

CONNECTICUT SITING COUNCIL

APPLICATION OF MESSAGE CENTER )  
MANAGEMENT, INC. (MCM) AND NEW )  
CINGULAR WIRELESS , PCS LLC (AT&T) FOR A ) DOCKET 459  
CERTIFICATE OF ENVIRONMENTAL )  
COMPATIBILITY AND PUBLIC NEED FOR THE )  
CONSTRUCTION, MAINTENANCE AND ) JUNE 2, 2015  
OPERATION OF A TELECOMMUNICATIONS )  
TOWER FACILITY IN GLASTONBURY, )  
CONNECTICUT )  
)

**MESSAGE CENTER MANAGEMENT, INC. (MCM) AND NEW  
CINGULAR WIRELESS, PCS LLC (AT&T) RESPONSES TO  
CONNECTICUT SITING COUNCIL INTERROGATORIES SET I**

- Q1. Did New Cingular Wireless PCS, LLC (AT&T) and Message Center Management, Inc. (MCM) (collectively, the Applicant) have the same search ring? If yes, when was the search ring established? Provide the approximate radius of the search ring for this area. Provide the longitude and latitude coordinates of the center of the search ring. If AT&T and MCM had separate search rings, provide the information requested above for both search rings.
- A1. *MCM did not have an independent site search ring. In working on potential siting solutions to serve other areas of Glastonbury, MCM learned of AT&T's proposal for a facility at Addison Park, a town owned property. MCM subsequently discussed that proposal with AT&T and those discussions resulted in AT&T agreeing to have MCM take the lead as the tower developer on the project with AT&T as anchor tenant. For its part, AT&T's site search area was originally issued in September of 2013 with coordinates of 41.7282124, -72.5850527 with a ½ mile diameter.*
- Q2. Of the letters sent to abutting property owners, how many certified mail receipts were received? If any receipts were not received, which owners did not receive their notice? Were any additional attempts made to contact those property owners?
- A2. *On March 23, 2015 notice of intent to file the application was mailed to abutting property owners and neighbors. On April 29, 2015, follow up letters were sent by first class mail to Jeffrey Carter and Victor Ficocelli.*
- Q3. What type of light fixture(s) would be attached to the outside of AT&T's equipment shelter? When would the light be on?

- A3. *AT&T's equipment shelters include two, motion activated flood lights for technician safety during any required night maintenance.*
- Q4. Would any blasting be required to develop the site?
- A4. *Blasting is not anticipated. Should bedrock be encountered within the confines of the utility trenching or tower foundation construction area, wedging and mechanical hoe-ram rock removal techniques would be implemented within reason prior to any blasting activities.*
- Q5. Is the proposed site located within a 100-year or 500-year flood zone, or is it located in Federal Emergency Management Agency (FEMA) Zone X, an area outside of both flood zones?
- A5. *No. The proposed site is located in an unshaded Zone X, areas of minimal flooding outside of the 100-year and 500-year flood zone. Please refer to the enclosed Flood Insurance Rate Map Panel 527 of 675, Map Number 09003C0527F, effective date September 26, 2008 provided in Attachment 1.*
- Q6. What measures are proposed for the site to ensure security and deter vandalism? (This would cover alarms, gates, locks, etc.)
- A6. *In addition to the gated and locked compound, AT&T's shelter is locked and remotely monitored for intrusion 24 hours a day. The fence surrounding the compound will be an anti-climb weave chain link fence and locked gate.*
- Q7. Is AT&T proposing to install an emergency backup generator (herein after referred to as "generator") only large enough for AT&T's needs at this time? If yes, would the Applicant consider reserving space in the fenced compound for a future shared generator should additional carriers co-locate on the tower?
- A7. *AT&T's proposed back-up emergency generator is sized for AT&T's use only. The compound space and lease area are limited and any future shared use would require evaluation based on specific needs; though AT&T prefers to maintain its own independent backup power at this time.*
- Q8. Would the generator run on propane (supplied from the proposed 500-gallon propane tank)? What is the size of the generator in kilowatts? Provide the estimated run time for the generator based on the fuel tank capacity. What type(s) of containment measure(s) would the generator have for oil and/or coolant leakage?
- A.8 *The 50kW propane generator runs approximately 38 hours and includes a unit enclosure that can capture coolant or oil leaking from the generator.*

- Q9. Would there be any interruption in service between the time power goes out and the generator comes online? For example, would AT&T provide battery back up to prevent a reboot condition and provide seamless power until the generator starts? If AT&T has a battery backup system, how many hours could it supply power in the event that the generator fails to start?
- A9. *AT&T will have a battery backup required to prevent the facility from experiencing a "re-boot" condition during the generator start-up delay period thus allowing for continued or "seamless" provision of service where signal levels allow. The battery backup system provides power to the facility for approximately 4 to 6 hours.*
- Q10. What size generator fuel tank would be necessary to satisfy a potential need for a minimum of 48 hours of runtime for AT&T? What size generator and fuel tank would be needed if two carriers were to share the generator and both required 48 hours of runtime? What if the generator were also shared with Town/emergency equipment?
- A.10 *Approximately 628 gallons of propane fuel is required for a 48 hour run time for AT&T. To supply 628 gallons, a 1,000 gallon propane tank would be required. It is estimated that approximately twice as much propane, or 1256 gallons, would be required for a 48 hour runtime for two carriers and two 1,000 gallon tanks would be required. The requirements for any Town emergency equipment are not known.*
- Q.11 What size concrete pad or equivalent would be needed to accommodate a generator for AT&T approximately 50 kW in capacity? What size concrete pad or equivalent would be needed to accommodate a generator approximately 200 kW in capacity?
- A.11 *A stand-alone 50kW generator would require an approximate 4'x10' concrete pad. A 200kW generator could be accommodated on an approximate 6'x14' concrete pad.*
- Q.12 Please provide the cost of a 50 kW generator. Please provide the cost of a 200 kW shared generator.
- A.12 *The cost of a 50kW propane emergency back-up generator is approximately \$25,000. The cost of a 200kW propane emergency back-up is approximately \$70,000. These costs are generator costs only and do not include any additional electrical equipment that may be required for a shared generator, or shipping costs, installation costs, additional fuel costs or added long term maintenance.*
- Q.13 Has AT&T considered using a fuel cell as an emergency backup power source for the proposed site? Explain.
- A.13 *No. As set forth in the Siting Council's Feasibility Study in Docket 432 (Feasibility study of backup power requirements for telecommunications towers and antennas pursuant to*

*Public Act 12-148), the type of backup power chosen for use at a facility is determined by facility constraints (such as space, weight restrictions, lease arrangements, zoning codes), environmental limitations and liabilities, capital and operating/maintenance costs, network functionality and fuel availability. Costs and fuel sources (including lack of reliable distribution channels in some cases) have generally led AT&T to exclude them from its business plan.*

Q.14 Identify the safety standards and/or codes by which equipment, machinery, or technology would be used or operated at the proposed facility.

A.14 *OSHA and ET docket 93-62 and 47 CFR parts 1,2,15,42 and 97 as well as OET Bulletin 65, Edition 97-01.*

Q.15 On page 21 of the Application, the Applicant notes that, if approved, an Eastern Box Turtle Protection Program (EBTPP) can be included in the Development and Management Plan. Provide a summary or draft/preliminary version of the EBTPP.

A.15 *Please see Attachment 2 providing details of the eastern box turtle protection measures.*

Q.16 Provide page 5 of the Wetland Investigation report (located behind Tab 6 in the Application) with the scientists' signatures.

A.16 *Please see Attachment 3 with page 5 fully executed.*

Q.17 Provide a Functions and Values assessment of Wetland 1.

A.17 *Please see Attachment 4 for an evaluation of functions and values supported by Wetland 1.*

Q.18 What is the cumulative noise level that the Applicant expects at the nearest property line from the proposed facility taking into account AT&T's two air conditioning units attached to its equipment shelter? Would the expected noise levels comply with applicable standards? If no, indicate which noise mitigation measure(s) may be employed to ensure compliance.

A.18 *The expected noise levels will comply with the applicable regulations. See Noise Evaluation Report prepared by HMB Acoustics LLC, dated May 25, 2015 included as Attachment 5 for further details.*

Q.19 Is the site located within an aquifer protection area?

A.19 *No. The nearest aquifer protection area to the site is located approximately 3.7 miles to the northeast. Please see attached Aquifer Protection Area Map provided as Attachment 6.*

Q.20 Is EIA/TIA-222 version F (EIA version F) the current mandatory (minimum) standard in Connecticut because the Connecticut State Building Code currently adopts the 2003 International Building Code (2003 IBC) and the 2003 IBC adopts EIA version F? Is Version G (as proposed) more conservation than Version F for this tower such that the proposed tower would comply with both Version G and Version F standards?

A.20 *TIA/EIA-222-F is the governing standard in the State of Connecticut for tower design because the CT Building Code is based on the 2003 International Building Code. Sections 1609.1.1 and 3108.4 of the CT Building Code specifically cite that wind loads for antenna and antenna supporting structures are exempt from the Code and are governed by TIA/EIA 222. In Section 35 of the Code References the 222 Rev-F is specifically cited as governing. Until the State adopts the 2006 IBC w/ 2007 Amendment or 2009 or 2012 IBC Code basis, TIA/EIA 222 REV F is the applicable standard. Notwithstanding, MCM will have the tower designed for both the REV F and REV G versions and use the more stringent of the two design standards.*

Q.21 What is the tower design wind speed for this area (Hartford County)?

A.21 *In accordance with the 2009 Connecticut State Building Code and the Electronic Industries Association Standard EIA/TIA-222-F "Structural Standards for Steel Antenna Towers and Antenna Support Structures" for Hartford County, the tower will be designed to withstand pressures equivalent to a maximum 80 MPH fastest mile wind speed. The foundation design will be based on soil conditions at the site.*

Q.22 Would the tower be designed to be expandable in height beyond the originally proposed height? If yes, how many feet would the tower extend to?

A.22 *It is not planned to design the tower to be expandable.*

Q.23 What type of antenna mounts would be used for AT&T's proposed antennas, e.g. T-arms?

A.23 *The final mount design would be determined on the final facility design but in recent monopine applications AT&T is successfully deploying a "chain mount" arrangement which is similar to a T-mount but with two horizontal bars of support to accommodate antennas and tower mounted equipment.*

Q.24 Given the taper of the faux tree removal, would the top antenna platform (i.e. AT&T's platform) still be sufficiently covered by the faux tree branches? Specifically, how long are the tree branches at the approximately 116-foot level of the tower, and, as a comparison, how far away from the tower do AT&T's antennas and antenna mounts extend?

A.24 *Any final design will assure that all antennas are concealed within the faux tree branches. Design specifications of the branches to assure such concealment would be created and provided by the monopine vendor as part of a Development and Management plan and final mount design required by AT&T.*

Q.25 Could the antennas and antenna mounts be painted to blend in with the color of the faux tree branch material?

A.25 *Yes, the antennas and antenna mounts can be painted to blend in with the color of the faux tree branch material.*

Q.26 What color options exist for the monopole or "tree trunk?" Is the monopole proposed as a galvanized gray color?

A.26 *MCM proposes and has successfully utilized brown as the trunk color.*

Q.27 What other, if any, stealth tower design options were considered or would be feasible to employ at this site?

A.27 *No other design options were considered as a monopine was the land owners preference from the outset.*

Q.28 Would flush-mounted antennas provide the required coverage? Would such configuration result in reduced coverage and/or necessitate greater antenna height with multiple levels of antennas? Explain.

A.28 *A flush mount configuration would result in reduced coverage or necessitate greater antenna height while hindering future technological upgrades. "Flush" mounting to a tower generally refers to close contact attachment of antennas directly to the tower without use of a platform or T-arms to offset antennas from a tower for mounting. When used on a tower structure, flush mounting usually only allows three to six antennas to be installed at one level (i.e. same height AGL). A carrier must then mount sets of three antennas at multiple levels on a tower. To achieve reliable service without compromising capacity or performance the lowest level would be at the minimum height necessary with additional levels installed above that minimum level on the tower. For example, an installation of twelve antennas on a tower would require the mounting of antennas at four levels (3 antennas per level) beginning at the minimum required height required. By comparison, platforms or t-arms would entail mounting of antennas at one level.*

*In general, because flush mounting requires the use of multiple levels on a tower by a single carrier, it limits the ability for other carriers to co-locate on that tower. A flush mount configuration also limits the space available for any additional equipment such as remote radio head units (RRH's), surge arrestors and other associated equipment*

carriers typically install along with its antennas. Flush mounting limits the space available on a given tower and it is conceivable such limits could inhibit future technological upgrades. It should also be noted that in many instances flush mounting can inhibit the ability of a carrier to tilt and angle antennas to maximally optimize performance and achieve the best coverage at a given height and location.

Moreover, the proposed Facility is designed as a monopine where flush mounted antennas are not utilized in the monopine design.

Q.29 Provide a list of frequencies that AT&T is licensed to utilize in Hartford County?

A.29 AT&T is licensed by the FCC to provide wireless communications services throughout the Hartford County utilizing the following frequency blocks:

WPWV366 C Block 710-716 MHz, 740-746 MHz  
 WQIZ617 E Block 722-728 MHz  
 WQJU451 B Block 704-710 MHz, 734-740 MHz  
 KNKA239 B Block 835-845 MHz, 880-890 MHz, 846.5-849 MHz, 891.5-894 MHz  
 KNLG441 D Block 1865-1870 MHz, 1945-1950 MHz  
 KNLG442 E Block 1885-1890 MHz, 1965-1970 MHz  
 WPSL626 A Block 1850-1855 MHz, 1930-1935 MHz  
 WPTF536 C Block 1902.5-1910 MHz, 1982.5-1990 MHz  
 KNLB204 B Block 2310-2315 MHz, 2355-2360 MHz  
 KNLB297 D Block 2345-2350 MHz  
 KNB312 A Block 2305-2310 MHz, 2350-2355 MHz  
 WPQL636 C Block 2315- 2320 MHz

Q.30 Of the existing sites noted on page 9 of the Radio Frequency Analysis Report (RF Report), indicate which ones that the proposed site would interact with to hand off signals. If AT&T's proposed antennas would interact with any other sites not listed, include those also. Also include the tower/structure heights of such facilities and direction (e.g. N, S, NW) from the proposed site.

A.30 The neighboring sites that the proposed site would hand-off signal are:

Site Name	Address	Town	Latitude	Longitude	Antenna Centerline (feet)	Distance to Proposed Site (miles)	Structure Type	Ground Elevation (feet)	Structure Height	Direction from Proposed Site
CT1245	577 BELL STREET	GLASTONBURY	41.7336	-72.5497	93	2.1	Lattice Tower	354	95	E
CT5321	575 HILLSTOWN ROAD	MANCHESTER	41.7469	-72.5641	70	1.8	Monopole	176	70	NW
CT1083	GLASTONBURY P.D.	GLASTONBURY	41.7062	-72.6069	166	1.8	Lattice Tower	46	170	SSW
CT5273	2577 MAIN STREET	GLASTONBURY	41.7144	-72.613	110	1.6	Monopole	29	130	SW
CT5276	1455 FORBES AVENUE	EAST HARTFORD	41.7315	-72.6077	120	1.0	Monopole	74	120	W
SR2022	465 HILLS STREET	EAST HARTFORD	41.7407	-72.5841	100	0.9	Monopole	105	127	NNW
SR3405	628 HEBRON AVENUE	GLASTONBURY	41.7131	-72.5870	60	1.0	Rooftop	115	50	S

SR3422	HEBRON AVENUE	GLASTONBURY	41.7173	-72.5531	132	2.0	Power Pole	170	132	SSE
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Q.31 Which frequency band services would AT&T install at the proposed site, e.g. 700 MHz, 850 MHz, 1900 MHz, 2100 MHz, etc.? Would all of these frequencies be provided initially, or would some be provided initially and others deployed in the future at this particular site? Explain.

A.31 *700 MHz, 850 MHz, 1900 MHz would be deployed initially and potentially 2100 MHz as well or in the near future depending on construction/on-air timelines.*

Q.32 Would the proposed site be needed for coverage, capacity, or both? If the proposed facility would also provide capacity relief, provide data to support the current capacity issue and demonstrate how the proposed facility would improve capacity in the area.

A.32 *Both. 700 and 850 MHz will be used primarily for coverage, 1900 MHz (and 2100 MHz in the future) will provide extra capacity.*

Q.33 Are all frequencies used to transmit voice and data? Explain.

A.33 *The answer to this question depends on the eventual in-service date of the site. Based on a projected in-service date in 2016, AT&T would initially provide UMTS services over its cellular(850) and PCS(1900) frequencies and LTE services over its 700 MHz frequencies when the site is placed into service. At some point in the future, AT&T will also provide LTE services over its PCS(1900), AWS (2100) and cellular(850) frequencies.*

Q.34 What is the lowest height at which AT&T's antennas could achieve its coverage objectives from the proposed site?

A.34 *The proposed height is the lowest height at which AT&T's antennas could achieve its coverage objectives from the proposed site.*

Q.35 What are the signal strengths for which AT&T designs its system for the frequency bands that AT&T seeks to utilize at the proposed site? For in-vehicle coverage? For in-building coverage?

A.35 *For 700 MHz LTE, the design criteria are -83 and -93 dBm. For PCS LTE, the design criteria are -86 and -96 dBm. For 850 MHz, the coverage criteria are -74 and -82 dBm. for 1900MHz LTE -86 and -96dBm.*

Q.36 What are the existing signal strengths within the area AT&T is seeking to cover for the frequency bands that AT&T would utilize?



A.36 For 700 MHz, the signal strength in the gap is between -93 dBm and -120 dBm; for 850 MHz the range is from -74 dBm (small areas) down to -120 dBm and for 1900 MHz, -96 dBm to -120 dBm.

Q.37 Does AT&T have any statistics on dropped calls and/or ineffective attempts in the vicinity of the proposed facility? If so, what do they indicate? Does AT&T have any other indicators of substandard service in this area?

A.37 AT&T's dropped call data for the area where reliable service is needed, while proprietary, indicates elevated voice and data drops. In addition, data testing indicates that substandard or nonexistent data service is provided within the area identified as a need for this site.

Q.38 Provide the individual lengths of the existing coverage gaps on major roads that AT&T is seeking to cover from the proposed site at each frequency band used by AT&T. Break this down by street name and include the town(s) that the streets are located in.

A.38 Please see Attachment 7.

Q.39 Provide the individual lengths of the existing coverage gaps on secondary roads that AT&T is seeking to cover from the proposed site at each frequency band used by AT&T. Break this down by street name and include the town(s) that the streets are located in.

A.39 Please see Attachment 7.

Q.40 What is the predicted coverage footprint from the proposed site (in square miles), at each frequency band used by AT&T? Provide such data for the proposed antenna height and ten feet shorter.

A.40 Please see table below:

	<b>700</b>	116 feet AGL	106 feet AGL
Area	-83	0.66	0.54
(square miles)	-93	0.97	0.72
	<b>850</b>	116 feet AGL	106 feet AGL
Area	-74	1.01	0.65
(square miles)	-82	1.09	0.75
	<b>1900</b>	116 feet AGL	106 feet AGL
Area	-86	0.35	0.31
(square miles)	-96	0.72	0.60

	<b>AWS</b>	116 feet AGL	106 feet AGL
Area	-86	0.12	0.11
(square miles)	-96	0.83	0.72

Q.41 In the RF Report under Tab 1 of the Application, AT&T included an existing coverage plot and an existing and proposed coverage plot for 700 MHz and 1900 MHz. Provide similar plots for 850 MHz or 2100 MHz or other frequencies that AT&T would utilize, as applicable.

A.41 *Please see Attachment 8.*

Q.42 Provided propagation maps showing existing plus proposed coverage at an antenna height that is ten feet higher than proposed for 700 MHz, 850 MHz, 1900 MHz, 2100 MHz, or as applicable.

A.42. *Please see Attachment 8.*

Q.43 Provide the individual lengths of the coverage that AT&T would provide along primary roads from the proposed site at the proposed frequencies, e.g. 700 MHz, 850 MHz, 1900 MHz, 2100 MHz, or as applicable. Also provide such data assuming that the tower is ten feet shorter. Break this data down by street name and include the town(s) that the streets are located in.

A.43 *Please see Attachment 9.*

Q.44 Provide the individual lengths of the coverage that AT&T would provide along secondary roads from the proposed site at the proposed frequencies, e.g. 700 MHz, 850 MHz, 1900 MHz, 2100 MHz, or as applicable. Also provide such data assuming that the tower is ten feet shorter. Break this data down by street name and include the town(s) that the streets are located in.

A.44 *Please see Attachment 9.*

Q.45 If the worst-case power density analysis under Tab 7 of the Application was performed without the nominal 10 dB off-beam pattern loss, would the total percent maximum permissible exposure be approximately 10 times the 5.59 percent or 55.9 percent?

A.45 Yes.

Q.46 Pages three and five of the RF Report in the Application provide the population living within the existing and incremental coverage areas for 700 MHz and 1900 MHz. Provide similar data for 850 MHz and 2100 MHz or other frequencies, if applicable.

A.46 *Included in table here:*

	<b>700</b>	Existing Gap	116 feet AGL	106 feet AGL
Population	-83	3,641	1,704	1,333
	-93	3,303	1,638	1,426
	<b>850</b>		116 feet AGL	106 feet AGL
Population	-74	3,164	1,991	1,612
	-82	2,885	5,037	1,856
	<b>1900</b>		116 feet AGL	106 feet AGL
Population	-86	4,833	718	545
	-96	4,492	1,529	1,369
	<b>AWS</b>		116 feet AGL	106 feet AGL
Population	-86	5,287	165	146
	-96	4,818	1,674	1,614

Q.47 Will the proposed facility support text-to-911 service? Is additional equipment required for this purpose?

A.47 *The facility itself will be able to support text-to-911 service once 911 call centers (i.e. Public Safety Answering Points or "PSAPs") in Connecticut have the ability to accept and process emergency text messages from the public. No additional equipment need be installed. It is anticipated that Text-to-911 will be widely available in the United States in the future. For now, PSAPs around the country are still working to accommodate this new text-to-911 functionality and is only currently available in select markets. At this time AT&T is not aware of any PSAPs which are able to accommodate text-to-911 in Connecticut. The FCC is maintaining information regarding text-to-911 as well as a list of areas of the country supporting text-to-911 on its website available at <https://www.fcc.gov/text-to-911>. Once the functionality of text-to-911 is in place, AT&T's facilities, including the proposed facility in this Docket, will be able to support text-to-911. Until such time that local PSAPs are able to support this technology no wireless users in Connecticut should rely on text-to-911.*

Q.48 Are you aware of any Public Safety Answering Points in the area of the proposed site that are able to accept text-to-911?

A.48 *Please see A47 above.*

CERTIFICATE OF SERVICE

I hereby certify that on this day, an original and fifteen (15) copies of the foregoing was sent electronically and by overnight mail to the Connecticut Siting Council with copy to:

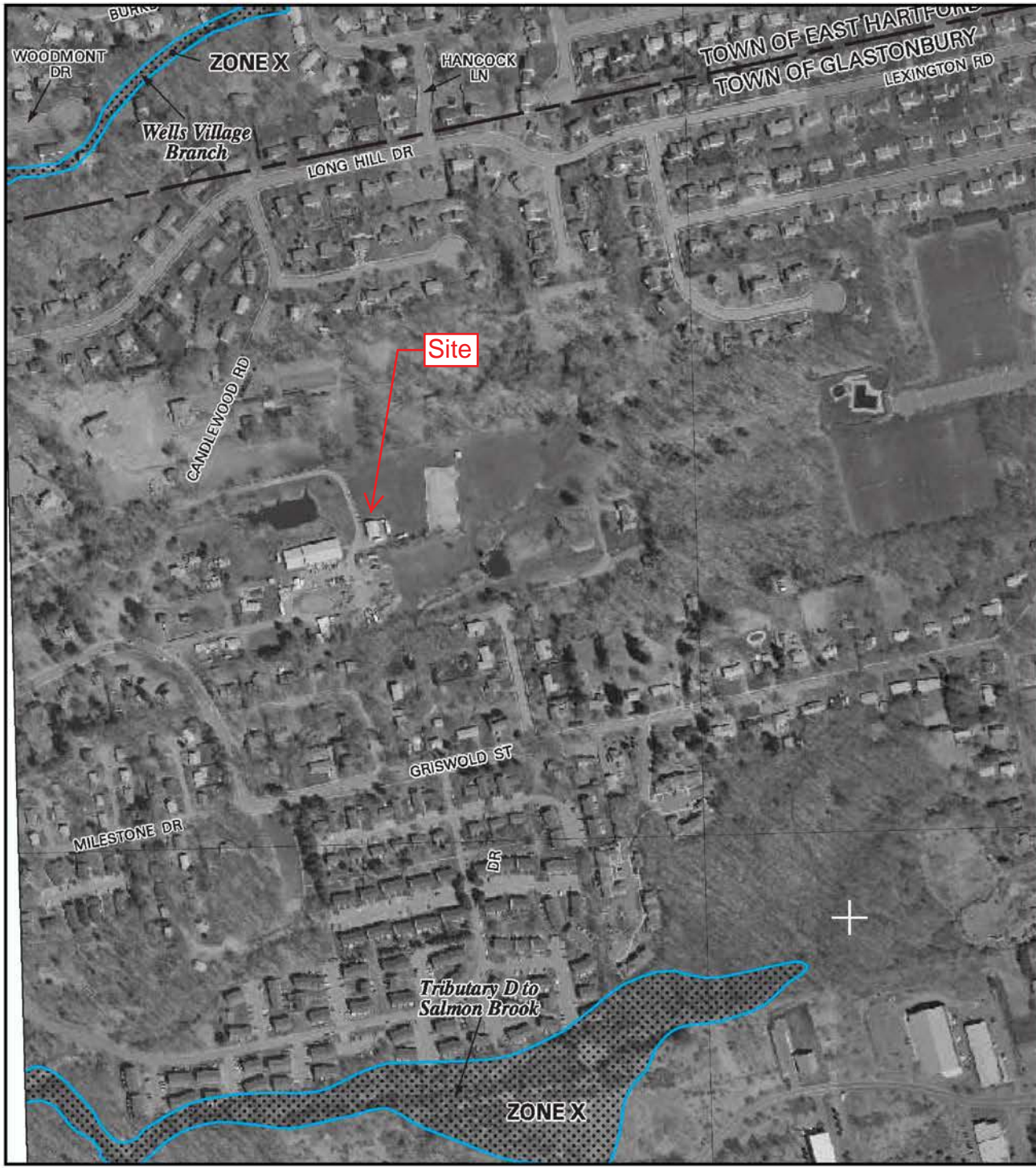
Richard J. Johnson  
Town Manager  
Town of Glastonbury  
P.O. Box 6523  
Glastonbury, CT 06033-6523  
richard.johnson@glastonbury-ct.gov

Dated: June 2, 2015



Daniel M. Laub

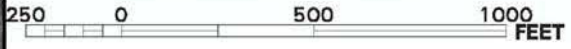
# ATTACHMENT 1



lood insurance is available in this community, contact your local Flood Insurance Program at (800) 638-6620.



MAP SCALE 1" = 500'



PANEL 0527F

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
 HARTFORD COUNTY,  
 CONNECTICUT  
 (ALL JURISDICTIONS)

**PANEL 527 OF 675**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EAST HARTFORD, TOWN OF	090026	0527	F
GLASTONBURY, TOWN OF	090124	0527	F
MANCHESTER, TOWN OF	090031	0527	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



**MAP NUMBER**  
**09003C0527F**

**EFFECTIVE DATE:**  
**SEPTEMBER 26, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

# ATTACHMENT 2

## **EASTERN BOX TURTLE PROTECTION PROGRAM**

State special concern eastern box turtle (*Terrapene carolina carolina*), afforded protection under the Connecticut Endangered Species Acts, is known to occur in the vicinity of this project. The following protective measures shall be followed to help avoid unintentional mortality as a result of construction activities for the site improvements proposed. These protective measures satisfy recommendations from the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division and follow protocols developed from previous rare species consultations and state-approved protection plans. This protection plan is valid for one year from the date of CTDEEP's letter, at which point if construction has not been initiated, a new Natural Diversity Data Base review request from CTDEEP is required.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site particularly if work will occur during the turtle's active period (April 1 to November 15). All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that eastern box turtle protection measures are implemented properly and will provide an education session on eastern box turtle prior to the start of construction activities. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 984-9515 or via email at dgustafson@allpointstech.com.

The proposed project will not result in direct impact to wetlands or watercourses. The Contractor is strictly prohibited from placing fill in wetlands or watercourse or temporarily storing equipment or materials in wetlands or watercourses.

The proposed eastern box turtle protection program consists of several components: isolation of the project perimeter; use of appropriate erosion control measures to minimize wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

### **1. Isolation Measures & Erosion and Sedimentation Controls**

- a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the Verizon Wireless project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.
- b. Installation of conventional silt fencing, which will also serve as an isolation of the work zone from surrounding areas and required for erosion control compliance, shall be performed by the Contractor prior to any earthwork. APT will inspect the work zone area prior to and following barrier installation to ensure the area is free of eastern box turtles prior to start of construction activities.
- c. The fencing will consist of non-reinforced conventional erosion control woven fabric, installed approximately six inches below surface grade and staked at seven to ten-foot intervals using four-foot oak stakes or approved equivalent. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breeches in the fabric following installation and at either on a weekly or biweekly



inspection frequency by APT. If inspections are performed on a biweekly basis, such inspections will also include inspections following storm events of 0.25 inch or greater. Inspections will be conducted by APT throughout the course of the construction project.

- d. The extent of the barrier fencing will be as shown on the site plans. The Contractor shall have additional barrier fencing should field conditions warrant extending the fencing as directed by APT.
- e. No equipment, vehicles or construction materials shall be stored outside of barrier fencing.
- f. All silt fencing shall be removed within 30 days of completion of work and permanent stabilization of site soils so that reptile and amphibian movement between uplands and wetlands is not restricted.

## **2. Contractor Education**

- a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT providing photos of eastern box turtles and emphasizing the non-aggressive nature of eastern box turtles, the absence of need to destroy animals that might be encountered and the need to follow Protective Measures as described in Section 4 below. Workers will also be provided information regarding the identification of other turtle species that could be encountered.
- b. The education session will also focus on means to discriminate between the species of concern and other native species to avoid unnecessary "false alarms". Encounters with any species of turtles will be documented.
- c. The Contractor will be provided with cell phone and email contacts for APT personnel to immediately report any encounters with eastern box turtle or other turtle species. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

## **3. Petroleum Materials Storage and Spill Prevention**

- a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.
- b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.
- c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.
  - i. Petroleum and Hazardous Materials Storage and Refueling
    - 1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an

impervious pad with secondary containment designed to contain fuels.

2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

ii. Initial Spill Response Procedures

1. Stop operations and shut off equipment.
2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact the appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to the Connecticut Siting Council.

**4. Turtle Protective Measures**

- a. Prior to the start of construction each day, the Contractor shall search the entire work area for turtles.
- b. If a turtle is found, it shall be immediately moved, unharmed, by carefully grasped in both hands, one on each side of the shell, between the turtle's forelimbs and the hind limbs, and placed just outside of the isolation barrier in the approximate direction it was walking.
- c. Special care shall be taken by the Contractor during early morning and evening hours so that possible basking or foraging turtles are not harmed by construction activities.

**5. Herbicide and Pesticide Restrictions**

- a. The use of herbicides and pesticides at the proposed wireless telecommunications facility and along the proposed access drive are strictly prohibited.

**6. Reporting**

- a. Biweekly inspection reports (brief narrative and applicable photos) will be submitted to the Connecticut Siting Council for compliance verification.
- b. Following completion of the construction project, APT will provide a summary report to CTDEEP documenting the monitoring and maintenance of the barrier fence and erosion control measures.
- c. Any observations of eastern box turtle will be reported to CTDEEP by APT, with photo-documentation (if possible) and with specific information on the location and disposition of the animal.

# ATTACHMENT 3

the existing disturbed and developed nature of this wetland area (e.g., immediately adjacent to the paved road and located within a horse paddock area).

Minor temporary impacts may be associated with Message Center Management's construction activities due to the close proximity to wetlands and the proposed underground utility route. Provided sedimentation and erosion controls are designed, installed and maintained during construction activities in accordance with the *2002 Connecticut Guidelines For Soil Erosion and Sediment Control*, temporary impacts would be minimized. Long term secondary impacts to wetland resources possibly associated with the operation of this Facility are minimized by the fact the development is unmanned, it minimizes the creation of impervious surfaces with the use of a gravel access drive and gravel compound, it creates minimal traffic and the wetland system currently experiences a high level of human and agricultural activity associated with the horse farm. APT recommends that stormwater generated by the proposed development be properly handled and treated in accordance with the *2004 Connecticut Stormwater Quality Manual*, with an emphasis on utilizing Green Infrastructure/Low Impact Development techniques<sup>3</sup>, where appropriate and deemed necessary through engineering analysis. APT understands that details of the erosion control and stormwater management plans would be developed during the Council's Development and Management ("D&M") Plan, should the Facility be approved by the Council. Provided these recommendations are implemented, it is APT's opinion that the proposed Message Center Management, Inc. development would not result in a likely adverse impact to wetland resources.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 663-1697 ext. 202 or via email at [mgustafson@allpointstech.com](mailto:mgustafson@allpointstech.com).

Sincerely,

All-Points Technology Corporation, P.C.

Delineation Performed by:



Matthew Gustafson

Registered Soil Scientist

Delineation Reviewed by:



Dean Gustafson

Professional Soil Scientist

Enclosure

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<sup>3</sup> Connecticut Department of Energy & Environmental Protection. *Low Impact Development Appendix to the Connecticut Stormwater Quality Manual*. June 2011.

# ATTACHMENT 4



## WETLAND EVALUATION

May 31, 2015

Message Center Management, Inc.  
40 Woodland Street  
Hartford, CT 06105

APT Project No.: CT242330

Re: **Docket 459 – Response to Interrogatory #17**  
**Candlewood Road**  
**Glastonbury, Connecticut**

All-Points Technology Corporation, P.C. (“APT”) is pleased to provide the following wetland evaluation in response to Question 17 of the Connecticut Siting Council (“Council”) Pre-Hearing Questions Set One, dated May 20, 2015. Message Center Management, Inc. (“MCM”) proposes to construct a wireless telecommunications facility (“Facility”) at Seven J’s Farm on Candlewood Road in Glastonbury, Connecticut (“Subject Property”). APT previously identified and delineated one wetland on the Subject Property in proximity to the proposed Facility (identified as Wetland 1). Please refer to the previously submitted Wetland Investigation report dated May 27, 2014 for details of that investigation. Wetland 1 consists of an open water agricultural pond, hillside seep and intermittent stream system. The following evaluation of functions and values supported by these wetland areas is provided.

### **Site and Project Description:**

The Subject Property (Map E3, Block 0820, and Lot E0002) consists of an approximately 9-acre parcel developed as a horse farm. The area proposed for the wireless communications Facility is located in a mowed grass area adjacent to one of the farm’s barns. Access to the Facility would travel along the Subject Property’s existing paved driveway off Candlewood Road then along a proposed 20± gravel access spur to the Facility. The Study Area is dominated by the horse farm with associated fields and buildings along with a small man-made pond mostly bordered by maintained lawn. The surrounding land-use consists primarily of residential development.

One wetland area was identified on the Subject Property in proximity to the proposed Facility, consisting of an agricultural pond, hillside seep and intermittent stream system, most of which is contained within the existing horse farm operation. A northern component of the wetland, bisected by the existing driveway, extends off the Subject Property. Please refer to the enclosed Wetland Delineation Map for the approximate location of the identified wetland resource area along with a Photodocumentation containing photographs depicting the wetland areas. Wetlands were marked with pink and blue plastic flagging tape numbered with the following sequence: WF 1-01 to 1-22 and WF 1-50 to 1-61.

### **ALL-POINTS TECHNOLOGY CORPORATION, P.C.**

3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935

P.O. BOX 504 · 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

## **Wetland Evaluation**

There are many methods of evaluating wetlands, all incorporating different parameters to assess these resources. This study uses The *Highway Methodology Workbook Supplement, Wetland Functions and Values: A Descriptive Approach* issued by the US Army Corps of Engineers New England District (“COE NED”), September 1999. This evaluation provides a qualitative approach in which wetland functions can be considered principal, secondary, or unlikely to be provided at a significant level. Functions and values can be principal if they are an important physical component of a wetland ecosystem (function only), and/or are considered of special value to society, from a local, regional, and/or national perspective. The COE NED recommends that wetland values and functions be determined through “best professional judgment” based on a qualitative description of the physical attributes of wetlands and the functions and values exhibited.

Wetland 1 is a complex of an open water pond, hillside seep wetland and intermittent stream system all formed in glaciofluvial (outwash) soil parent material. Wetland 1 generally encompasses the western end of the Subject Property. This wetland system generally flows east to west, and is bisected by the existing paved driveway; a small 3-inch PVC pipe conveys flows from an incised intermittent watercourse channel on the northeast side of the driveway where it empties into the pond. This open water feature returns to a channelized intermittent stream system as it flows west and under Candlewood Road. Wetland 1 is subject to varying degrees of anthropogenic disturbance in association with the current horse farm development, as well as from historic agricultural activities.

### **Wetland 1 Evaluation**

A summary of the functions and values of Wetland 1 are provided below. A Wetland Function-Value Evaluation Summary Table and accompanying Field/Office Wetland Function-Value Evaluation Form for this wetland is enclosed.

**Hydrologic Functions:** A principal function of Wetland 1 is groundwater discharge/recharge, which is likely cyclical depending upon time of year, level of precipitation and location within this wetland system.

Wetland 1 provides some floodflow alteration, at a secondary level, due to the impounded nature of the agricultural pond and its partially restricted outlet.

**Biological Functions:** Fish habitat is supported in a secondary capacity in the agricultural pond and is expected to be limited to common warm water finfish species tolerant of impaired water quality as a result of the influx of runoff from the surrounding fields, paddock areas and existing driveway.

Wetland 1 provides wildlife habitat function at a secondary level due to the limited diversity of habitat provided by the intermittent watercourse and pond features. Wildlife tolerant of the high level of human activity surrounding this wetland system would be expected to utilize this habitat. The lack of structural diversity in the tree, shrub and herbaceous layers also relates to the inability to support this function at a principal level in Wetland 1. The proximity of this wetland system to the Subject Property’s development, adjoining developed properties and Candlewood Road detracts from the ecological integrity of this wetland. The surrounding high level of human activity also results in obstructions to a possible wildlife corridor biologically linking this wetland with other downstream wetland areas.

Production export is provided at a secondary level from this wetland since it supports a relatively limited diversity and density of vegetation and wildlife food sources. No significant commercially used products are supported by Wetland 1.

**Water Quality Functions:** Wetland 1 provides sediment, toxicant, and pathogen retention functions at a principal level. The wetland has the capacity to settle and retain sediments, toxicants and pathogens due to the impounded nature of the agricultural pond. In addition, opportunities for the wetland to support this function are provided through runoff from surrounding fields, paddock areas and the existing driveway. This wetland provides nutrient removal/nutrient retention/transformation at a principal level for similar reasons.



Sediment/shoreline stabilization functions are supported by this wetland in a secondary capacity as the wetland fringe aids in supporting the banks of the pond.

**Societal Values:** With the primary use of Wetland 1 as an agricultural pond, this wetland system does not provide recreational value, such as boating, in a significant capacity. Educational/scientific value is not supported in significant capacity. Although the wetland is easily accessible and can be viewed from various locations on the Subject Property, public access is restricted and it represents a typical agricultural pond feature with associated high level of human activity.

The Uniqueness/Heritage value considers the special value of a wetland in context with the overall landscape, cultural features, and rarity of wetland/habitat type in the local area. The wetland/habitat type is relatively common in the local area, particularly on agricultural properties. According to a June 16, 2014 Connecticut Department of Energy and Environmental Protection (“CTDEEP”) Natural Diversity Data Base (“NDDB”) letter, the agency has records for Eastern Box Turtle (*Terrapene carolina carolina*), a State Species of Special Concern, in the vicinity of the project. Since this turtle species utilizes a variety of wetland (along with terrestrial) habitat, Wetland 1 provides uniqueness/heritage value in a secondary capacity due to its possible association with a State Species of Special Concern. MCM has already committed to implementing protection strategies, which were approved by CTDEEP, to mitigate potential encounters with this turtle species during construction.

Wetland 1 supports Visual Quality/Aesthetics value in a secondary capacity due to the open water feature when considered in context with the surrounding agricultural use of the Subject Property. This value is not considered to be supported at a principal level since it is a relatively common wetland type and the anthropogenic nature of the wetland and immediately surrounding areas.

The potential use of Wetland 1 by a State Species of Special Concern results in the resource supporting Endangered Species Habitat in a principal capacity.

### **Wetland Impact Analysis**

As currently proposed, no direct impact to wetlands or watercourses is associated with the proposed development of the tower/compound or gravel access. At its nearest point, Wetland 1 is located 50± feet northwest of the proposed Facility’s compound area (northwest compound corner to wetland flag WF 1-14) and 50± feet west of the edge of the proposed gravel access spur (wetland flag WF 1-19). Due to the close proximity of portions of Wetland 1 to the existing paved driveway, the proposed underground utility route will be in close proximity to wetland flags WF 1-52 through 1-58. Possible alternate routes for the underground utility route through the Subject Property would result in greater impact to wetlands due to the larger wetland area located on the south side of the existing paved driveway. Underground trenching will be positioned to avoid direct wetland impacts where possible. In the unlikely event that wetland impacts should occur during construction, they would be temporary in nature and not expected to result in an adverse impact to the functions and values supported by this wetland. This wetland area currently experiences regular disturbances because of its close proximity to developed areas and active use as a horse farm operation.

The potential exists for minor temporary impacts associated with MCM’s construction activities due to the close proximity of the nearby wetland to the proposed underground utility route. APT recommends that sedimentation and erosion controls are designed, installed and maintained during construction activities in accordance with the 2002 Connecticut Guidelines For Soil Erosion and Sediment Control to minimize and mitigate possible temporary impacts. Long term secondary impacts to wetland resources possibly associated with the operation of this Facility are minimized by the fact the development is unmanned, it minimizes the creation of impervious surfaces with the use of a gravel access drive and gravel compound, it creates minimal traffic and the wetland system and adjacent uplands currently experience a high level of human and agricultural activity associated with the horse farm operation. APT also recommends that stormwater generated by the proposed development be properly handled

and treated in accordance with the *2004 Connecticut Stormwater Quality Manual*, with an emphasis on utilizing Green Infrastructure/Low Impact Development techniques<sup>1</sup>, where appropriate and deemed necessary through engineering analysis. APT understands that details of the erosion control and stormwater management plans would be developed during the Development and Management ("D&M") Plan phase of the proceedings, should the Facility be approved by the Council. Provided these recommendations are implemented, it is APT's opinion that the proposed MCM development would not result in a likely adverse impact to wetland resources or to the functions and values this wetland area supports.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 663-1697 ext. 201 or via email at [dgustafson@allpointstech.com](mailto:dgustafson@allpointstech.com).

Sincerely,

All-Points Technology Corporation, P.C.



Dean Gustafson

Senior Wetland Scientist

Enclosures

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<sup>1</sup> Connecticut Department of Energy & Environmental Protection. *Low Impact Development Appendix to the Connecticut Stormwater Quality Manual*. June 2011.

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# Wetland Delineation Map



**Legend**

- Proposed Tower Location
- Proposed Facility Layout
- Fence
- Approximate Subject Parcel Boundary
- Wetland Flag
- Delineated Wetland Boundary
- Wetland Area

**Wetland Delineation Map**

Proposed Wireless  
Telecommunications Facility  
Glastonbury  
Candlewood Road  
Glastonbury, Connecticut



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# Photodocumentation



Photo 1: View of Wetland 1 (pond), looking southeast of east end of pond from paved access road.



Photo 2: View of Wetland 1 (pond), looking south at west end of pond.



Photo 3: View of Wetland 1 (hillside seep), looking northeast from paved access road (just off right side of photo).



Photo 4: View of Wetland 1 (intermittent watercourse), looking southwest with paved access road in background and pond in left side of photo.

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**Wetland Function-Value Evaluation  
Summary Table  
&  
Field/Office Wetland Function-Value  
Evaluation Form**



## Wetland Function-Value Evaluation Summary Table

Total area of wetland	Wetland 1 = 1.5± ac.	Human Made?	No	Is wetland part of a wildlife corridor?	No	or a "habitat Island"?	Yes	Wetland ID	Wetland 1 (WF 1-01 to 1-22 & WF 1-50 to 1-61)
Adjacent land use	residential & roadway			Distance to nearest roadway or other development	0 feet			Latitude/ Longitude	41°43'41.20"N, - 72°35'23.79"W
Dominant wetland systems present	Palustrine Open Water			Contiguous undeveloped buffer zone present	No			Prepared by	D. Gustafson
Is the wetland a separate hydraulic system?	No			If not, where does the wetland lie in the drainage basin?	headwater wetlands			Wetland Impact	
How many Tributaries contribute to the wetland?		none; zero order intermittent watercourse		Wildlife & vegetation diversity/abundance	No			Type:	Temp (utilities) Area 0-<100 sf
								Corps manual wetland delineation	Completed? Yes

Functions/Values	Suitability		Rationale (Reference #)*	Principal Function(s)/Values(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1-5,7,9,11,15	P	headwater wetlands contribute to groundwater recharge
Floodflow Alteration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,3,5-7,9,11,13,15,17	S	impounded nature of the agricultural pond and its partially restricted outlet support function
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3,4,8,10,12,15,17	S	common warm water finfish species anticipated in pond
Wildlife Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,6,8,11,16-20	S	high level of surrounding human activity
Production Export	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2,4-6,10,12,13	S	relatively limited diversity and density of vegetation and wildlife food sources
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1-3,5,6,8-12	P	impounded nature of the agricultural pond supports function
Nutrient Removal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2-5,9-11,13,14	P	impounded nature of the agricultural pond supports function
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1-4,6,9,14	S	bordering forested wetland systems to the seasonal intermittent watercourses provide bank stabilization
Recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2,8		public access is restricted
Educational/Scientific Value	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,12-14		limited value due to lack of public access
Uniqueness/Heritage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11-15,17,19,24	S	uniqueness associated with potential for State Species of Special Concern
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2,4,6,7,9,11,12	S	Agricultural pond
Endangered Species Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2	P	State Species of Special Concern potentially utilize wetland habitat
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

\* Refer to Field / Office Wetland Function-Value Evaluation Form for number considerations.

## Field / Office Wetland Function-Value Evaluation Form

Date(s):	May 29, 2015	Project Location:	Candlewood Road Glastonbury, CT	
Inspector(s):	Dean Gustafson, PSS	Wetland ID:	Wetland 1 (WF 1-01 to 1-22 & WF 1-50 to 1-61)	
Corps Delineation:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CT Delineation:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Area:	Wetland 1 = 1.5± ac.	Proposed Impact:	Type:Temporary	Area:0-<100 sf
Created Wetland:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Adjacent Land Use:	horse farm, residential & roadway	
Dominate System:	Open Water	Nearest Roadway:	Candlewood Road	
Wildlife Corridor:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Habitat Island:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Tributaries:	none; zero order intermittent watercourse	Buffer Condition:	Developed - Agriculture	
Site Photo(s):		Species List(s):	Refer to Wetlands Delineation Report	
<p>Wetland 1 is a complex of a hillside seep wetland system, intermittent stream system, and open water pond formed in glaciofluvial (outwash) parent material. Wetland 1 generally encompasses the northern and southern boundary of the existing access drive originating offsite to the north. This wetland system generally flows east to west, bisected by the existing paved road; a small 3-inch PVC pipe conveys flows from an incised intermittent watercourse channel on the east side of the road where it empties into the pond. This open water feature returns to a channelized intermittent stream system as it flows west and under Candlewood Road. Wetland 1 is subject to varying degrees of anthropogenic disturbance in association with the current horse farm development, as well as from historic agricultural activities.</p>				

### GROUNDWATER RECHARGE/DISCHARGE FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Public or private wells occur downstream of the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Potential exists for public or private wells downstream of the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Wetland is underlain by stratified drift.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Gravel or sandy soils present in or adjacent to the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Fragipan does not occur in the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Fragipan, impervious soils, or bedrock does occur in the wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Wetland is associated with a perennial or intermittent watercourse.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Wetland is associated w/ a watercourse but lacks a defined outlet/contains a constricted outlet.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Wetland contains only an outlet, no inlet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Quality of water associated with the wetland is high.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Signs of groundwater discharge are present (e.g., springs).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Water temperature suggests it is a discharge site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Wetland shows signs of variable water levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Piezometer data demonstrates discharge.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Comments: headwater wetland contributes to base flow of zero order intermittent watercourse and groundwater recharge</p>			

**FLOODFLOW ALTERATION FUNCTION**

<b>CONSIDERATIONS/QUALIFIERS</b>	<b>Y</b>	<b>N</b>	<b>Principal</b>
1. Area of this wetland is large relative to its watershed.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Wetland occurs in the upper portions of its watershed.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Effective flood storage is small or non-existent upslope of or above the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Wetland watershed contains a high percent of impervious surfaces.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Wetland contains hydric soils which are able to absorb and detain water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Wetland exists in a relatively flat area that has flood storage potential.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. During flooding wetland retains higher volumes of water than under normal/average rainfall conditions.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. During a storm, this wetland may receive and detain excessive flood water from a nearby watercourse.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Valuable properties, structures, or resources are located in/near floodplain downstream of the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. The watershed has a history of economic loss due to flooding.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. This wetland is associated with one or more watercourses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. This wetland watercourse is sinuous or diffuse.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. This wetland outlet is constricted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Channel flow velocity is affected by this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17. Land uses downstream are protected by this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. This wetland contains a high density of vegetation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments: flood storage capacity is provided by impounded nature of the agricultural pond and its partially restricted outlet			

**FISH AND SHELLFISH HABITAT (FRESHWATER) FUNCTION**

<b>CONSIDERATIONS/QUALIFIERS</b>	<b>Y</b>	<b>N</b>	<b>Principal</b>
1. Forest land dominant in the watershed above this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Abundance of cover objects present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE</b>			
3. Size of this wetland is able to support large fish/shellfish populations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Wetland is part of a larger, contiguous watercourse.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sufficient open water size/depth so as not to freeze solid and retain some open water during winter.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Stream width (bank to bank) is more than 50 feet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Quality of watercourse associated with wetland is able to support healthy fish/shellfish populations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Streamside vegetation provides shade for the watercourse.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Spawning areas are present (submerged vegetation or gravel beds).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Food is available to fish/shellfish populations within this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Anadromous fish barrier(s) absent from stream reach associated with this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Evidence of fish is present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Wetland is stocked with fish.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. The watercourse is persistent.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Man-made streams are absent.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Water velocities are not too excessive for fish usage.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17. Defined stream channel is present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: common warm water finfish species tolerant of impaired water quality associated with the agricultural pond are anticipated

### FISH AND SHELLFISH HABITAT (MARINE) FUNCTION – N/A

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Suitable spawning habitat is present at the site or in the area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Commercially or recreationally important species are present or suitable habitat exists.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The wetland/waterway supports prey for higher trophic level marine organisms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The waterway provides migratory habitat for anadromous fish.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Essential fish habitat (1996 amendments to the Magnuson-Stevens) Fishery & Conservation Act present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

### WILDLIFE HABITAT FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is not degraded by human activity.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Water quality of watercourse/pond/lake associated w/ wetland meets/exceeds Class A or B standards.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Wetland is not fragmented by development.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Upland surrounding this wetland is undeveloped.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. > 40% of wetland edge bordered by upland wildlife habitat at least 500 ft in width.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Wildlife overland access to other wetlands is present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Wildlife food sources are within this wetland or are nearby.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Wetland exhibits a high degree of interspersions of vegetation classes and/or open water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Two or more islands or inclusions of upland within the wetland are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. > 3 acres shallow permanent open water (< 6.6 feet deep), including in/adjacent streams present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Density of the wetland vegetation is high.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Wetland exhibits a high degree of plant species diversity.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Wetland exhibits high degree plant community structure diversity (tree/shrub/vine/grasses/mosses)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. Plant/animal indicator species are present. (List species for project)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Animal signs observed (tracks, scats, nesting areas, etc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Wetland contains or has potential to contain a high population of insects.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Wetland contains or has potential to contain large amphibian populations. (no vernal pool habitat identified)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Wetland has a high avian utilization or its potential.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22. Indications of less disturbance-tolerant species are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments: wildlife habitat function supported at a secondary level due to the limited diversity of habitat provided by the intermittent watercourse and pond features and high level of surrounding human activity			

**PRODUCTION EXPORT (Nutrient) FUNCTION**

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wildlife food sources grow within this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Detritus development is present within this wetland	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Economically or commercially used products found in this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Evidence of wildlife use found within this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Higher trophic level consumers are utilizing this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Fish or shellfish develop or occur in this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. High vegetation density is present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Wetland exhibits high degree of plant community structure/species diversity.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. High aquatic vegetative diversity/abundance is present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Nutrients exported in wetland watercourses (permanent outlet present).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Wetland contains flowering plants that are used by nectar-gathering insects.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Indications of export are present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. High production levels occurring with no visible signs of export (assumes export is attenuated).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments: production export is provided at a secondary level from this wetland since it supports a relatively limited diversity and density of vegetation and wildlife food sources			

**SEDIMENT/TOXICANT/PATHOGEN RETENTION FUNCTION**

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Potential sources of excess sediment are in the watershed above the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Potential or known sources of toxicants are in the watershed above the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Opportunity for sediment trapping by slow moving water/deepwater habitat is present in wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Fine grained mineral or organic soils are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Long duration water retention time is present in this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Public or private water sources occur downstream.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The wetland edge is broad and intermittently aerobic.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. The wetland is known to have existed for more than 50 years.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Drainage ditches have not been constructed in the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE</b>			
10. Wetland is associated with an intermittent or perennial stream or a lake.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Channelized flows have visible velocity decreases in the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. No indicators of erosive forces are present. No high water velocities are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Diffuse water flows are present in the wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. Wetland has a high degree of water and vegetation interspersion.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. Dense vegetation provides sediment trapping/signs of sediment accumulation are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments: the wetland has the capacity to settle and retain sediments, toxicants and pathogens due to the impounded nature of the agricultural pond			

**NUTRIENT REMOVAL/RETENTION/TRANSFORMATION FUNCTION**

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is large relative to the size of its watershed.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Deep water or open water habitat exists.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Overall potential for sediment trapping exists in the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4. Potential sources of excess nutrients are present in the watershed above the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Wetland saturated for most of the season. Pondered water is present in the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Deep organic/sediment deposits are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Slowly drained fine grained mineral or organic soils are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Dense vegetation is present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Emergent vegetation and/or dense woody stems are dominant.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Opportunity for nutrient attenuation exists.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Vegetation diversity/abundance sufficient to utilize nutrients.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE</b>			
12. Waterflow through this wetland is diffuse.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14. Water moves slowly through this wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments: the wetland has the capacity to settle and retain sediments, toxicants and pathogens due to the impounded nature of the agricultural pond			

### SEDIMENT/SHORELINE STABILIZATION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Indications of erosion or siltation are present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Topographical gradient is present in wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Potential sediment sources are present up-slope.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Potential sediment sources are present upstream.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Wide wetland (>10') borders watercourse, lake, or pond.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. High flow velocities in the wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. The watershed is of sufficient size to produce channelized flow.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Open water fetch is present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Boating activity is present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Dense vegetation is bordering watercourse, lake, or pond.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments: sediment/shoreline stabilization functions are supported by this wetland in a secondary capacity as the wetland fringe aids in supporting the banks of the pond			

### RECREATION (Consumptive and Non-Consumptive) VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is part of a recreation area, park, forest, or refuge.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Fishing is available within or from the wetland.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Hunting is permitted in the wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Hiking occurs or has potential to occur within the wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Wetland is a valuable wildlife habitat.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. The watercourse, pond, or lake associated with the wetland is unpolluted.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. High visual/aesthetic quality of this potential recreation site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Watercourse associated w/ wetland is wide & deep enough to accommodate canoeing and/or non-powered boating.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Off-road public parking available at the potential recreation site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Accessibility and travel ease is present at this site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. The wetland is within a short drive or safe walk from highly populated public and private areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments: public access is restricted			

### EDUCATIONAL/SCIENTIFIC VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland contains or is known to contain threatened, rare, or endangered species. (potentially)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Little or no disturbance is occurring in this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Potential educational site contains a diversity of wetland classes & are accessible/potentially accessible.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Potential educational site is undisturbed and natural.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Wetland is considered to be a valuable wildlife habitat.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Wetland is located within a nature preserve or wildlife management area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Potential educational site is within safe walking distance or a short drive to schools.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Potential educational site is within safe walking distance to other plant communities.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Direct access to perennial stream at potential educational site is available.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Direct access to pond or lake at potential educational site is available.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. No known safety hazards exist within the potential educational site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Public access to the potential educational site is controlled.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Handicap accessibility is available.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. Site is currently used for educational or scientific purposes.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments: limited value due to lack of public access and high level of surrounding human activity			

### UNIQUENESS/HERITAGE VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Upland surrounding wetland is primarily urban.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Upland surrounding wetland is developing rapidly.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. > 3 acres of shallow permanent open water (< 6.6 feet deep), including streams, occur in wetlands.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Three or more wetland classes are present.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Deep and/or shallow marsh or wooded swamp dominate.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. High degree of interspersed vegetation and/or open water occur in this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Potential educational site is within a short drive or a safe walk from schools.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Off-road parking at potential educational site is suitable for school buses.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. No known safety hazards exist within this potential educational site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Direct access to perennial stream or lake exists at potential educational site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Two or more wetland classes are visible from primary viewing locations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) visible from primary viewing locations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Large area of wetland dominated by flowering plants/plants that seasonally turn vibrant colors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. General appearance of the wetland visible from primary viewing locations is	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

unpolluted and/or undisturbed.			
17. Overall view of the wetland is available from the surrounding upland.	✓	<input type="checkbox"/>	<input type="checkbox"/>
18. Quality of the water associated with the wetland is high.	<input type="checkbox"/>	✓	<input type="checkbox"/>
19. Opportunities for wildlife observations are available.	✓	<input type="checkbox"/>	<input type="checkbox"/>
20. Historical buildings are found within the wetland.	<input type="checkbox"/>	✓	<input type="checkbox"/>
21. Presence of pond or pond site and remains of a dam occur within the wetland.	<input type="checkbox"/>	✓	<input type="checkbox"/>
22. Wetland is within 50 yards of the nearest perennial watercourse.	<input type="checkbox"/>	✓	<input type="checkbox"/>
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.	<input type="checkbox"/>	✓	<input type="checkbox"/>
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species. (potentially)	✓	<input type="checkbox"/>	<input type="checkbox"/>
25. Wetland is known to be a study site for scientific research.	<input type="checkbox"/>	✓	<input type="checkbox"/>
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.	<input type="checkbox"/>	✓	<input type="checkbox"/>
27. Wetland has local significance because it serves several functional values.	<input type="checkbox"/>	✓	<input type="checkbox"/>
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.	<input type="checkbox"/>	✓	<input type="checkbox"/>
29. Wetland is known to contain an important archaeological site.	<input type="checkbox"/>	✓	<input type="checkbox"/>
30. Wetland is hydrologically connected to a state or federally designated scenic river.	<input type="checkbox"/>	✓	<input type="checkbox"/>
31. Wetland is located in an area experiencing a high wetland loss rate.	<input type="checkbox"/>	✓	<input type="checkbox"/>
Comments: uniqueness value primarily associated with potential utilization by State Special Concern Species (turtle)			

#### VISUAL QUALITY/AESTHETICS VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Multiple wetland classes are visible from primary viewing locations.	✓	<input type="checkbox"/>	<input type="checkbox"/>
2. Emergent marsh and/or open water are visible from primary viewing locations.	✓	<input type="checkbox"/>	✓
3. A diversity of vegetative species is visible from primary viewing locations	<input type="checkbox"/>	✓	<input type="checkbox"/>
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.	✓	<input type="checkbox"/>	<input type="checkbox"/>
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.	<input type="checkbox"/>	✓	<input type="checkbox"/>
6. Visible surrounding land use form contrasts with wetland.	✓	<input type="checkbox"/>	<input type="checkbox"/>
7. Wetland views absent of trash, debris, and signs of disturbance.	✓	<input type="checkbox"/>	<input type="checkbox"/>
8. Wetland is considered to be a valuable wildlife habitat.	<input type="checkbox"/>	✓	<input type="checkbox"/>
9. Wetland is easily accessed.	✓	<input type="checkbox"/>	<input type="checkbox"/>
10. Low noise level at primary viewing locations.	<input type="checkbox"/>	✓	<input type="checkbox"/>
11. Unpleasant odors absent at primary viewing locations.	✓	<input type="checkbox"/>	<input type="checkbox"/>
12. Relatively unobstructed sight line exists through wetland.	✓	<input type="checkbox"/>	✓
Comments: agricultural pond provides some aesthetics value			

#### ENDANGERED SPECIES HABITAT VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland contains or is known to contain threatened or endangered species. (potentially)	✓	<input type="checkbox"/>	✓
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species. (potentially)	✓	<input type="checkbox"/>	✓
Comments: State Species of Special Concern (turtle) potentially utilize wetland area			



# ATTACHMENT 5



HMB Acoustics LLC

3 Cherry Tree Lane, Avon, CT 06001

860-677-5955

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## Noise Evaluation Report

Proposed Telecommunications Facility  
Glastonbury  
Candlewood Road  
Glastonbury, CT 06033

May 25, 2015

Prepared For:  
Robert C. Burns, P.E.  
Project Manager  
All-Points Technology Corporation  
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3 Cherry Tree Lane  
Avon, CT 06001

## **Introduction**

A new telecommunications facility is being proposed on Candlewood Road - Glastonbury, CT. The facility will include an equipment shelter that will house two (2) wall mounted 5 ton air-conditioners that will be used to cool the radio equipment. In addition, a natural gas fueled 50 kw emergency generator will be mounted outdoors on a concrete pad. The purpose of this noise evaluation is to determine whether the generator and two air-conditioners operating simultaneously will comply with the State of CT Noise Regulations.

On May 23, 2015, background noise levels were measured in residential areas around the proposed site. These levels measured, on average, 45-55 dBA. The major source of background noise was vehicular traffic. The surrounding neighborhood is residential in nature. The background data was taken on Candlewood Road; Griswold Street; and Addison Road.

It is important to note that the generator operates approximately 15-20 minutes each week for testing. All testing is carried out during the daytime hours. Other than these testing periods, the generator runs only in times of emergency when commercial power to the facility is interrupted. This report and the noise regulations utilize a dBA scale. This scale is used because it closely approximates the response characteristic of the human ear to loudness, and is the scale most commonly used in the measurement of community noise.

## **Noise Regulations**

The State of CT has enacted regulations which limit the amount of noise which may be transferred from one property to another. In pertinent part, the Regulations provide as follows:

Daytime hours are between 7 a.m. and 10 p.m. local time.

Nighttime hours are between 10 p.m. and 7 a.m. local time.

(Sec. 22a-69-1.1 (h) and (n)).

It shall unlawful for any person to emit or cause to be emitted any noise beyond the property lines of his / her premises in excess of 55 dBA daytime; or 45 dBA nighttime when the Emitter borders a Residential property line.

(Sec. 22a-69-3.5 (c)).

### **Noise Evaluation Results**

#### Calculated Noise Levels (dBA)

#### Projected To The Nearest Residential Property Lines

#### Combined Generator & Two HVAC Units Operating Simultaneously

Property Line	200 kw Generator & Two HVAC Units	50 kw Generator & Two HVAC Units
North	45 dBA	39 dBA
South	46 dBA	37 dBA
East	36 dBA	27 dBA
West	41 dBA	33 dBA





The noise levels (dBA) take into account the effect of acoustical shielding provided by other structures on the property. The calculated noise data demonstrates that the noise levels meet the conditions for compliance as set forth in the State of CT Noise Regulations, when projected to the nearest residential property lines.

# ATTACHMENT 6

# AQUIFER PROTECTION AREAS

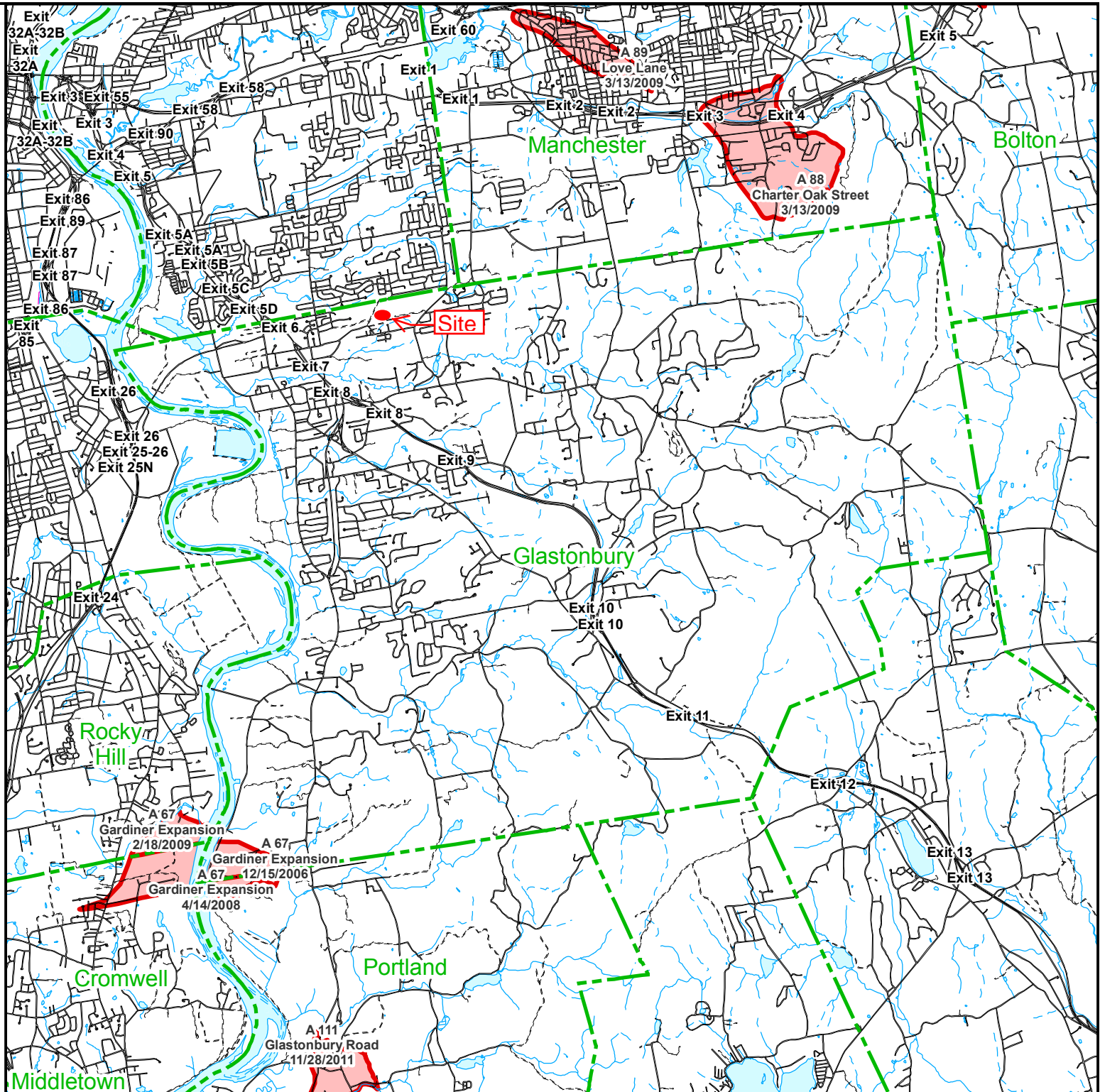
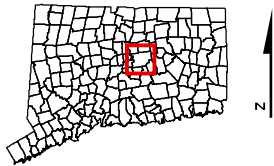
Glastonbury, CT

February 10, 2015

-  Level A APA (Final Adopted)
-  Level A APA (Final)
-  Level B APA (Preliminary)
-  Town Boundary

NOTE: The Aquifer Protection Areas were delineated through Connecticut's Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it replaces the Level B Mapping. Final Adopted Level A Areas are those where towns have land use regulations for them. Massachusetts and Rhode Island Wellhead Protection Areas may be shown for informational purposes.

QUESTIONS:  
 Bureau of Water Protection and Land Reuse  
 Planning and Standards Division  
 Phone: (860) 424-3020  
[www.ct.gov/deep/aquiferprotection](http://www.ct.gov/deep/aquiferprotection)



STATE OF CONNECTICUT  
 DEPARTMENT OF  
 ENERGY & ENVIRONMENTAL PROTECTION  
 79 Elm Street  
 Hartford, CT 06106-5127

# ATTACHMENT 7

## 700 MHz

### Major Roads - Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	2.3

### Secondary Roads - Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Pond Rd	0.1
Addison Rd	1.0
Allspice Ln	0.1
April Dr	0.2
Barrington Way	0.4
Butternut Dr	0.1
Cambridge Dr	0.3
Candlewood Rd	0.2
Cavan Ln	0.4
Chase Hollow Ln	0.4
Checkerberry Ln	0.1
Citizens Dr	0.2
Cobbs Mill Ln	0.1
Commerce St	0.1
Crestdale Rd	0.1
Dutton Place Way	0.2
Duxbury Ln	0.2
Eastern Blvd	0.5
Fairlawn Rd	0.2
Firethorn Dr	0.1
Garland Dr	0.1
Gayfeather Ln	0.1
Glenwood Rd	0.3
Great Swamp Rd	0.3
Griswold St	0.7
Hemlock Hill Dr	0.1
Heywood Dr	0.3
Kelsey Ln	0.1
Lexington Rd	0.5
Lindsey Ln	0.1
Long Hill Dr	0.1



Macintosh Ln	0.1
Meadowrue Dr	0.1
Milestone Dr	0.5
Mill St	0.3
National Dr	0.3
Norman Dr	0.1
Oakwood Dr	1.1
OrchaRdSt	0.2
Oxbow Dr	0.2
OxfoRdDr	0.1
Querido Dr	0.1
Rambling Brook Ln	0.1
Rolling Hills Dr	0.2
Rosewood Dr	0.1
Sequin Dr	0.1
Stoney Brook Dr	0.1
Stony Brook Dr	0.1
Sunny Slope Dr	0.1
Tannery Ct	0.1
Tara Dr	0.1
Terry Brook Dr	0.1
Trinity Ave	0.1
Trymbulak Ln	0.1
Twelve Acre Ln	0.1
Uconn Ave	0.1
Village Pl	0.1
Warner Ct	0.3
Wesleyan Rd	0.1
Western Blvd	0.4
Winding Brook Dr	0.3
Worthington Rd	0.4

## 850 MHz

### Major Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	2.3

### Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Pond Rd	0.1
Addison Rd	0.8
April Dr	0.2
Barrington Way	0.3
Butternut Dr	0.1
Cambridge Dr	0.2
Candlewood Rd	0.2
Cavan Ln	0.3
Chase Hollow Ln	0.3
Checkerberry Ln	0.1
Citizens Dr	0.1
Cobbs Mill Ln	0.1
Commerce St	0.1
Crestdale Rd	0.1
Dutton Place Way	0.2
Duxbury Ln	0.1
Eastern Blvd	0.4
Fairlawn Rd	0.2
Firethorn Dr	0.1
Garland Dr	0.1
Glenwood Rd	0.2
Great Swamp Rd	0.2
Griswold St	0.5
Hemlock Hill	0.1

Dr	
Heywood Dr	0.2
Kelsey Ln	0.1
Lexington Rd	0.4
Lindsey Ln	0.1
Long Hill Dr	0.1
Macintosh Ln	0.1
Milestone Dr	0.4
Mill St	0.2
National Dr	0.3
Norman Dr	0.1
Oakwood Dr	0.9
OrchaRdSt	0.2
Oxbow Dr	0.2
OxfoRdDr	0.1
Rambling Brook Ln	0.1
Rolling Hills Dr	0.1
Rosewood Dr	0.1
Sequin Dr	0.1
Stoney Brook Dr	0.1
Stony Brook Dr	0.1
Sunny Slope Dr	0.1
Tara Dr	0.1
Terry Brook Dr	0.1
Trinity Ave	0.1
Trymbulak Ln	0.1
Twelve Acre Ln	0.1
Uconn Ave	0.1
Village Pl	0.1
Warner Ct	0.2
Western Blvd	0.4
Winding Brook Dr	0.2
Worthington Rd	0.3

**PCS**

## Main Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	2.30
Oak St	0.22
State Hwy 2	0.01
State Hwy 94	0.67

## Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Pond Rd	0.12
Addison Rd	1.11
Allspice Ln	0.07
April Dr	0.22
Barrington Way	0.43
Boxwood Ln	0.03
Butternut Dr	0.07
Cambridge Dr	0.29
Candlewood Rd	0.27
Cavan Ln	0.40
Chase Hollow Ln	0.40
Checkerberry Ln	0.12
Citizens Dr	0.21
Cobbs Mill Ln	0.16
Collsfoot Cir	0.02
Coltsfoot Cir	0.01
Commerce St	0.10
Coralberry Ln	0.05
Crestdale Rd	0.12
Dutton Place Way	0.27
Duxbury Ln	0.18
Eastern Blvd	0.60
Fairlawn Rd	0.25
Firethorn Dr	0.09
Garland Dr	0.08
Gayfeather Ln	0.07

Glenwood Rd	0.34
Great Swamp Rd	0.30
Griswold St	0.73
Hancock Ln	0.01
Hemlock Hill Dr	0.08
Heywood Dr	0.31
Holly Ln	0.02
Kelsey Ln	0.12
Lancaster Rd	0.04
Larkspur Ln	0.01
Lexington Rd	0.58
Lindsey Ln	0.10
Long Hill Dr	0.16
Macintosh Ln	0.08
Meadowrue Dr	0.07
Milestone Dr	0.61
Mill St	0.30
Mulberry Ln	0.01
National Dr	0.39
Norman Dr	0.10
Oakwood Dr	1.20
OrchaRdSt	0.25
Oxbow Dr	0.21
OxfoRdDr	0.10
Pepperbush Ln	0.04
Periwinkle Ln	0.03
Persimmon Ln	0.02
Querido Dr	0.06
Rambling Brook Ln	0.13
Redbud Ln	0.04
Rolling Hills Dr	0.19
Rosewood Dr	0.15
Sequin Dr	0.13
Snowberry Ln	0.04
Stonecress Ln	0.04
Stoney Brook Dr	0.07
Stony Brook Dr	0.07
Summersweet Dr	0.05
Sunny Slope Dr	0.14
Tannery Ct	0.07
Tara Dr	0.14

Terry Brook Dr	0.12
Trinity Ave	0.14
Trymbulak Ln	0.16
Twelve Acre Ln	0.07
Uconn Ave	0.14
Urbanic Rd	0.06
Village Pl	0.09
Warner Ct	0.31
Wesleyan Rd	0.07
Western Blvd	0.50
Winding Brook Dr	0.29
Winterberry Ln	0.03
Worthington Rd	0.45

Secondary Roads – East Hartford

<b>Street Name</b>	<b>Length miles</b>
Brandon Rd	0.13
Green Manor Dr	0.16
Hancock Ln	0.05
Jarman Dr	0.05
Jeffrey Dr	0.15
Manor Cir	0.23
Timber Trl	0.40
Transit Ln	0.07

## AWS

### Main Roads - Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	2.4
Neipsic Rd	0.5
Oak St	0.2
State Hwy 2	2.1
State Hwy 94	0.6

### Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Pond Rd	0.1
Addison Rd	1.4
Allspice Ln	0.1
April Dr	0.2
Barrington Way	0.5
Benton Ln	0.1
Butternut Dr	0.1
Cambridge Dr	0.5
Candlewood Rd	0.3
Cattail Rd	0.1
Cavan Ln	0.4
Chase Hollow Ln	0.4
Checkerberry Ln	0.1
Citizens Dr	0.2
Cobbs Mill Ln	0.2
Coltsfoot Cir	0.1
Commerce St	0.4
Coralberry Ln	0.1
Crestdale Rd	0.1
Duck Pond Rd	0.3
Dutton Place Way	0.3
Duxbury Ln	0.2
Eastern Blvd	0.7
Fairlawn Rd	0.3

Firethorn Dr	0.1
Garland Dr	0.1
Gayfeather Ln	0.1
Glenwood Rd	0.4
Great Swamp Rd	0.6
Griswold St	1.1
Hemlock Hill Dr	0.1
Heywood Dr	0.3
House St	0.2
Kelsey Ln	0.1
Lancaster Rd	0.3
Lexington Rd	0.6
Lindsey Ln	0.1
Long Hill Dr	0.4
Macintosh Ln	0.1
Meadowrue Dr	0.1
Milestone Dr	0.7
Mill St	0.3
National Dr	0.4
Norman Dr	0.1
Nuthatch Knob	0.1
Nye Rd	0.2
Oakwood Dr	1.3
Old Trail Rd	0.1
Orchard St	0.3
Oxbow Dr	0.2
Oxford Dr	0.1
Princeton Ln	0.2
Querido Dr	0.1
Rambling Brook Ln	0.1
Rolling Hills Dr	0.2
Rosewood Dr	0.2
Sequin Dr	0.1
Short Cir	0.1
Spring Street Ext	0.1
Stoney Brook Dr	0.1
Stony Brook Dr	0.1
Summersweet Dr	0.1
Sunny Slope Dr	0.2
Tannery Ct	0.1
Tara Dr	0.2



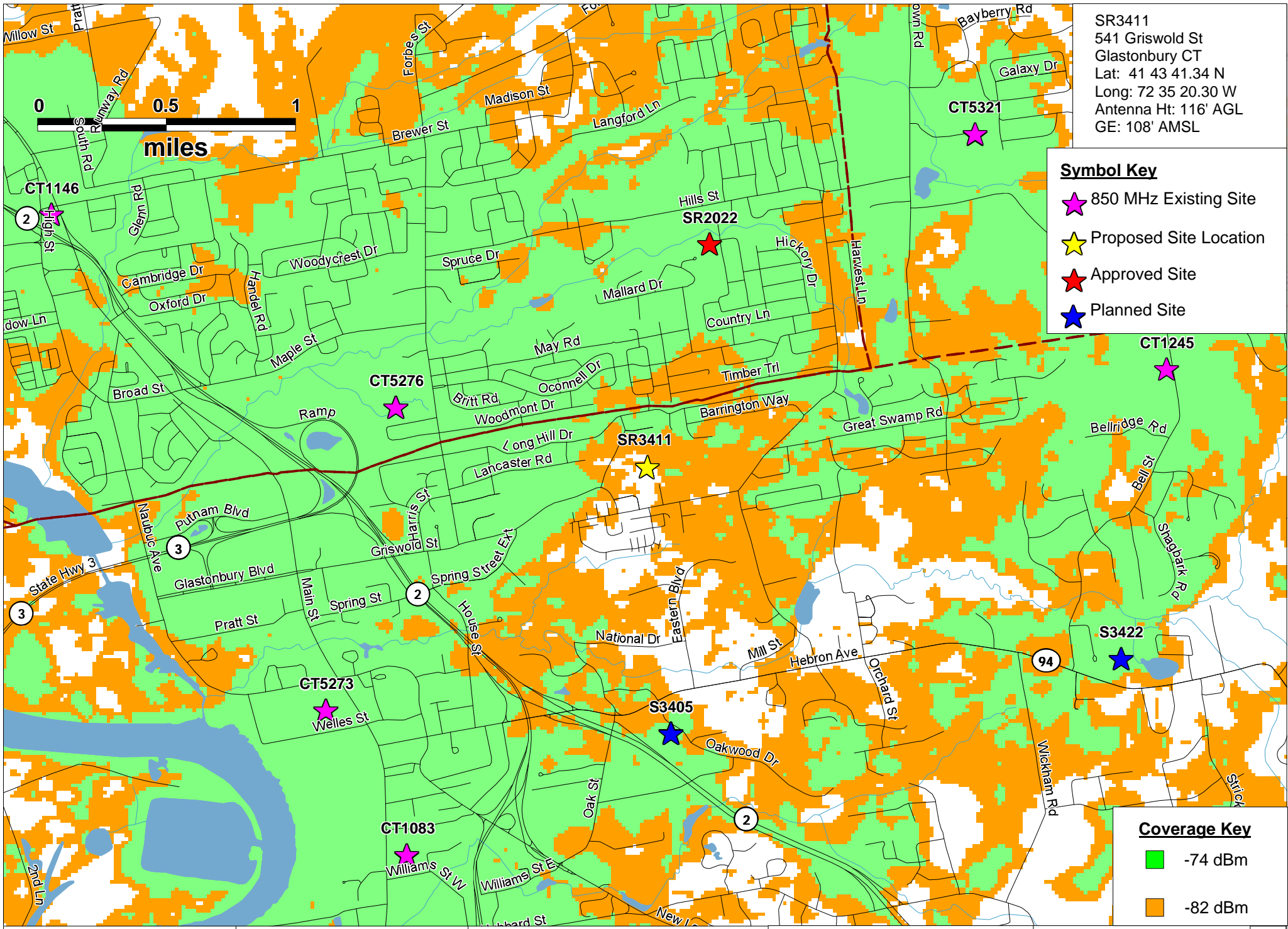
Terry Brook Dr	0.1
Towhee Ln	0.1
Trinity Ave	0.6
Trymbulak Ln	0.2
Twelve Acre Ln	0.1
Uconn Ave	0.3
Urbanic Rd	0.1
Village Pl	0.1
Warner Ct	0.3
Wesleyan Rd	0.2
Western Blvd	0.6
Winding Brook Dr	0.3
Winthrop Dr	0.1
Worthington Rd	0.5

East Hartford – Secondary Roads

<b>Street Name</b>	<b>Length miles</b>
Appletree Dr	0.2
Applewood Pl	0.1
Birch Ln	0.1
Brandon Rd	0.3
Burke St	0.3
Country Ln	0.4
Evergreen Ln	0.1
Green Manor Dr	0.5
Hancock Ln	0.1
Huckleberry Rd	0.1
Jarman Dr	0.1
Jeffrey Dr	0.2
Manor Cir	0.6
May Rd	0.2
Oak St	0.1
Oconnell Dr	0.6
Rustic Ln	0.2
Timber Trl	0.7
Transit Ln	0.1
Westerly Ter	0.5
Woodmont Dr	0.2



# ATTACHMENT 8



SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

- Symbol Key**
- ★ 850 MHz Existing Site
  - ★ Proposed Site Location
  - ★ Approved Site
  - ★ Planned Site

- Coverage Key**
- -74 dBm
  - -82 dBm

Existing & Approved  
 850 MHz UMTS Coverage

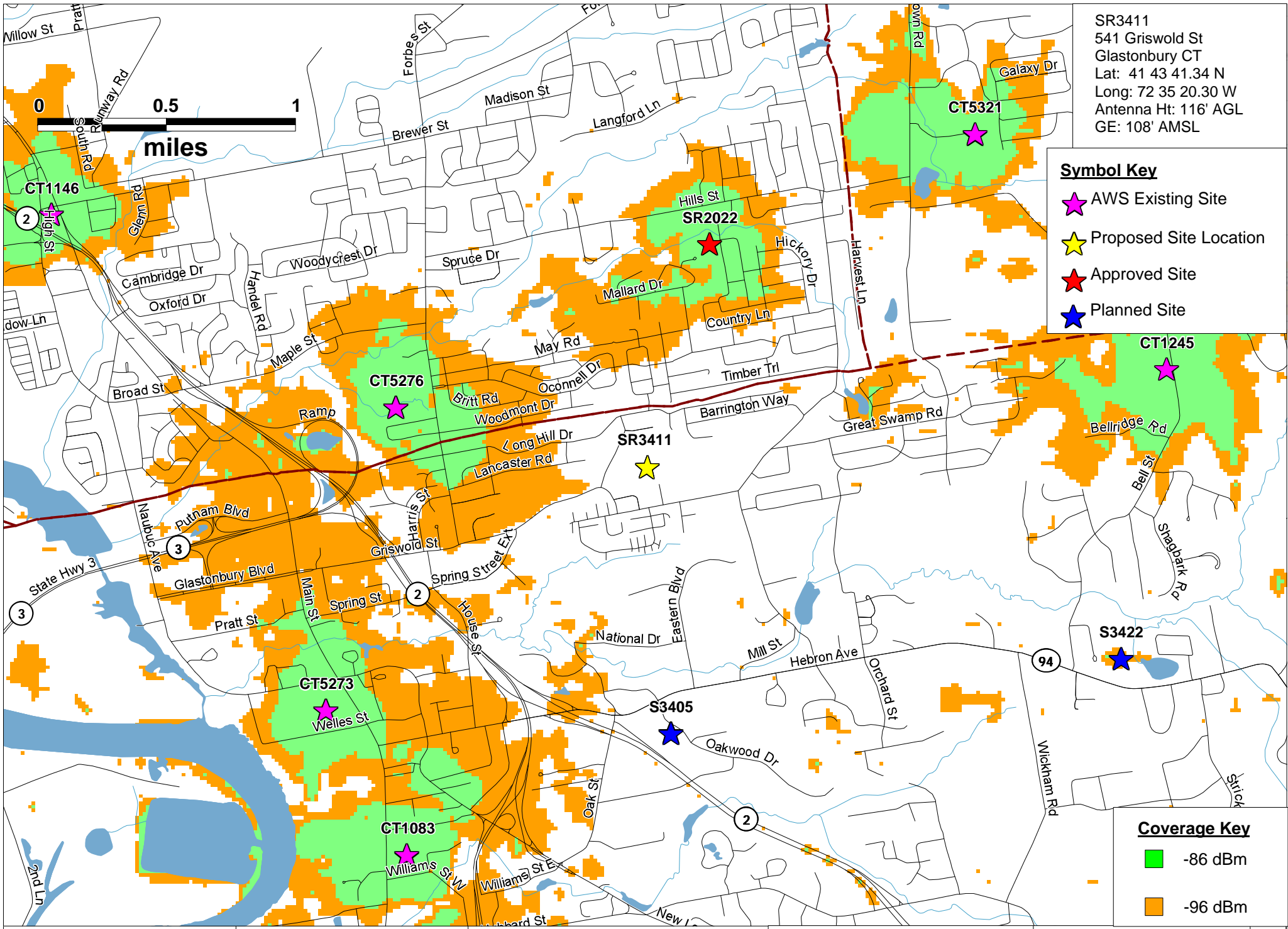
541 Griswold St  
 Glastonbury CT

Glastonbury, CT



PREPARED ON  
 DATE: 06/01/2015

REV 0



SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

**Symbol Key**

- ★ AWS Existing Site
- ★ Proposed Site Location
- ★ Approved Site
- ★ Planned Site

**Coverage Key**

- -86 dBm
- -96 dBm

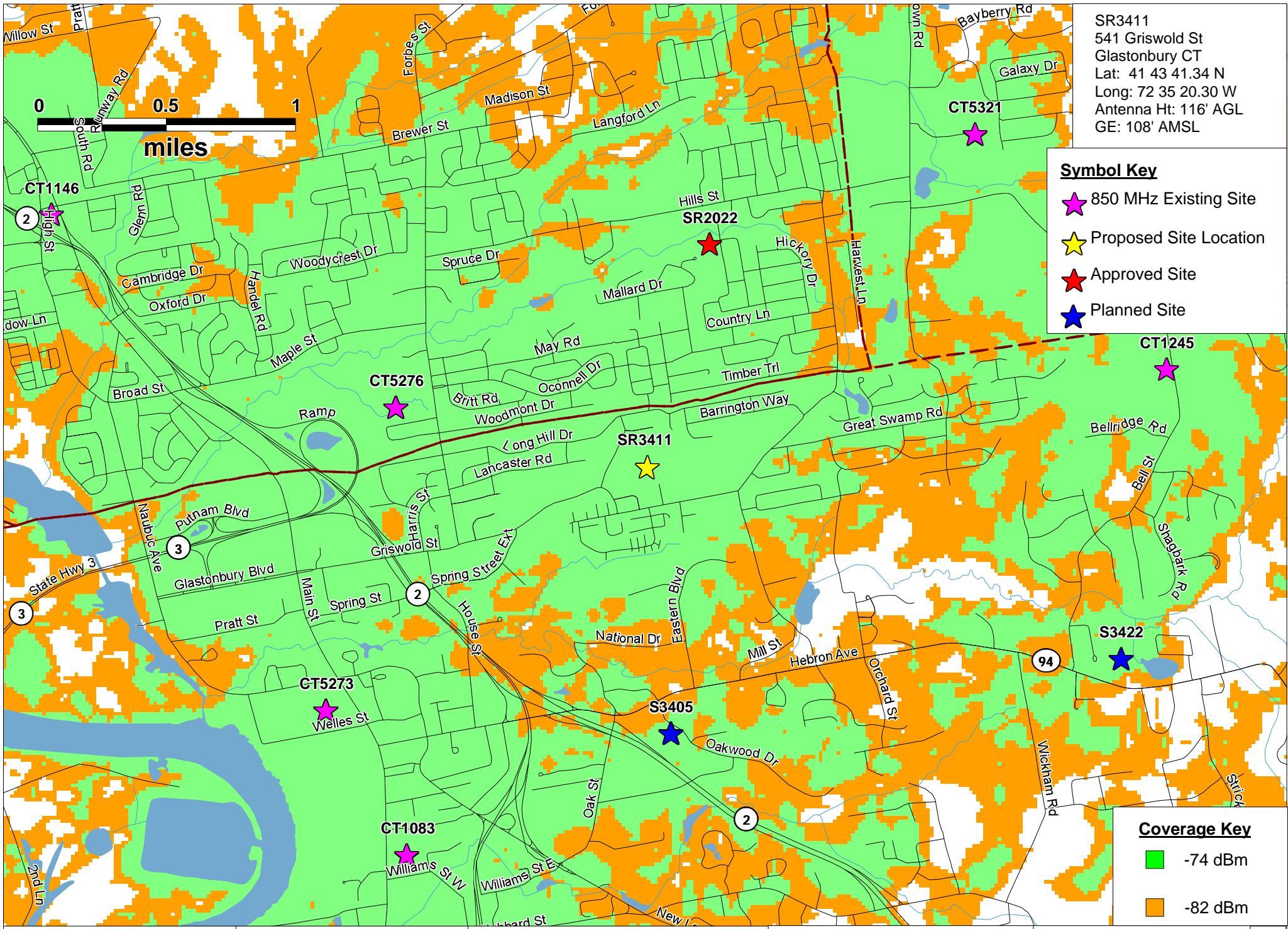
Existing & Approved  
 AWS LTE Coverage

541 Griswold St  
 Glastonbury CT

Glastonbury, CT



PREPARED ON \_\_\_\_\_  
 DATE: 06/01/2015  
 REV 0



SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

- Symbol Key**
- ★ 850 MHz Existing Site
  - ★ Proposed Site Location
  - ★ Approved Site
  - ★ Planned Site

- Coverage Key**
- -74 dBm
  - -82 dBm

Existing, Approved & Proposed  
 850 MHz UMTS Coverage

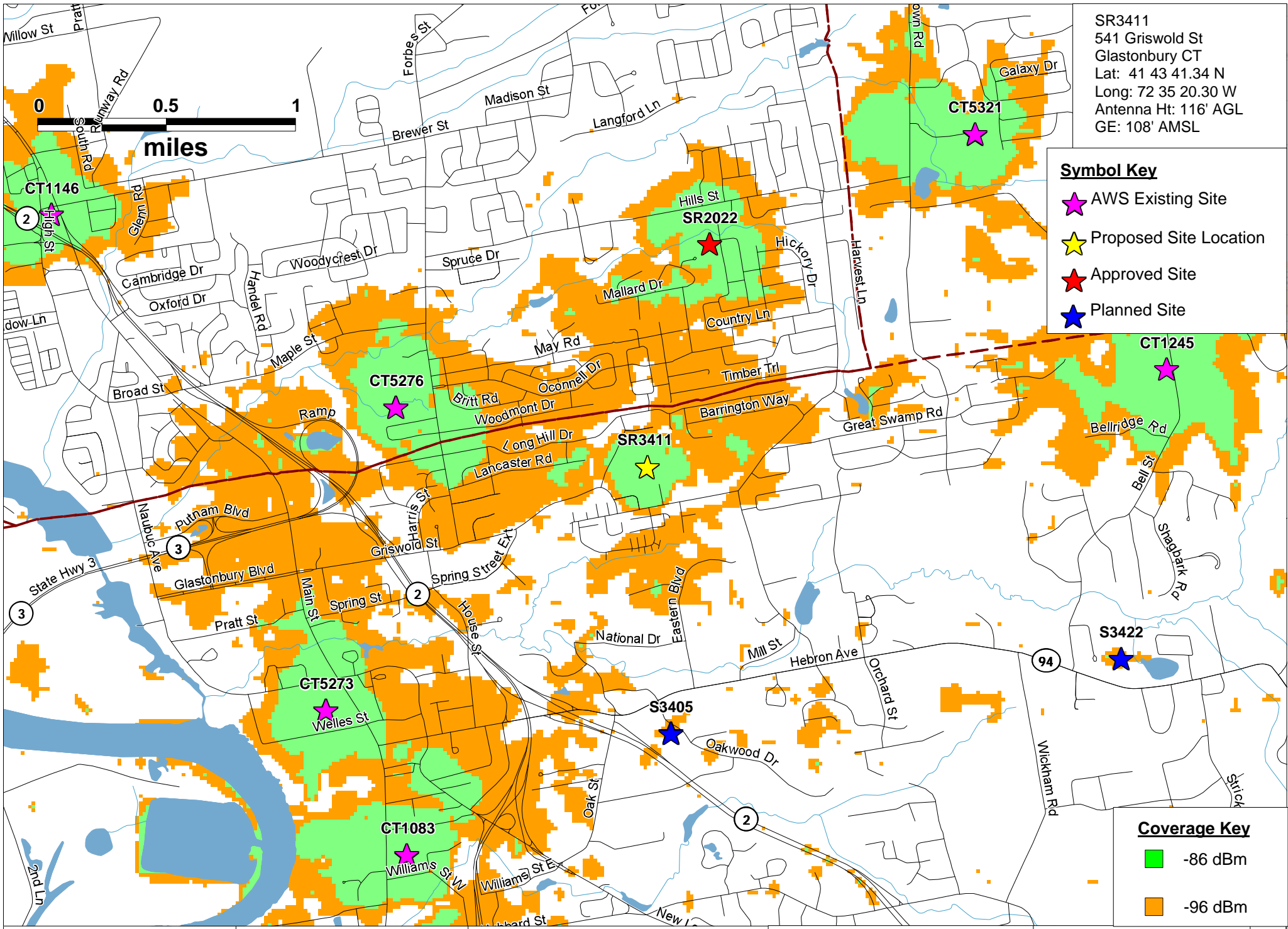
541 Griswold St  
 Glastonbury CT

Glastonbury, CT



PREPARED ON \_\_\_\_\_  
 DATE: 06/01/2015

REV 0



SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

**Symbol Key**

- ★ AWS Existing Site
- ★ Proposed Site Location
- ★ Approved Site
- ★ Planned Site

**Coverage Key**

- -86 dBm
- -96 dBm

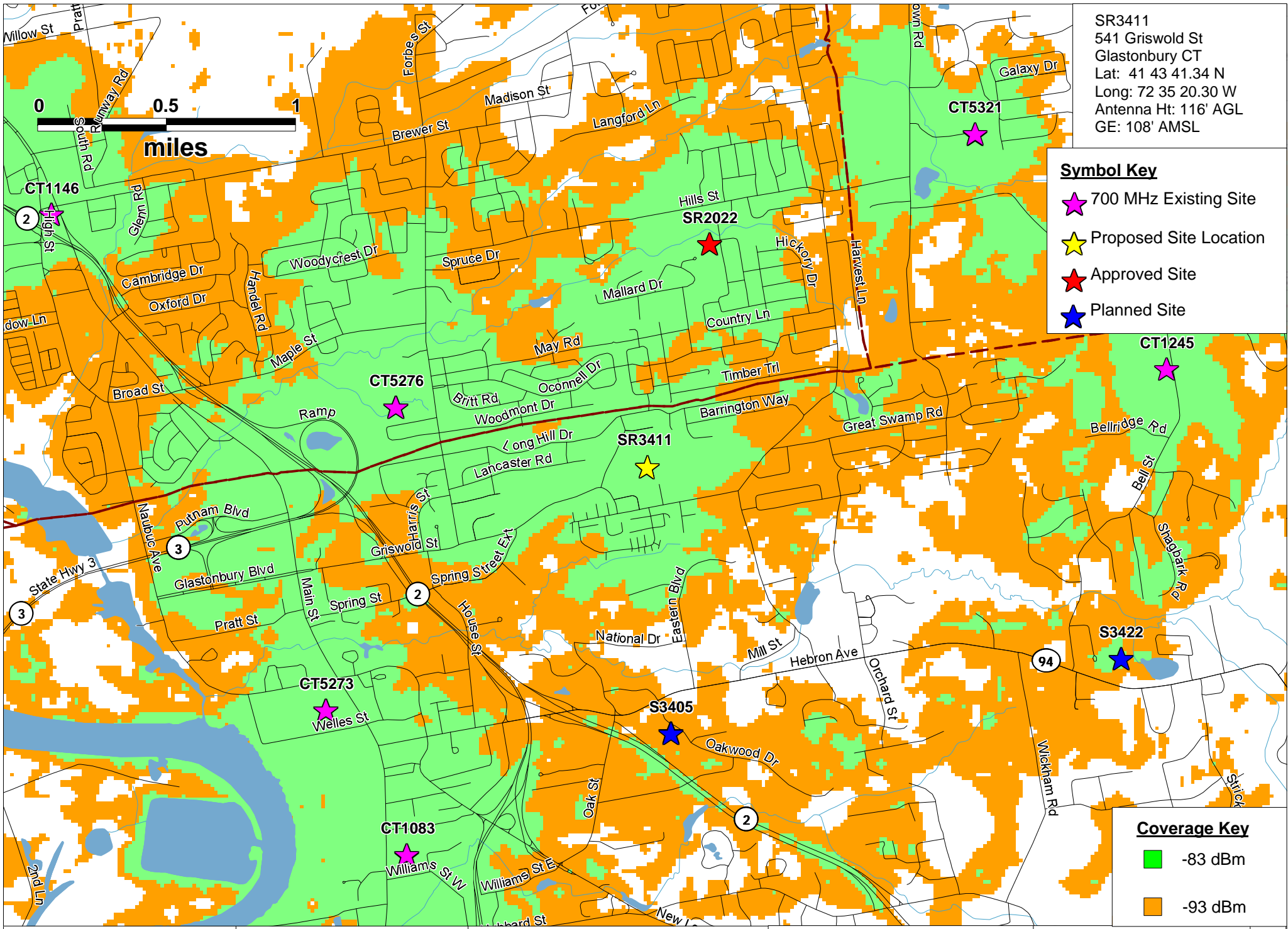
Existing, Approved & Proposed AWS LTE Coverage

541 Griswold St  
 Glastonbury CT

Glastonbury, CT



PREPARED ON \_\_\_\_\_  
 DATE: 06/01/2015  
 REV 0



SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

- Symbol Key**
- ★ 700 MHz Existing Site
  - ★ Proposed Site Location
  - ★ Approved Site
  - ★ Planned Site

- Coverage Key**
- -83 dBm
  - -93 dBm

Existing, Approved &  
 Proposed @ 106' AGL  
 700 LTE Coverage

541 Griswold St  
 Glastonbury CT

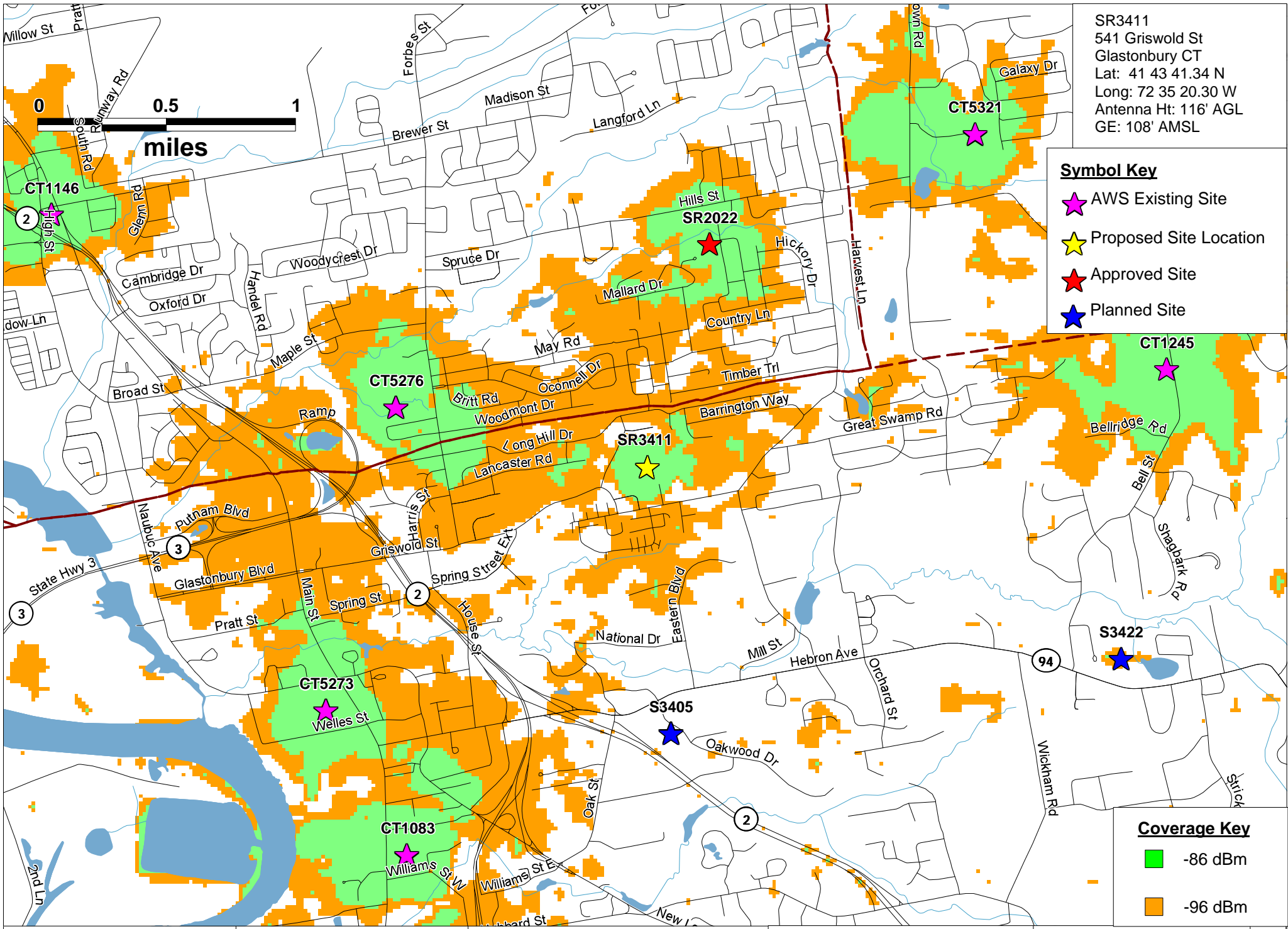
Glastonbury, CT



PREPARED ON  
 DATE: 06/01/2015

REV 0





SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

- Symbol Key**
- ★ AWS Existing Site
  - ★ Proposed Site Location
  - ★ Approved Site
  - ★ Planned Site

- Coverage Key**
- -86 dBm
  - -96 dBm

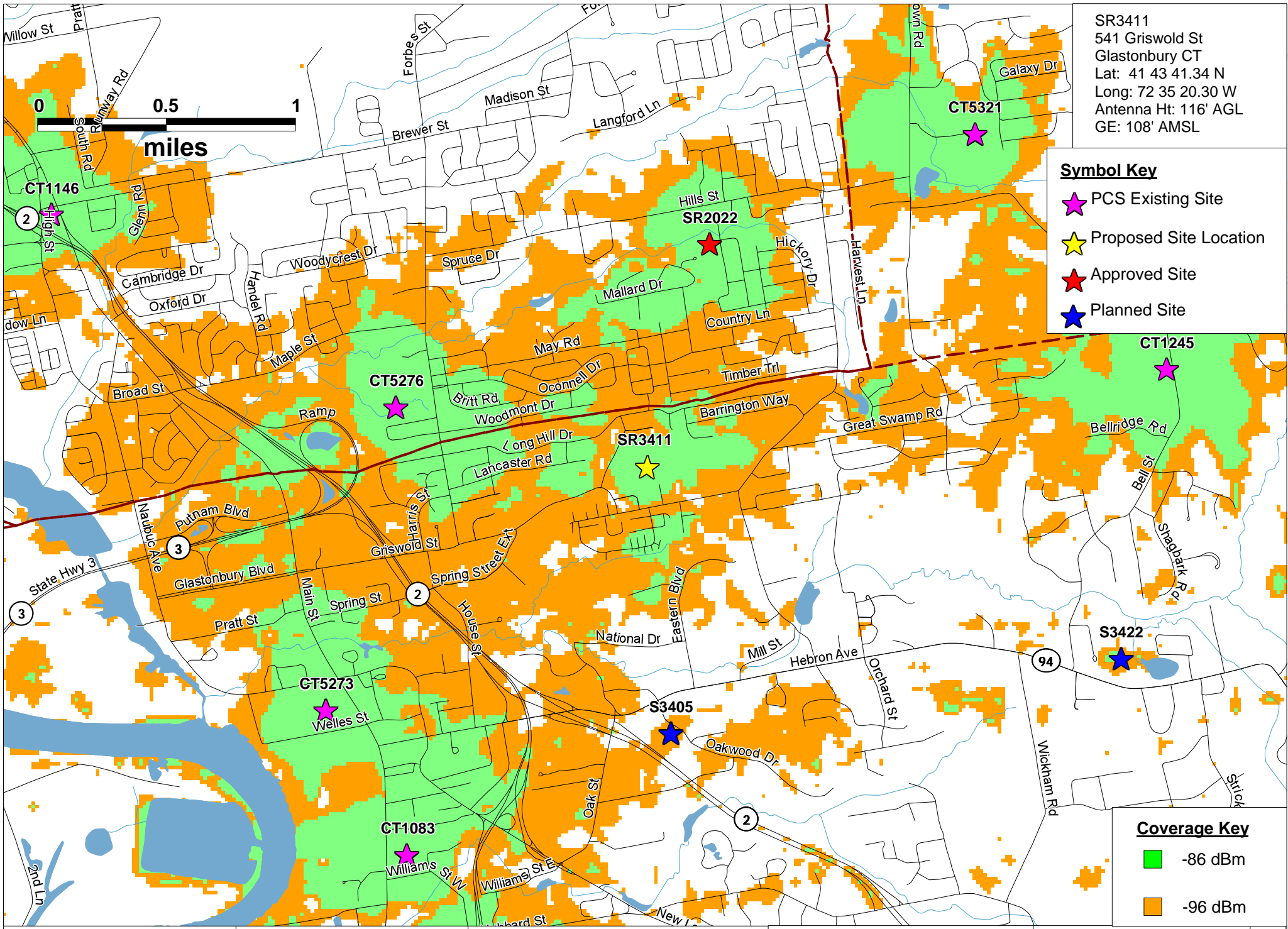
Existing, Approved & Proposed @ 106' AGL AWS LTE Coverage

541 Griswold St  
 Glastonbury CT

Glastonbury, CT



PREPARED ON \_\_\_\_\_  
 DATE: 06/01/2015  
 REV 0



SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

- Symbol Key**
- ★ PCS Existing Site
  - ★ Proposed Site Location
  - ★ Approved Site
  - ★ Planned Site

- Coverage Key**
- -86 dBm
  - -96 dBm

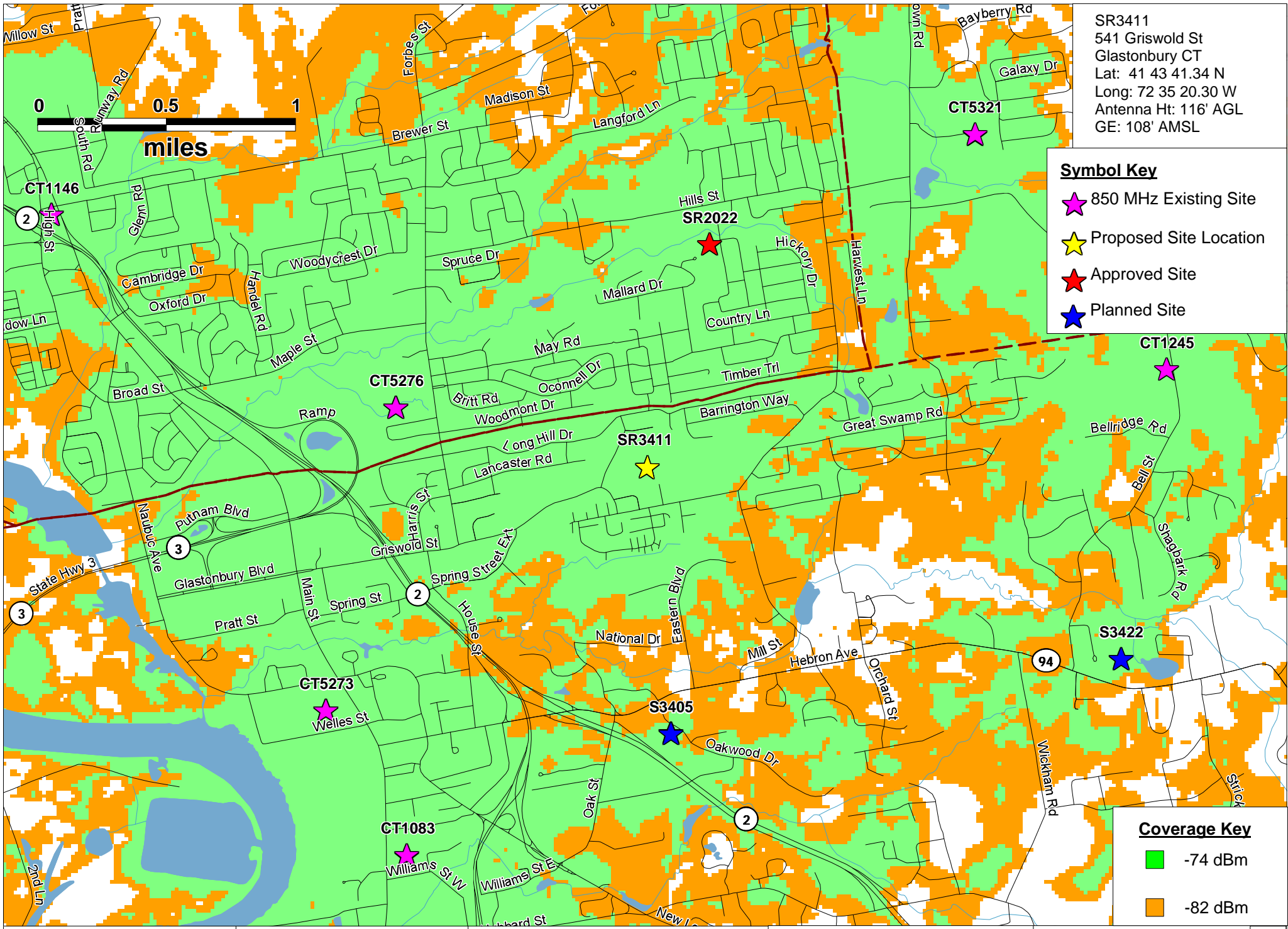
Existing, Approved & Proposed @ 106' AGL PCS LTE Coverage

541 Griswold St  
 Glastonbury CT

Glastonbury, CT



PREPARED ON \_\_\_\_\_  
 DATE: 06/01/2015  
 REV 0



SR3411  
 541 Griswold St  
 Glastonbury CT  
 Lat: 41 43 41.34 N  
 Long: 72 35 20.30 W  
 Antenna Ht: 116' AGL  
 GE: 108' AMSL

- Symbol Key**
- ★ 850 MHz Existing Site
  - ★ Proposed Site Location
  - ★ Approved Site
  - ★ Planned Site

- Coverage Key**
- -74 dBm
  - -82 dBm

Existing, Approved &  
 Proposed @ 106' AGL  
 850 MHz UMTS Coverage

541 Griswold St  
 Glastonbury CT

Glastonbury, CT



PREPARED ON \_\_\_\_\_  
 DATE: 06/01/2015

REV 0

# ATTACHMENT 9

**At 116 feet AGL**

**700 MHz**

Main Roads - Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	0.7
Neipsic Rd	0.2
State Hwy 3	0.2

Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Rd	0.2
Allspice Ln	0.1
Barrington Way	0.2
Butternut Dr	0.1
Candlelight Dr	0.2
Candlewood Rd	0.1
Cavan Ln	0.1
Checkerberry Ln	0.1
Cobblestone Rd	0.1
Conestoga Way	0.2
Coralberry Ln	0.1
Dutton Place Way	0.3
Eastern Blvd	0.3
Firethorn Dr	0.1
Garland Dr	0.1
Gayfeather Ln	0.1
Glenwood Rd	0.2
Griswold St	0.6
Hemlock Hill Dr	0.1
Hurlburt St	0.1
Lenox Dr	0.1
Meadowrue Dr	0.1
Milestone Dr	0.7
Miller Rd	0.1
Millstone Rd	0.1
Orchard St	0.2
Rambling Brook Ln	0.1
Russet Rd	0.1

Sand Hill Ln	0.1
Stoney Brook Dr	0.1
Strickland St	0.1
Summersweet Dr	0.1
Tara Dr	0.2
Terry Brook Dr	0.1
Twelve Acre Ln	0.1
Uconn Ave	0.1
Village Pl	0.1
Wesleyan Rd	0.1
Western Blvd	0.1

Secondary Roads – East Hartford

<b>Street Name</b>	<b>Length miles</b>
Jeffrey Dr	0.1

## 850 MHz

### Main Roads - Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	0.7
Neipsic Rd	0.3
New London Tpke	0.3
State Hwy 3	0.1

### Secondary Roads - Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Allspice Ln	0.1
Bidwell St	0.2
Broadleaf Cir	0.1
Butternut Dr	0.1
Carriage Dr	0.1
Checkerberry Ln	0.1
Cutter Ln	0.1
Dutton Place Way	0.1
E Carriage Dr	0.1
Eastern Blvd	0.4
Garland Dr	0.1
Georgetown Dr	0.4
Glenwood Rd	0.2
Griswold St	0.2
Hale Rd	0.1
Lenox Dr	0.3
Lincoln Dr	0.1
Mark Dr	0.1
Milestone Dr	0.5
Mill St	0.1
Monaco Ln	0.1
National Dr	0.2
Olde Stage Rd	0.1
Orchard St	0.1
Rambling Brook Ln	0.1
Tall Timbers Rd	0.1
Terry Brook Dr	0.1

Uplands Way	0.1
Village Pl	0.1
Wadsworth St	0.1
Western Blvd	0.1

Secondary Roads - Manchester

Street Name	Length miles
Redwood Rd	0.10

PCS

Secondary Roads – Glastonbury

Street Name	Length miles
Addison Rd	0.6
Allspice Ln	0.1
April Dr	0.2
Barrington Way	0.2
Butternut Dr	0.1
Candlewood Rd	0.2
Cavan Ln	0.1
Checkerberry Ln	0.1
Cobbs Mill Ln	0.2
Coralberry Ln	0.1
Duxbury Ln	0.2
Eastern Blvd	0.3
Firethorn Dr	0.1
Garland Dr	0.1
Gayfeather Ln	0.1
Glenwood Rd	0.1
Griswold St	0.7
Hancock Ln	0.1
Heywood Dr	0.2
Lancaster Rd	0.1
Lexington Rd	0.3
Long Hill Dr	0.2
Meadowrue Dr	0.1
Milestone Dr	0.6
Querido Dr	0.1



Rambling Brook Ln	0.1
Summersweet Dr	0.1
Tara Dr	0.1
Terry Brook Dr	0.1
Twelve Acre Ln	0.1
Western Blvd	0.2
Worthington Rd	0.3

Secondary Roads – East Hartford

<b>Street Name</b>	<b>Length miles</b>
Brandon Rd	0.1
Burke St	0.1
Hancock Ln	0.1
Jeffrey Dr	0.1
Manor Cir	0.3
Oconnell Dr	0.1
Timber Trl	0.1
Transit Ln	0.1
Woodmont Dr	0.1

Secondary Roads - Wethersfield

<b>Street Name</b>	<b>Length miles</b>
Elm St	0.1

**AWS**

## Main Roads - Glastonbury

<b>Street Name</b>	<b>Length miles</b>
State Hwy 2	0.1
Neipsic Rd	0.1

## Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Rd	0.4
April Dr	0.1
Barrington Way	0.5
Candlewood Rd	0.2
Cobbs Mill Ln	0.1
Crestdale Rd	0.1
Duxbury Ln	0.2
Eastern Blvd	0.3
Glenwood Rd	0.1
Griswold St	0.3
Heywood Dr	0.1
Lancaster Rd	0.1
Lexington Rd	0.5
Lindsey Ln	0.1
Long Hill Dr	0.1
Milestone Dr	0.3
Oakwood Dr	0.1
Querido Dr	0.1
Summersweet Dr	0.1
Tara Dr	0.1
Terry Brook Dr	0.1
Twelve Acre Ln	0.1
Urbanic Rd	0.1
Western Blvd	0.2
Winthrop Dr	0.1

## Secondary Roads – East Hartford

<b>Street Name</b>	<b>Length miles</b>
Applewood Pl	0.1
Brandon Rd	0.2
Burke St	0.3

Country Ln	0.1
Green Manor Dr	0.2
Jeffrey Dr	0.2
Manor Cir	0.2
Oconnell Dr	0.4
Timber Trl	0.5
Westerly Ter	0.3
Woodmont Dr	0.2
Woodstock Pl	0.1

**At 106 feet AGL**

**700 MHz**

Main Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	0.1
Neipsic Rd	0.4
New London Tpke	0.1

Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Rd	0.2
Allspice Ln	0.1
Baldwin Ln	0.1
Barrington Way	0.2
Bidwell St	0.1
Butternut Dr	0.1
Candlewood Rd	0.1
Cavan Ln	0.1
Checkerberry Ln	0.1
Cider Mill Rd	0.1
Conestoga Way	0.3
Coralberry Ln	0.1
Dutton Place Way	0.2
Eastern Blvd	0.3
Firethorn Dr	0.1
Garland Dr	0.1
Gayfeather Ln	0.1
Georgetown Dr	0.1
Griswold St	0.6
Lenox Dr	0.3
Meadowrue Dr	0.1
Milestone Dr	0.7
Miller Rd	0.1
Monaco Ln	0.1
Russet Rd	0.1

Summersweet Dr	0.1
Tall Timbers Rd	0.1
Terry Brook Dr	0.1
Twelve Acre Ln	0.1
Wadsworth St	0.1
Western Blvd	0.1

850 MHz

Main Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Hebron Ave	0.3
Neipsic Rd	0.3
New London Tpke	0.1

Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Allspice Ln	0.1
Bidwell St	0.2
Butternut Dr	0.1
Carriage Dr	0.1
Checkerberry Ln	0.1
Dutton Place Way	0.1
E Carriage Dr	0.1
Eastern Blvd	0.3
Garland Dr	0.1
Georgetown Dr	0.1
Glenwood Rd	0.1
Griswold St	0.2
Lenox Dr	0.3
Milestone Dr	0.5
Monaco Ln	0.1
National Dr	0.2
Tall Timbers Rd	0.1
Terry Brook Dr	0.1
Uplands Way	0.1
Western Blvd	0.1

PCS

Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Rd	0.5
Allspice Ln	0.1
April Dr	0.2
Barrington Way	0.2
Butternut Dr	0.1
Candlewood Rd	0.2
Cavan Ln	0.1
Checkerberry Ln	0.1
Cobbs Mill Ln	0.2
Coralberry Ln	0.1
Duxbury Ln	0.2
Eastern Blvd	0.3
Firethorn Dr	0.1
Garland Dr	0.1
Gayfeather Ln	0.1
Griswold St	0.6
Heywood Dr	0.2
Lancaster Rd	0.1
Lexington Rd	0.3
Long Hill Dr	0.2
Meadowrue Dr	0.1
Milestone Dr	0.6
Querido Dr	0.1
Summersweet Dr	0.1
Tara Dr	0.1
Terry Brook Dr	0.1
Twelve Acre Ln	0.1
Western Blvd	0.2
Worthington Rd	0.2

Secondary Roads – East Hartford

<b>Street Name</b>	<b>Length mile s</b>
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Brandon Rd	0.1
Burke St	0.1
Hancock Ln	0.1
Jeffrey Dr	0.1
Manor Cir	0.3
Oconnell Dr	0.1
Timber Trl	0.1
Transit Ln	0.1
Woodmont Dr	0.1



AWS

Secondary Roads – Glastonbury

<b>Street Name</b>	<b>Length miles</b>
Addison Rd	0.3
Allspice Ln	0.1
April Dr	0.1
Barrington Way	0.4
Butternut Dr	0.1
Candlewood Rd	0.2
Checkerberry Ln	0.1
Cobbs Mill Ln	0.2
Duxbury Ln	0.2
Eastern Blvd	0.3
Firethorn Dr	0.1
Garland Dr	0.1
Griswold St	0.4
Hancock Ln	0.1
Heywood Dr	0.1
Lancaster Rd	0.1
Lexington Rd	0.6
Long Hill Dr	0.2
Meadowrue Dr	0.1
Milestone Dr	0.5
Querido Dr	0.1
Summersweet Dr	0.1
Terry Brook Dr	0.1
Twelve Acre Ln	0.1
Urbanic Rd	0.1
Western Blvd	0.2
Winthrop Dr	0.1

Secondary Roads – East Hartford

<b>Street Name</b>	<b>Length miles</b>
Applewood Pl	0.1
Brandon Rd	0.1
Burke St	0.3
Country Ln	0.1
Green Manor	0.2

Dr	
Hancock Ln	0.1
Jeffrey Dr	0.1
Manor Cir	0.1
Oconnell Dr	0.3
Timber Trl	0.4
Westerly Ter	0.2
Woodmont Dr	0.2
Woodstock Pl	0.1