.2009



PHOTO TAKEN FROM ROUTE 5, LOOKING SOUTH.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.55 MILE+/-

Photographic Documentation View 16

Town of
North Haven
Connecticut



**Devin Street
North Haven CT**

Proposed Monopole



**LOCATION OF 120'
BALLOON FLIGHT**

04.24.2009



PHOTO TAKEN FROM ROUTE 5, LOOKING SOUTH.
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.29 MILE+/-