

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE: :
 :
APPLICATION OF CELLCO PARTNERSHIP : DOCKET NO. 448
D/B/A VERIZON WIRELESS FOR A :
CERTIFICATE OF ENVIRONMENTAL :
COMPATIBILITY AND PUBLIC NEED FOR :
THE CONSTRUCTION, MAINTENANCE :
AND OPERATION OF A WIRELESS :
TELECOMMUNICATIONS FACILITY AT :
831 DERBY MILFORD ROAD, ORANGE, :
CONNECTICUT : SEPTEMBER 9, 2014

RESPONSES OF CELLCO PARTNERSHIP d/b/a
VERIZON WIRELESS TO THE COUNCIL'S PRE-HEARING QUESTIONS SET 3

On August 22, 2014, the Connecticut Siting Council ("Council") issued Pre-Hearing Questions – Set 3 to Cellco Partnership d/b/a Verizon Wireless ("Cellco"), relating to the above-captioned docket. Below are Cellco's responses.

Question No. 1

Would Cellco perform any mowing within its lease area at the site? If so, would mowing activities make the habitat less suited for box turtles? Please explain.

Response

No. No mowing would occur beyond the limits of the fenced facility compound.

Question No. 2

Please revise the vernal pool zonal calculations to parse out the vernal pool envelopes from the critical upland habitat zones. The current map creates single zones for 0-750'. How can one assess the percentage of development pre and post construction in the critical upland habitat zones (100-750 feet) when the envelopes (0-100 feet) have been amalgamated in those calculations?

Response

The original vernal pool impact analysis map mistakenly amalgamated the area calculations for the Vernal Pool Envelope (VPE, 0-100 feet) and Critical Terrestrial Habitat (CTH, 100-750 feet) conservation zones as defined in the methodology developed by Calhoun and Klemens (2002)¹. A revised vernal pool impact analysis map, titled Vernal Pool Analysis Map Original Facility Layout, has been prepared and is included in Attachment 1.

The proposed Orange North facility would not result in direct impact to either pool 1 or pool 2 and is not proposed within either pool's VPE zone. All activity is proposed within the CTH zone of both pools. In order to evaluate impacts to the CTH zone, we analyzed the pre- and post-development levels per Calhoun and Klemens (2002) to determine if the proposed facility development would result in a reduction in the undeveloped CTH zone below the recommended 75% threshold. The results of this analysis show that the pre- and post-development does not exceed 25% and therefore will not adversely affect vernal pool wildlife due to the minimal disturbance associated with the development of the proposed Orange North facility.

As illustrated on the Vernal Pool Analysis Map Original Facility Layout, the total area of CTH associated with pool 1, which includes land located off the 34.6 acre "Subject Parcel", is

¹ Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices (BDPs): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5.

44.27± acres, with 9.11± acres consisting of existing development (including roads, residential structures, yards and driveways). This equates to approximately 20.58% of the CTH as being already developed for pool 1.

The total area of the CTH associated with pool 2, which includes land located off the Subject Property, is 46.45± acres with 6.59± acres consisting of existing development (including roads, residential structures, yards and driveways). This equates to approximately 14.19% of the CTH as being already developed for pool 2.

The proposed facility compound and access road would result in the development of 0.39± acre of the CTH for both pools 1 and 2, which represents a de minimus increase of only 0.88% and 0.84%, respectively. The total post-construction development within the CTH of both pools remains less than 25% ($\pm 21.46\%$ and $\pm 15.03\%$ proposed condition for pools 1 and 2, respectively).

The potential exists for possible short-term impact to herpetofauna associated with the nearby vernal pool habitat due to possible encounters with migrating and basking individuals that may intercept the proposed development footprint during construction. Best Management Practices (“BMPs”) are proposed during construction that include education of contractors prior to initiation of construction on the environmentally sensitive work zone, installation of silt fence isolation barriers of the proposed work zone, herpetofauna sweep following installation of isolation barriers and prior to earthwork activities, and periodic inspection and maintenance of the isolation barriers. The details of the BMPs that will avoid/minimize the potential for short-term impact to herpetofauna would be provided during the Development and Management Plan, should the project be approved by the Council.

An "Alternate Facility Location" has been proposed approximately 90 feet to the south (tower to tower distance). Please refer to the enclosed Alternate Facility Location Plan, prepared by Centek Engineering included in Attachment 2. This Alternate Facility Location results in greater distance separation from the nearest wetland area (Wetland 2); ± 108 feet from compound corner for the original site to nearest wetland (wetland flag WF 2-15) compared to ± 218 feet from compound corner for the alternate site to this same wetland location. The Alternate Facility Location is also located entirely outside of the local watershed that feeds Wetland 2 with surface drainage associated with this location flowing to the west/southwest into the mowed hayfield.

An analysis of impact to the CTH of vernal pools 1 and 2 by this Alternate Facility Location is provided below. Please refer to the Vernal Pool Analysis Map Alternate Facility Layout included in Attachment 3.

The proposed Alternate Facility Location compound and access road is located entirely within the CTH zone and will result in the development of $0.37\pm$ acre to the CTH for both pools 1 and 2. This represents a de minimis development increase of only 0.83% and 0.80%, respectively, in the CTH. The total existing and proposed development within the CTH for both pools would remain less than 25% ($\pm 21.41\%$ and 14.99% for pools 1 and 2, respectively).

As discussed previously for the Original Facility location, the potential exists for possible short-term impact to herpetofauna associated with the nearby vernal pool habitat due to possible encounters with migrating and basking individuals that may intercept the proposed development footprint during construction. Similarly, BMPs would be proposed during construction at the Alternate Facility Location that include education of contractors prior to initiation of contractors on the environmentally sensitive work zone, installation of silt fence isolation barriers of the proposed work zone, herpetofauna sweep following installation of isolation barriers and prior to

earthwork activities and periodic inspection and maintenance of the isolation barriers. The details of the BMPs that would avoid/minimize the potential for short-term impact to herpetofauna would be provided during the Development and Management Plan, should the project be approved by the Council.

Question No. 3

Is the proposed tower site located at the interface between box turtle hibernation and summertime foraging habitat?

Response

Box turtles, if present, would be expected to utilize the forested areas for hibernation and the early-successional areas (e.g., old field/pasture) as summer foraging habitat. Therefore, the Original Facility Location is located at the interface between hibernation habitat and summertime foraging habitat.

The proposed Alternate Facility Location is located at the interface of the old field/pasture habitat and the mowed field/hayfield and is therefore located more distant from the interface between box turtle hibernation and summertime foraging habitat than the Original Facility Location.

Question No. 4

Is the lessor amenable to relocating the facility eastward on the ridge near the 150 foot topographic contour? If so, would this potential site better protect overall box turtle habitat compared to the original proposed site? Please explain.

Response

The proposed Alternate Facility Location (Attachment 2) is in fact more protective of box turtle habitat. By moving the tower to the south, the proposed disturbance is located further from

the wetland-upland interface, increasing the separation by more than 100 feet compared to the Original Facility Location. Additionally, the Alternate Facility Location results in less fragmentation of the old field/pasture habitat due to the fact that the tower would be located directly adjacent to an existing hayfield that is regularly mowed and considered a low value habitat, as opposed to within the center of the old field/pasture habitat.

Question No. 5

Is the lessor amenable to relocating the facility as described in Exhibit 10, Question 2 (near farm buildings)? If so, would this potential site better protect overall box turtle habitat compared to the original proposed site and the site described in Question 4 above? Please explain.

Response

No. Cellco and the lessor, spent a significant amount of time during the lease negotiation process exploring alternative locations for the tower site on the Subject Parcel. The lessor's principle objective was to find a tower location that would not disrupt his existing farming operations and, at the same time, have as little impact as possible on his home and the homes of his neighbors. To that end, the areas around the lessor's home and barns and any area within the lessor's existing hay fields were deemed off limits. To reduce the impact on surrounding neighbors, Cellco and the lessor identified a tower location, at a ground elevation that would allow Cellco to propose the shortest tower possible, in an area with some natural vegetative screening. These parameters placed the tower in what is essentially in the center of the Subject Parcel.

Question No. 6

Please explain how you distinguished tadpoles of *Rana palustris* from those of *Rana*

clamitans in Potential Vernal Pool 1. Did you observe any adult *Rana palustris*?

Response

The *Rana palustris* tadpoles observed were near metamorphosis, with legs well developed and tails absorbing. These tadpoles displayed the distinctive adult dorsal pattern, including the two light colored lines paralleling the dorsolateral ridges and the two parallel rows of dark brown squares characteristic of *Rana palustris*. No adult *Rana palustris* were observed.

Question No. 7

Please indicate the location of the *Rana sylvatica* juveniles observed during the CSC's pre-hearing site visit on the Vernal Pool Map submitted in Exhibit 10, Question 2.

Response

The location of the *Rana sylvatica* juveniles observed has been added to the revised Vernal Pool Analysis Maps, as provided in Attachments 1 and 3.

Question No. 8

On the Vernal Pool Map submitted in Exhibit 10, Question 2, there are two pools labeled as "potential". Based on the juvenile wood frogs found during the CSC's site visit please confirm whether there is a vernal pool within 750 feet of the original proposed tower site.

Response

Yes. The presence of juvenile wood frogs as observed by Dr. Klemens indicates that a vernal pool is in fact present within the onsite wetland system. The use of the word "potential" was intended to indicate that wood frogs breed in either Potential Vernal Pool 1, Potential Vernal Pool 2 or in both pools.

Question No. 9

On page 9 of the application, information regarding capacity relief is given for eight

sectors on nearby sites but on page 3 of Exhibit 9, Attachment 2, capacity relief information is given for six adjacent sectors. Please clarify.

Response

The information contained on Page 9 of the Application is correct in that the proposed Orange North Facility will provide capacity relief to a total of eight (8) sectors of the surrounding cell sites. The List of Surrounding Sites table, included in Cellco's Exhibit 9 - Attachment 2, has been updated to include the information on the Derby North Beta sector and Orange 3 Gamma sector antennas as requested. The remaining capacity relief data provided in Cellco Exhibit 9 - Attachment 2 has also been updated to incorporate capacity trending data from July of 2014. (See Attachment 4).

Question No. 10

Is Cellco investigating a potential facility located at 111 New Haven Avenue in Derby? If so, would this location be designed to serve the same area or any portion of the area in Docket 448? Please explain.

Response

Yes. Several months ago, Cellco commenced a local input process with the City of Derby and was, until recently, exploring the possibility of a new cell site at 111 New Haven Avenue in Derby, a site known as "Derby South". Initially, Cellco was exploring the potential development of a new 80-foot tower at 111 New Haven Avenue. The wireless service objectives for the Derby South facility, however, were limited to the provision of additional coverage along portions of Route 34 in Derby at 2100 MHz. This service cannot be provided by the Orange North facility. The Derby South facility, as originally proposed, may have also provided some limited capacity relief to Cellco's Derby and Derby North cell sites, but could not provide the

capacity relief to Cellco's Milford NE facility.

The Derby South search area was recently transferred to Cellco's RF Engineer, Jaime Laredo. After evaluating the RF needs in the area, Mr. Laredo determined that the limited coverage objective for the Derby South search area would be better served by the installation of a small cell facility somewhere in the area along Route 34, near a portion of the referenced 2100 MHz coverage gaps. No candidate for this small cell installation has been identified.

Question No. 11

If a site is viable at the Mount Saint Peter's Cemetery in Derby, would it supplant the need for both the Docket 448 site and the 111 New Haven Avenue Derby site? Please explain.

Response

The "viability" of the Mount Saint Peter's Cemetery as an alternative cell site location needs to be examined from a number of different perspectives. First, it is important to note that since at least 2003, the Catholic Archdiocese of Hartford has had in place a prohibition on the use of any Archdiocese of Hartford property (churches, schools, cemeteries etc.) for wireless telecommunications purposes. The offer of the Catholic Cemeteries Association ("CCA") to have Cellco consider the use of a portion of the Mount Saint Peter's Cemetery is contingent upon Archbishop Leonard Blair, installed in December of 2013, agreeing to change this long standing policy. Until that happens, the Mount Saint Peter's cemetery is not a viable location for a telecommunications tower site, simply because the property is not available for lease. Cellco understands that the issue of the future use of Hartford Archdiocese properties for telecommunications purposes will be presented to the new Archbishop. The CCA hopes to have a decision from the new Archbishop shortly.

Notwithstanding this prohibition, Cellco reached out to the CCA and on August 20, 2014, members of Cellco's project team conducted a site visit at the Mount Saint Peter's Cemetery. Prior to this site visit, the CCA sent Cellco a map of the Mount Saint Peter's Cemetery, identifying a location, marked "Tower" near the center of the cemetery. (See Attachment 5). Kevin Gerckens, a representative of the CCA met with members of Cellco's project team at the cemetery. Also in attendance was Counsel for the intervenors Albert Subbloie, Jacqueline Barbara, Glenn Macinnes and Jill Macinnes. All parties and intervenors in Docket No. 448 were notified of the site visit.

Mr. Gerckens described two locations on the Mount Saint Peter's Cemetery property that he considered potentially available for development of a tower site. The first location presented is an approximately 14,500 square foot portion of the cemetery parcel, located about 300 feet southwest of the cemetery's administrative buildings ("Option 1"). This is the same area labeled "Tower" on Attachment 5. The Option 1 location is surrounded by grave sites, internal access driveways and large mature evergreen and deciduous trees ranging in height from approximately 65 to 80 feet. Large bedrock outcroppings are visible throughout this area. The Option 1 location maintains a ground elevation ("GE") of approximately 120 feet above mean sea level ("AMSL"), 14 feet lower than the GE at the proposed Orange North cell site (134' AMSL). The Option 1 location is approximately 0.7 miles west of the proposed Orange North cell site and approximately 0.9 miles west of the center of the Orange North search area.

Cellco's RF Engineers evaluated the Option 1 location as an alternative to the proposed Orange North cell site. Using the Option 1 location would require an adjustment of the antenna azimuths, most notably because the shift to the northwest creates a gap in service in the area of Route 110 in Shelton, an area the Orange North cell site must cover in order to provide capacity

relief to Cellco's Shelton 2 cell site. Additionally, a shift to the northwest, to the Option 1 location, would also require Cellco to design this site so that it could overcome the terrain impact caused by Coram Hill in Shelton. Taking these factors into consideration, Cellco's RF Engineers determined that a tower height of 200 feet would be needed at the Option 1 location to provide the capacity relief it seeks for the Derby, Derby North and Shelton 2 cell sites. At 200 feet however, a tower at the Option 1 location still could not provide the capacity relief Cellco seeks for the Milford NE cell site, another objective of the Orange North search area. In order to provide capacity relief to Milford NE, comparable to that which is achieved by the proposed Orange North cell site at 831 Derby Milford Road, Cellco would need a tower height of 350 feet at the Option 1 location. Again, the terrain challenges caused by Coram Hill in Shelton would require Cellco to significantly increase the height of the tower at the Option 1 location in order to achieve the same capacity relief objectives realized by a 100-foot tower at the proposed Orange North cell site.

Using computer modeling, a preliminary visual assessment indicates that a 200-foot tall tower at the Option 1 location on the cemetery property could be visible from approximately 1,210 acres. A 350-foot tall tower could be visible from over 1,860 acres. Towers of 200 feet or taller would also require FAA marking and lighting.

The second location visited on the Mount Saint Peter's Cemetery property is in the far southeasterly portion of the cemetery parcel. ("Option 2") The area around the Option 2 location maintains some current grave sites and areas that appear to be dedicated for future expansion of the cemetery. The Option 2 location also maintains substantial rock outcroppings and is currently used as a disposal area for landscaping debris. The Option 2 location maintains a GE of approximately 40 feet AMSL, 94 feet lower than the GE at the proposed Orange North cell

site (134' AMSL). The Option 2 location is approximately 0.25 miles southwest of the proposed Orange North cell site and approximately 0.5 miles southwest of the center of the Orange North search area.

Cellco's RF engineers have determined that due to the same topographic challenges presented by Coram Hill, to the west and the Housatonic Overlook area, to the south, a tower height of 220 feet at the Option 2 location would be needed in order to provide wireless service comparable to that provided by the 100 foot tower at the proposed Orange North cell site.

A preliminary visual assessment indicates that a 220-foot tall tower in the Option 2 location could be visible from over 730 acres and, as mentioned above, would need to be marked and lit in accordance with FAA guidelines.

Either location on the cemetery property would be visible to more locations throughout the year. Compared with the proposed 100-foot tall Orange North tower (which is estimated to be visible, at least to some degree, from up to 346 acres), a tower located at the cemetery (with increased heights of 100 to 120 feet or higher) could be more visible anywhere from nearly two to over three times the total area. Beyond a quantitative acreage evaluation, the number of residences with potential views of a tower at either of the cemetery locations also increases more than three-fold. Residential areas immediately north (across Route 34) and east of the cemetery are also not afforded the dense tree buffer that exists around the proposed Orange North tower site. In addition, given the cemetery's location next to the Housatonic River, mostly unobstructed views would extend significantly to the west. A notable feature associated with Cellco's original proposal is the presence of a large hill rising to the west, which obstructs direct lines of sight across the Housatonic River in that direction. An aerial photograph showing the Option 1 and Option 2 locations at the Mount Saint Peter's Cemetery and their proximity to the

proposed Orange North cell site is included in Attachment 6.

Based on the collective experience of Cellco's project team and following the site analysis described above, Cellco has concluded that a tower site at the Mount Saint Peter's Cemetery is not viable.

CERTIFICATE OF SERVICE

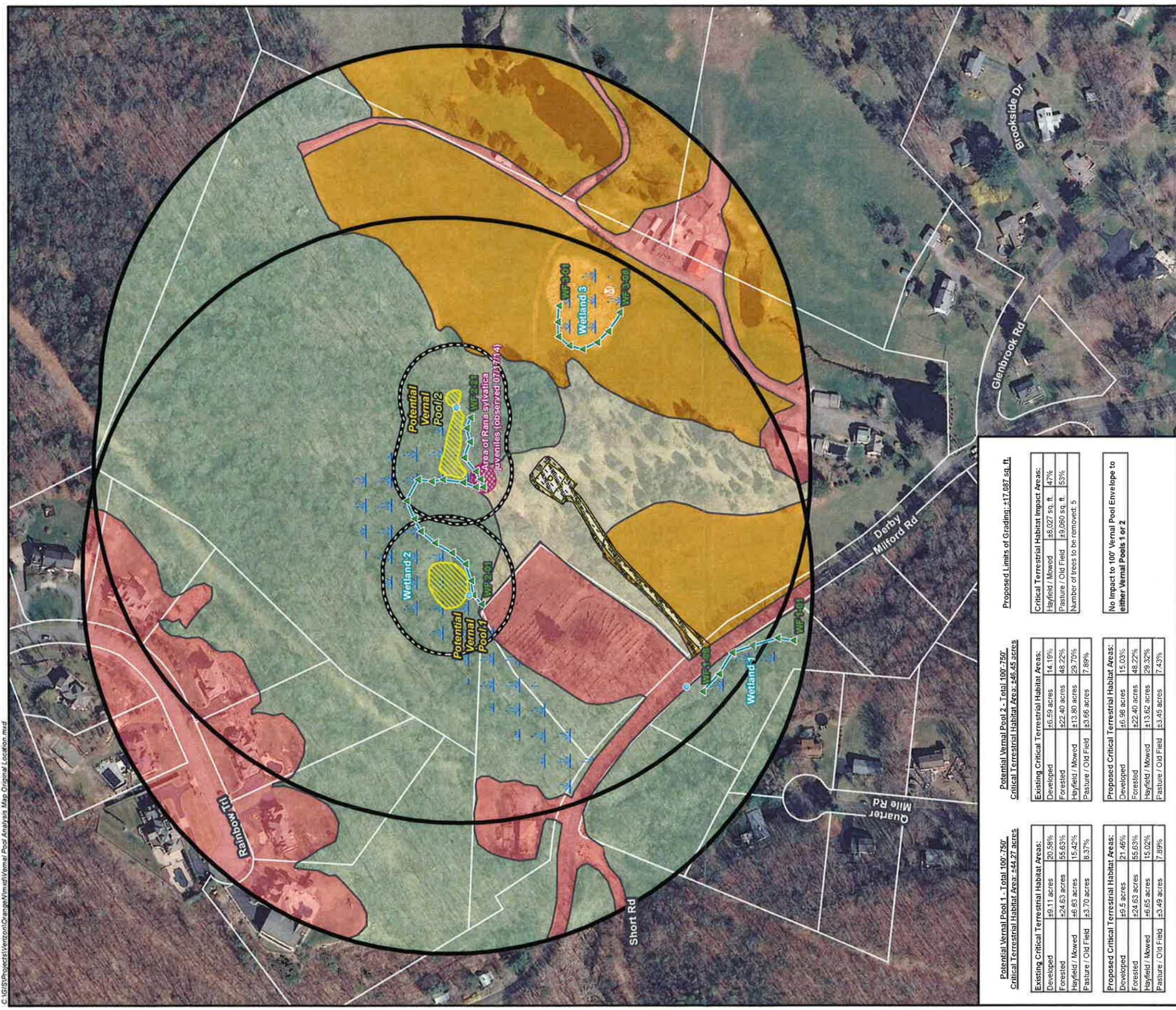
I hereby certify that on this 9th day of September, 2014, a copy of the foregoing was sent via electronic and first class mail, postage prepaid, to the following:

Albert Subbloie c/o Mario F. Coppola, Esq. Mark Kovack, Esq. Berchem, Moses and Devlin, P.C. 1221 Post Road East Westport, CT 06880 mcoppola@bmdlaw.com mkovack@bmdlaw.com	Jacqueline Barbara c/o Mario F. Coppola, Esq. Mark Kovack, Esq. Berchem, Moses and Devlin, P.C. 1221 Post Road East Westport, CT 06880 mcoppola@bmdlaw.com mkovack@bmdlaw.com
Glenn Macinnes c/o Mario F. Coppola, Esq. Mark Kovack, Esq. Berchem, Moses and Devlin, P.C. 1221 Post Road East Westport, CT 06880 mcoppola@bmdlaw.com mkovack@bmdlaw.com	Jill Macinnes c/o Mario F. Coppola, Esq. Mark Kovack, Esq. Berchem, Moses and Devlin, P.C. 1221 Post Road East Westport, CT 06880 mcoppola@bmdlaw.com mkovack@bmdlaw.com
State Senator Gayle Slossberg Legislative Office Building Room 2000 Hartford, CT 06106 gslossberg@yahoo.com	State Representative Paul Davis Legislative Office Building Room 4045 Hartford, CT 06106 paul.davis@cga.ct.gov
State Representative Themis Klarides Legislative Office Building Room 4200 Hartford, CT 06106 themis.klarides@housegop.ct.gov	State Representative James Maroney Legislative Office Building Room 5006 Hartford, CT 06106 james.maroney@cga.ct.gov



Kenneth C. Baldwin

ATTACHMENT 1



Potential Vernal Pool 1 - Total 100'-750' Critical Terrestrial Habitat Area: 44.27 acres

Existing Critical Terrestrial Habitat Areas:	
Developed	49.11 acres
Forested	20.58%
Hayfield / Mowed	55.63%
Pasture / Old Field	15.42%
	8.37%

Proposed Critical Terrestrial Habitat Areas:	
Developed	49.5 acres
Forested	21.46%
Hayfield / Mowed	55.63%
Pasture / Old Field	15.02%
	7.89%

Potential Vernal Pool 2 - Total 100'-750' Critical Terrestrial Habitat Area: 46.45 acres

Existing Critical Terrestrial Habitat Areas:	
Developed	16.59 acres
Forested	14.19%
Hayfield / Mowed	48.22%
Pasture / Old Field	29.70%
	7.89%

Proposed Critical Terrestrial Habitat Areas:	
Developed	16.98 acres
Forested	15.03%
Hayfield / Mowed	48.22%
Pasture / Old Field	29.32%
	7.43%

Proposed Limits of Grading: ±17,087 sq. ft.

Critical Terrestrial Habitat Impact Areas:	
Hayfield / Mowed	±8,027 sq. ft. 47%
Pasture / Old Field	±9,060 sq. ft. 53%
Number of trees to be removed: 5	

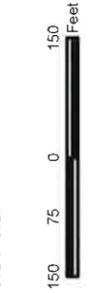
No Impact to 100' Vernal Pool Envelope to either Vernal Pools 1 or 2

Legend

- Culvert
- Manhole
- Wetland Flag
- Delineated Wetland Boundary
- Wetland Area
- Proposed Cellico Gravel Access Road and Compound Area
- Proposed Limits of Grating
- Approximate Parcel Boundary (CTDEEP)
- Area of Rana sylvatica juveniles (observed 07/17/14)

- Vernal Pool
- 100' Vernal Pool Envelope
- 100'-750' Critical Terrestrial Habitat Area
- Critical Terrestrial Habitat Type**
- Developed
- Forested
- Hayfield / Mowed
- Pasture / Old Field

Base Map Source: 2012 Aerial Photograph (CTECO) Map Date: September 2014



**Vernal Pool Analysis Map
Original Facility Layout**

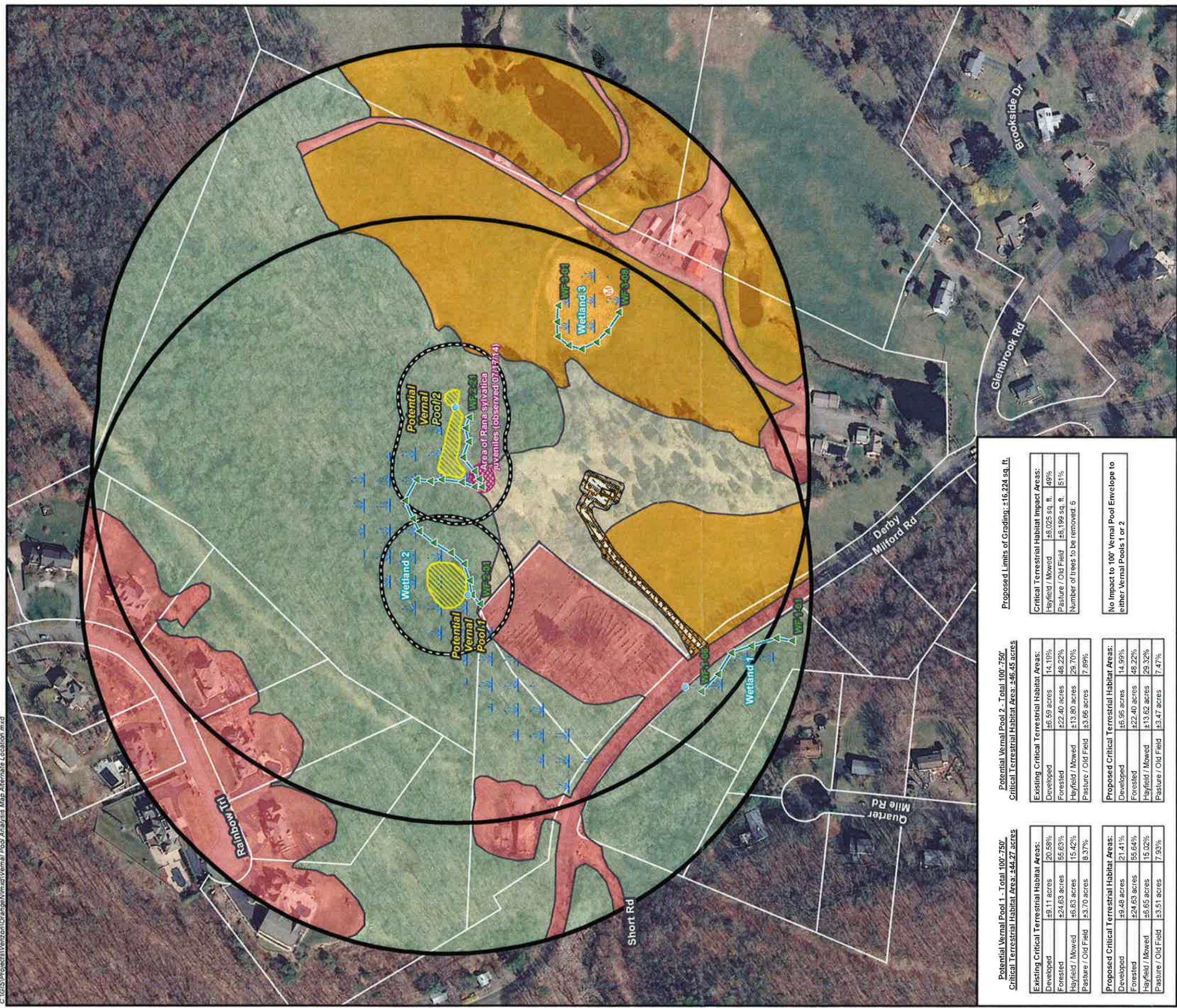


Proposed Wireless
Telecommunications Facility
Orange North
831 Derby Milford Road
Orange, Connecticut



ATTACHMENT 2

ATTACHMENT 3



Potential Vernal Pool 1 - Total 100'-750' Critical Terrestrial Habitat Area: 344.27 acres		Potential Vernal Pool 2 - Total 100'-750' Critical Terrestrial Habitat Area: 246.45 acres	
Existing Critical Terrestrial Habitat Areas:			
Developed	39.11 acres	20.58%	
Forested	224.63 acres	55.63%	
Hayfield / Mowed	66.83 acres	15.42%	
Pasture / Old Field	33.70 acres	8.37%	
Proposed Critical Terrestrial Habitat Areas:			
Developed	39.48 acres	21.41%	
Forested	224.63 acres	55.64%	
Hayfield / Mowed	56.65 acres	15.02%	
Pasture / Old Field	33.51 acres	7.93%	

Proposed Limits of Grading: ±16,224 sq. ft.	
Critical Terrestrial Habitat Impact Areas:	
Hayfield / Mowed	±8,025 sq. ft. 49%
Pasture / Old Field	±8,199 sq. ft. 51%
Number of trees to be removed: 6	

No Impact to 100' Vernal Pool Envelope to either Vernal Pools 1 or 2	
Critical Terrestrial Habitat Areas:	
Developed	±6.95 acres 14.99%
Forested	±22.40 acres 48.22%
Hayfield / Mowed	±13.62 acres 29.32%
Pasture / Old Field	±3.47 acres 7.47%

Legend

- Culvert
- Manhole
- Wetland Flag
- Delineated Wetland Boundary
- Wetland Area
- Proposed Cellico Gravel Access Road and Compound Area
- Proposed Limits of Grading
- Approximate Parcel Boundary (CTDEEP)
- Area of Rana sylvatica juveniles (observed 07/17/14)
- Vernal Pool
- 100' Vernal Pool Envelope
- 100'-750' Critical Terrestrial Habitat Area
- Critical Terrestrial Habitat Type
- Developed
- Forested
- Hayfield / Mowed
- Pasture / Old Field

**Vernal Pool Analysis Map
Alternate Facility Layout**



Proposed Wireless
Telecommunications Facility
Orange North
831 Derby Milford Road
Orange, Connecticut



ATTACHMENT 4

Docket No. 448 - Summary of RF Data and Information that Demonstrates a Need for the Orange North Facility.

Information updated to include capacity data through the end of July 2014.

Coverage

1. Existing gaps in reliable wireless service depicted clearly on the coverage plots included in Applicant's Exhibit 1, Attachment 6.
2. Gaps in reliable wireless service exist in Cellco's 700 MHz and 2100 MHz frequency ranges along portions of Route 34, Route 110, Route 121 and other areas surrounding these routes. Similar gaps exist at Cellco's 850 MHz and 1900 MHz frequencies.
3. Cellco's coverage design threshold is - 85 dBm signal strength throughout its network, nationwide.

Capacity

1. Cellco's capacity problems in Orange and throughout its network in Connecticut and nationwide are directly related to the exponential growth in customer demand for high speed wireless data services.
2. Cellco has established a design threshold of 4 Megabits per second (Mbps) download speeds for all of its data services in Connecticut. The company's ultimate goal is to achieve data rates of 5 – 12 Mbps download speed throughout its network nationwide.
3. Cellco has developed a proprietary analytical tool to help it evaluate and monitor the data usage in each sector of each cell site in its network. The tool allows Cellco to monitor the growth of data usage in those particular antenna sectors and forecast when that sector is going to exhaust its' capacity limit. Cellco reviews this data on a monthly basis to develop capacity trending. This trending allows Cellco to make intelligent decisions regarding how to meet current and future capacity needs.
4. The capacity data analyzed for these antenna sectors includes:
 - a. **Forward Data Volume (FDV)** which measures the amount of data transmitted from a sector of a cell site to the data user for a specific busy hour, measured in Megabytes (MB)
 - b. **Average Scheduled Eligible Users (ASEU)** which measures how many customers are using a particular sector of a cell site at the established threshold limits.
 - c. **Average Active Connections (AvgAC)** which measures active connections to the sector of the cell site being evaluated.

5. All of this data is charted and monitored to determine if a particular antenna sector of a particular cell site is operating within its' individual site capacity limits; at what rate the usage is growing; and when the capacity of that particular antenna sector will reach its capacity limits.
6. Attached to this summary are a series of charts and graphs, showing the actual data Cellco's RF Design Engineers analyzed to determine that several sectors in the area of the proposed Orange North CT are approaching their capacity limits. A summary of this data is presented for your review.

Milford NE CT – Alpha Sector

- Over the previous thirteen months, Cellco's analytical tool has projected this sector as an exhausting sector every month. This fact indicates a *severe increase in capacity demand*. Over the previous thirteen months, this sector has seen a 108.9% increase in FDV, which represents the average amount of over the air data processed by this sector on our LTE network during the sectors' busy hour. Additionally, since July of 2013, the sector has experienced an 86.4% increase in AvgAC, which represents the average number of users accessing the LTE network by connecting to this sector.

Derby CT – Beta Sector

- Over the previous thirteen months, Cellco's analytical tool has projected this sector as an exhausting sector in eight months. What is notable is that these eight months have come consecutively, since December of 2013, which indicates a steady, continued trend of capacity demand increases. Over the previous thirteen months, this sector has seen a 62.1% increase in AvgAC, which represents the number of users accessing the LTE network by connecting to this sector. Additionally, since December of 2013, a 10.4% increase in FDV has occurred, which represents the average amount of over the air data processed by this sector on our LTE network during the sectors' busy hour. It should also be noted that even though our 2100 MHz service was activated at this sector in June of 2014, this sector still trends toward exhaustion.

Derby North CT – Gamma Sector

- Over the previous thirteen months, Cellco's analytical tool has projected this sector as an exhausting sector in seven of the last eight months. What is notable is that six of these seven months have come in 2014, which indicates a stable, continued trend of capacity demand increase. In 2014, this sector has seen a 21.2% increase in FDV, which represents the amount of over the air data processed by this sector on our LTE network. It should also be noted that even though our 2100 MHz services were only activated at this sector in May of 2014, this sector still trends toward exhaustion.

Shelton 2 CT – Beta Sector

- Over the previous thirteen months, Cellco's analytical tool has projected this sector as an exhausting sector in six months. What is notable is that five of these

six months have come in 2014, which indicates a stable, continued trend of capacity demand increase. In 2014, this sector has seen a 56.3% increase in AvgAC, which represents the number of users accessing the LTE network by connecting to this sector. It should be noted that even though our 2100 MHz services were only activated at this sector in June of 2014, this sector still trends toward exhaustion.

The same data was analyzed for our existing Orange 2 CT Gamma Sector, Orange 3 CT Alpha and Gamma Sectors and Derby North CT Beta Sector. Cellco's analysis of the data showed that while data usage at these particular cell sites has increased, the sites still operate within the sector's capacity limits. For those sites operating within their existing limits, the tool can also forecast when a particular site will reach that capacity limit.

Orange North CT - List of Surrounding Sectors

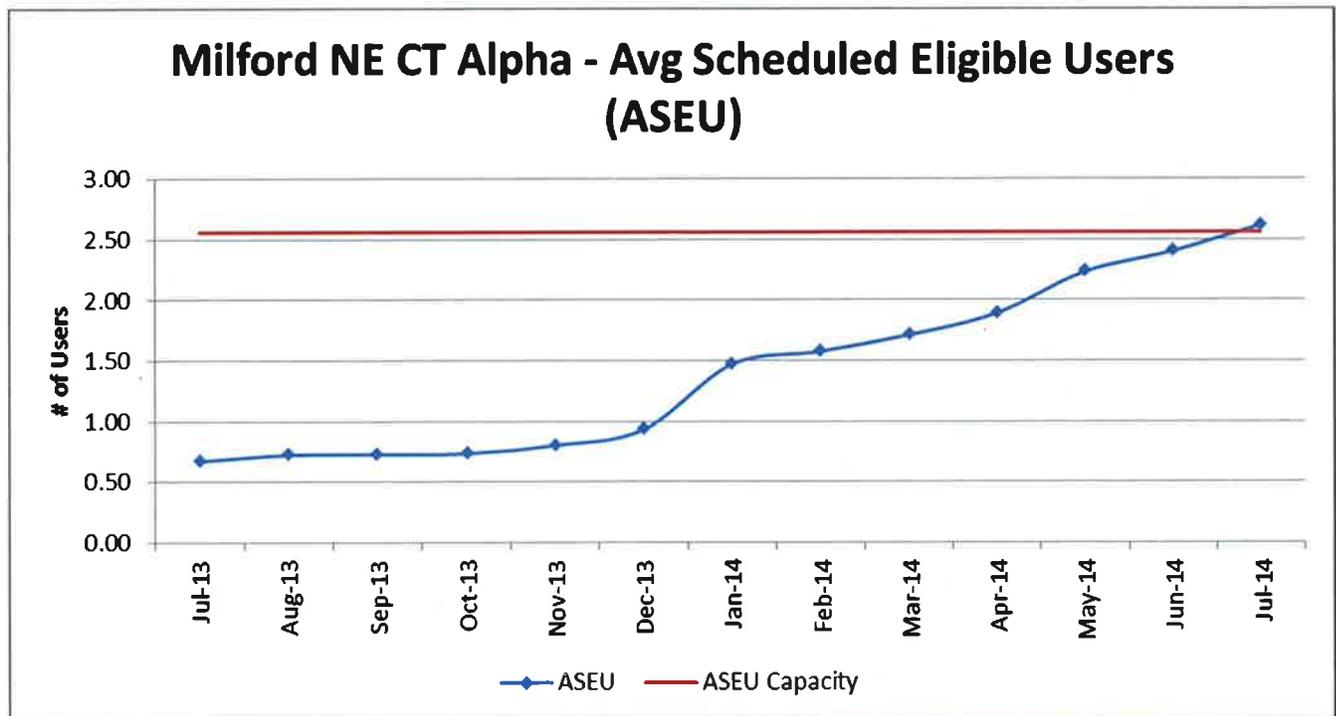
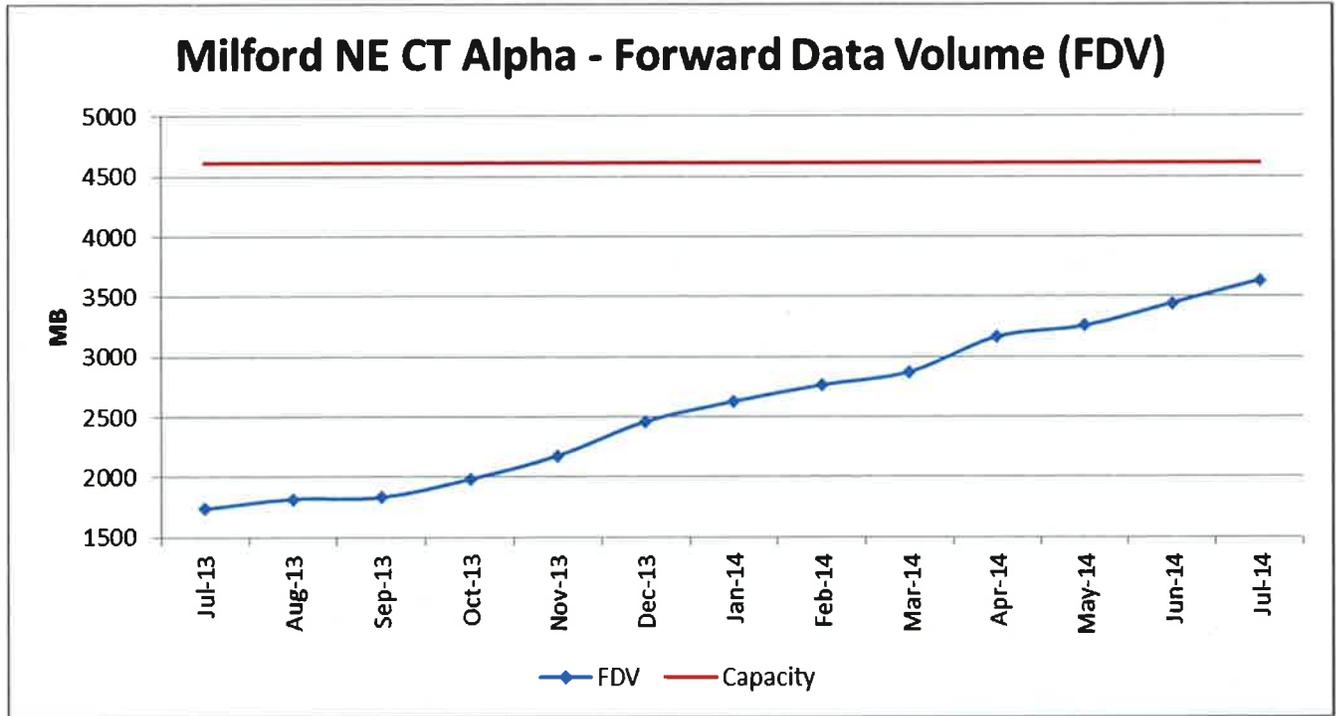
Cell Name	Sector	Summary
MILFORD NE CT	Alpha	FDV = 3634.44 ASEU = 2.62 AvgAC = 57.01 PrjdToExhaust = 9/4/2014
DERBY CT	Beta	FDV = 3866.15 ASEU = 2.21 AvgAC = 52.52 PrjdToExhaust = 9/7/2015
DERBY CT AWS	Beta	FDV = 1803.45 ASEU = 0.21 AvgAC = 19.88 PrjdToExhaust = Beyond 3 Years
DERBY NORTH CT	Beta	FDV = 3005.62 ASEU = 0.85 AvgAC = 40.69 PrjdToExhaust = Beyond 3 Years
DERBY NORTH CT AWS	Beta	FDV = 1339.32 ASEU = 0.14 AvgAC = 13.32 PrjdToExhaust = Beyond 3 Years
DERBY NORTH CT	Gamma	FDV = 2027.28 ASEU = 1.07 AvgAC = 23.58 PrjdToExhaust = 6/13/2016
DERBY NORTH CT AWS	Gamma	FDV = 1280.24 ASEU = 0.12 AvgAC = 7.06 PrjdToExhaust = Beyond 3 Years
SHELTON 2 CT	Beta	FDV = 2074.47 ASEU = 0.89 AvgAC = 29.65 PrjdToExhaust = 3/22/2016

SHELTON 2 CT AWS	Beta	FDV = 1134.43 ASEU = 0.07 AvgAC = 6.76 PrjdToExhaust = Beyond 3 Years
ORANGE 2 CT	Gamma	FDV = 1619.64 ASEU = 0.5 AvgAC = 18.93 PrjdToExhaust = Beyond 3 Years
ORANGE 3 CT	Alpha	FDV = 1364.05 ASEU = 0.23 AvgAC = 12.17 PrjdToExhaust = Beyond 3 Years
ORANGE 3 CT	Gamma	FDV = 1680.38 ASEU = 0.4 AvgAC = 21.16 PrjdToExhaust = Beyond 3 Years

Surrounding Sectors' Exhaust Date History (Updated through July 2014)

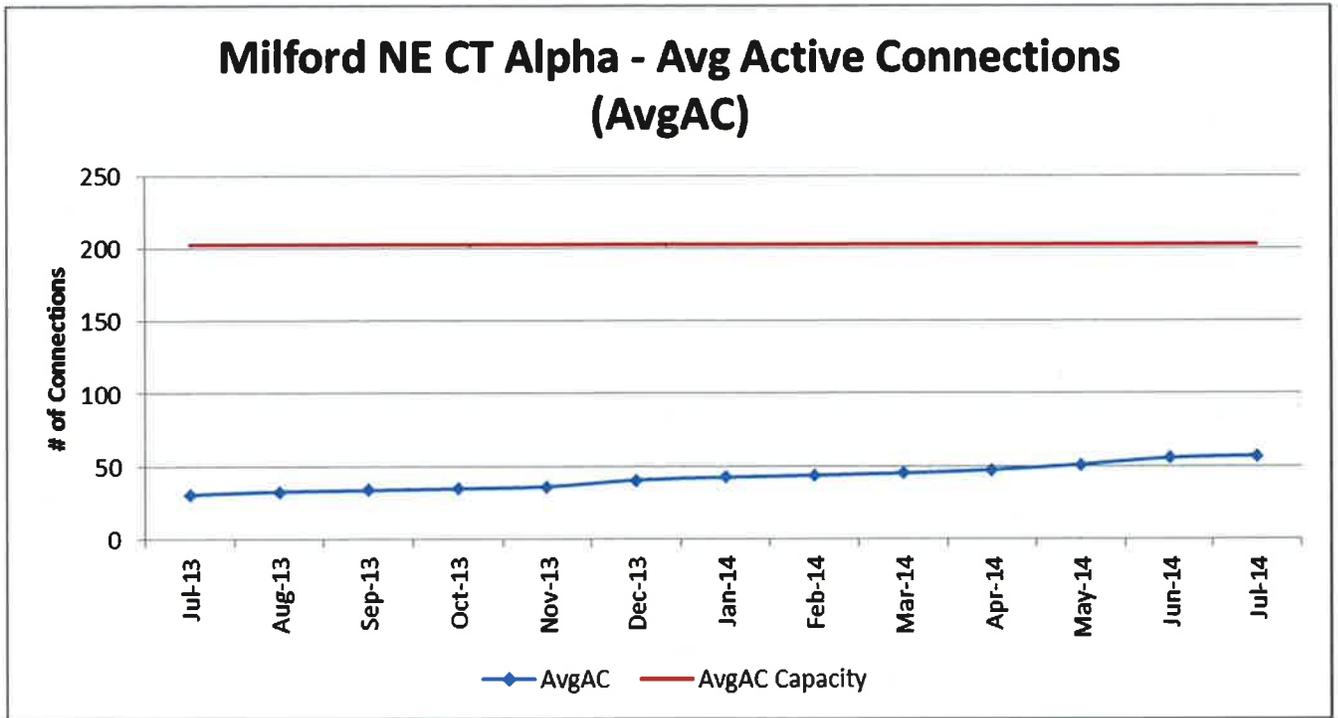
Exhaust Report Month	DERBY_CT Beta	DERBY_NORTH_CT Gamma	MILFORD_NE_CT Alpha	SHELTON_2_CT Beta
Jul-13		9/9/2014	2/9/2015	6/19/2015
Aug-13			12/5/2014	
Sep-13			12/21/2014	
Oct-13			12/7/2014	
Nov-13			10/9/2014	
Dec-13	12/10/2015		5/27/2014	
Jan-14	5/15/2014	5/14/2015	1/31/2014	
Feb-14	2/28/2014	1/4/2015	2/28/2014	9/1/2015
Mar-14	3/31/2014	9/8/2015	3/31/2014	5/29/2016
Apr-14	8/29/2014	6/11/2015	8/16/2014	10/14/2016
May-14	11/13/2014		8/28/2014	3/6/2017
Jun-14	1/25/2016	9/7/2015	9/14/2014	
Jul-14	9/7/2015	6/13/2016	9/4/2014	3/22/2016

Milford NE CT Alpha Sector Exhaust Analysis Data

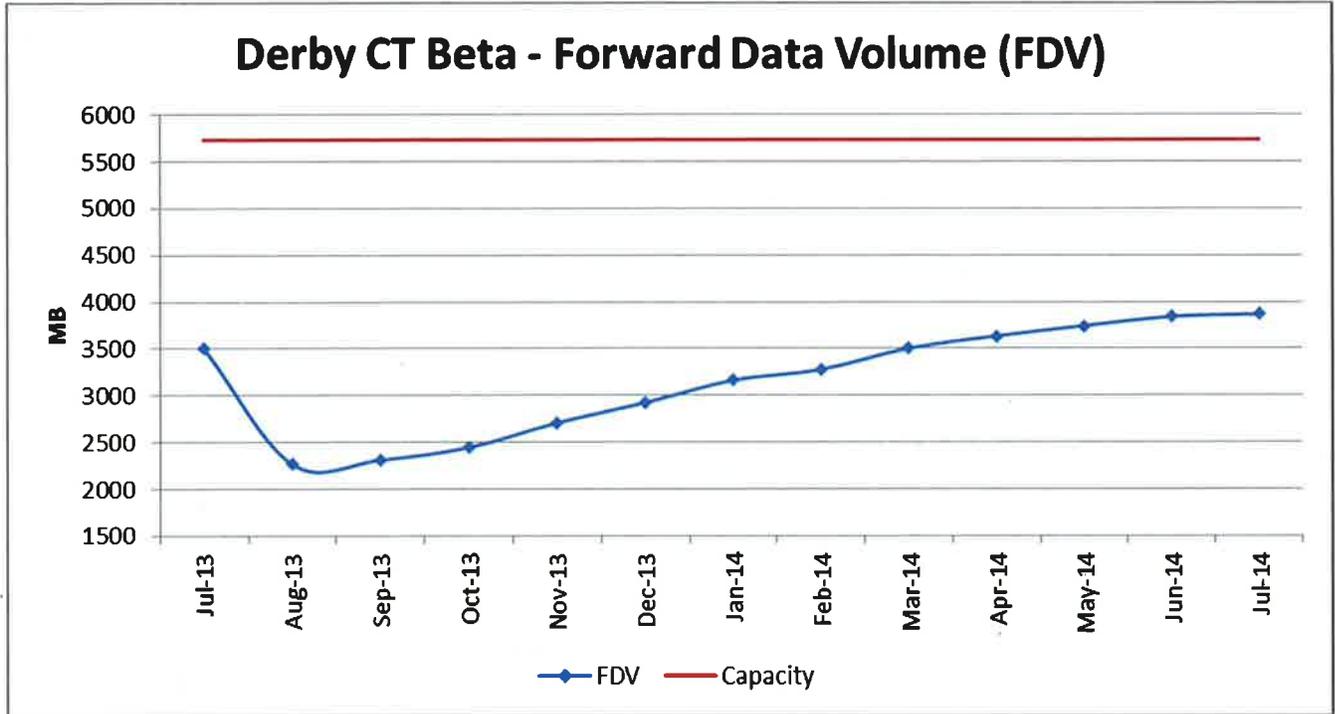


Note: The increase in ASEU starting January 2014 was a result of a formula change in the tool in order to provide more accurate ASEU forecasting.

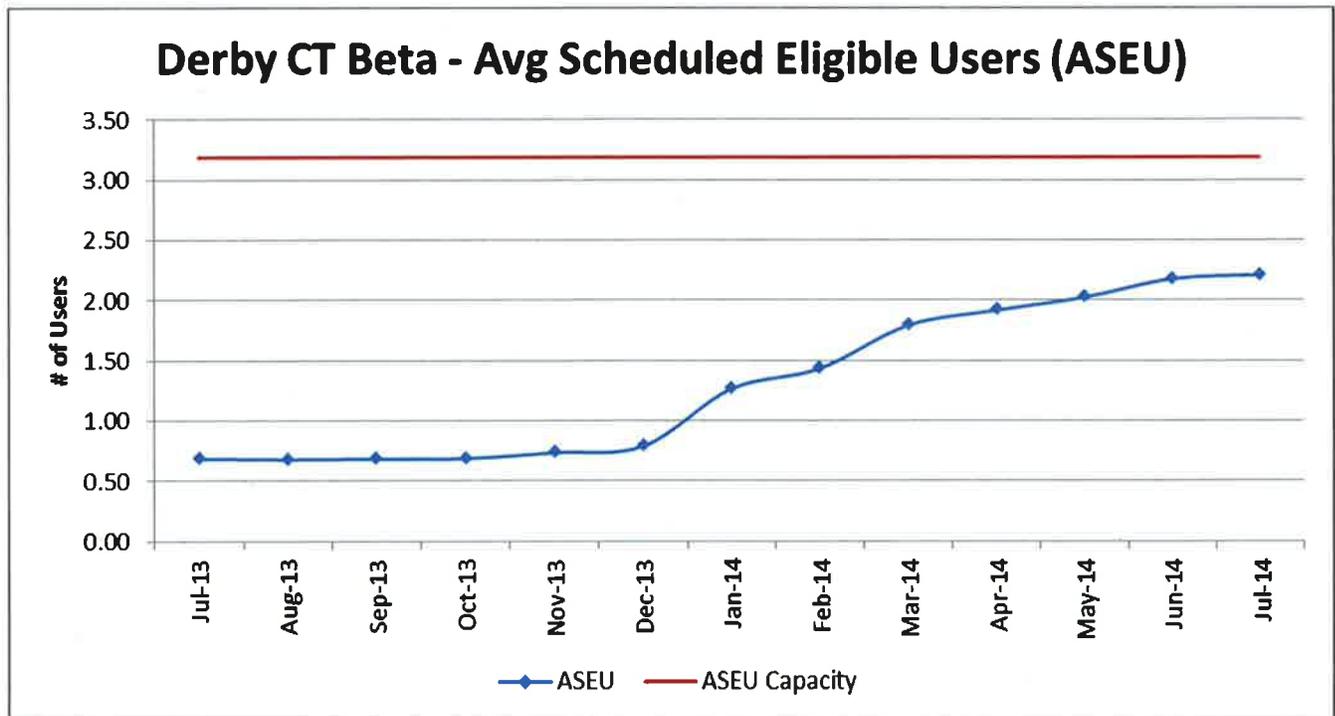
Milford NE CT Alpha Sector Exhaust Analysis Data (Continued)



Derby CT Beta Sector Exhaust Analysis Data

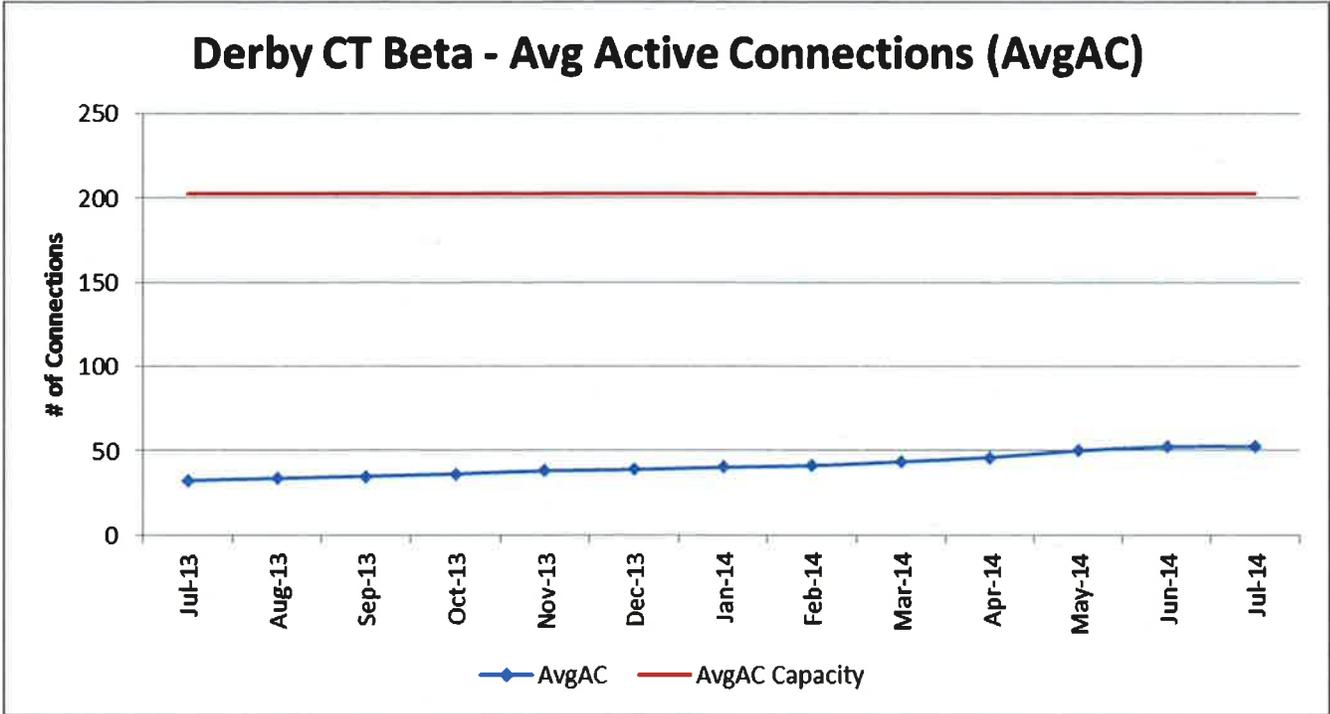


The July 2013 increase in FDV for Derby CT Beta sector is directly attributable to the Derby-Shelton Fourth of July celebration

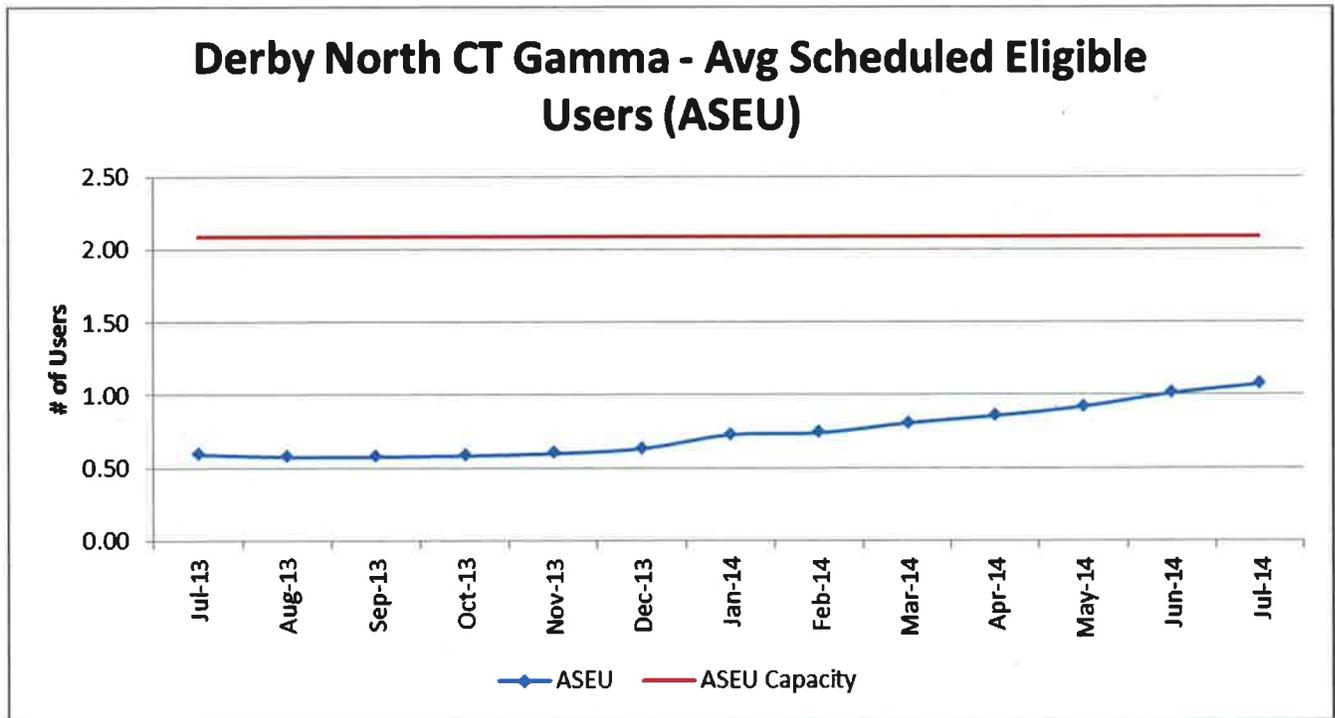
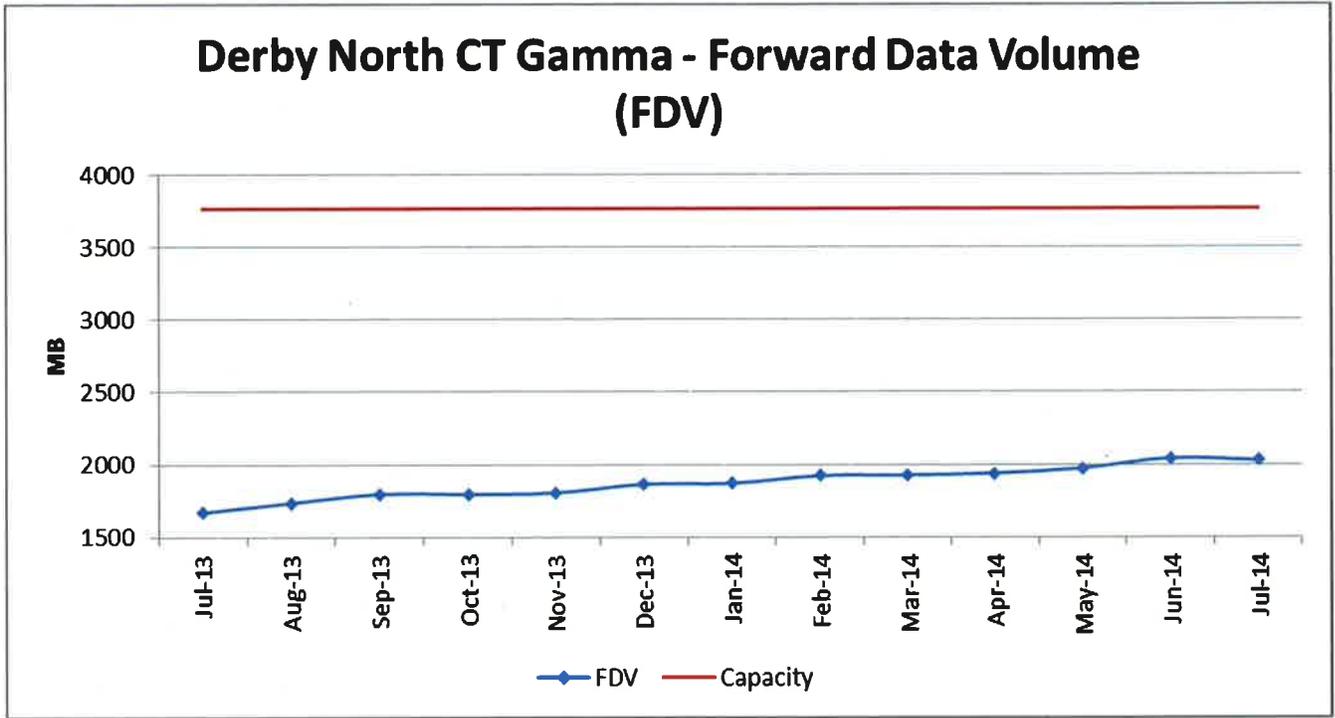


Note: The increase in ASEU starting January 2014 was a result of a formula change in the tool in order to provide more accurate ASEU forecasting.

Derby CT Beta Sector Exhaust Analysis Data (Continued)

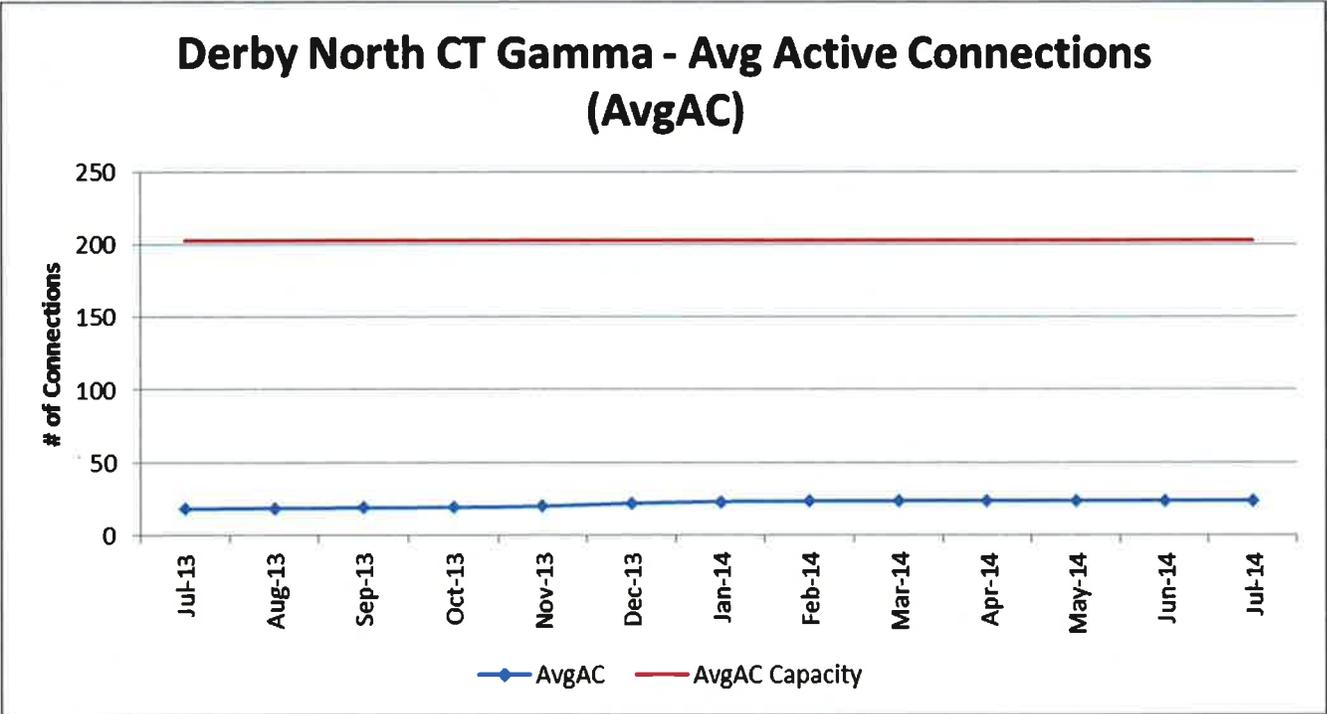


Derby North CT Gamma Sector Exhaust Analysis Data

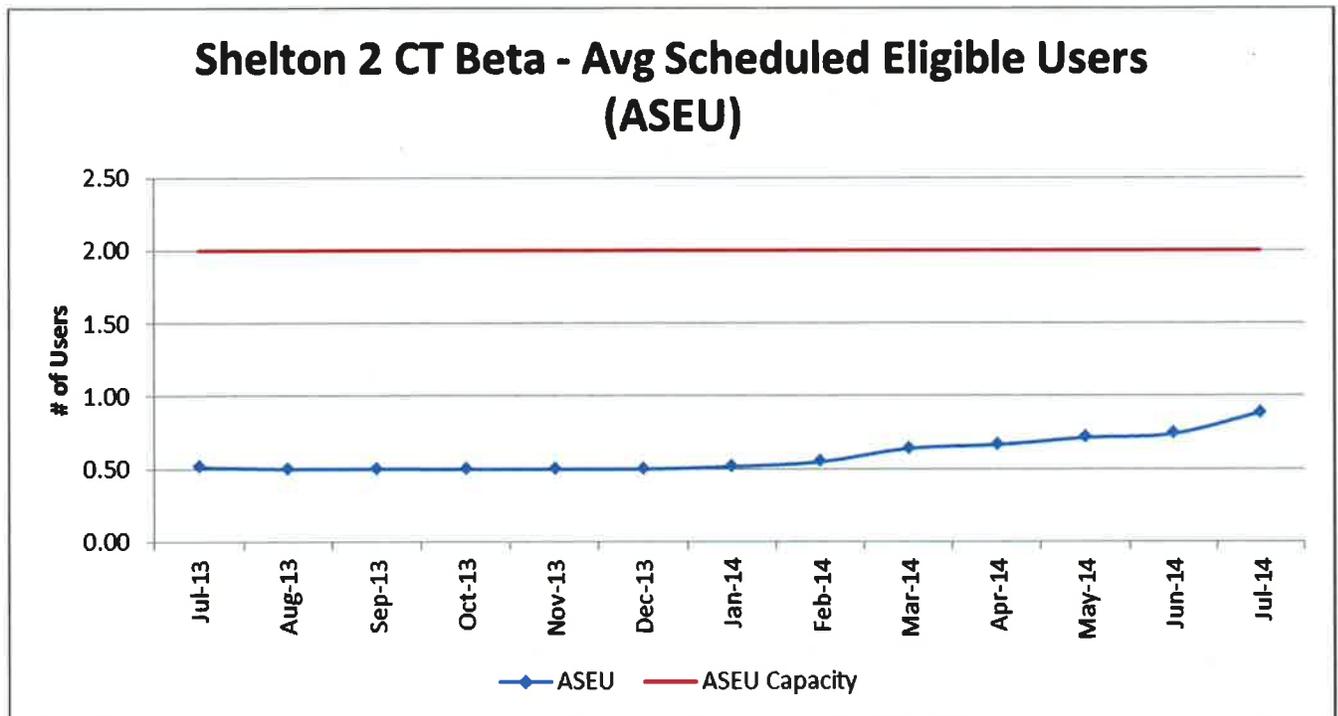
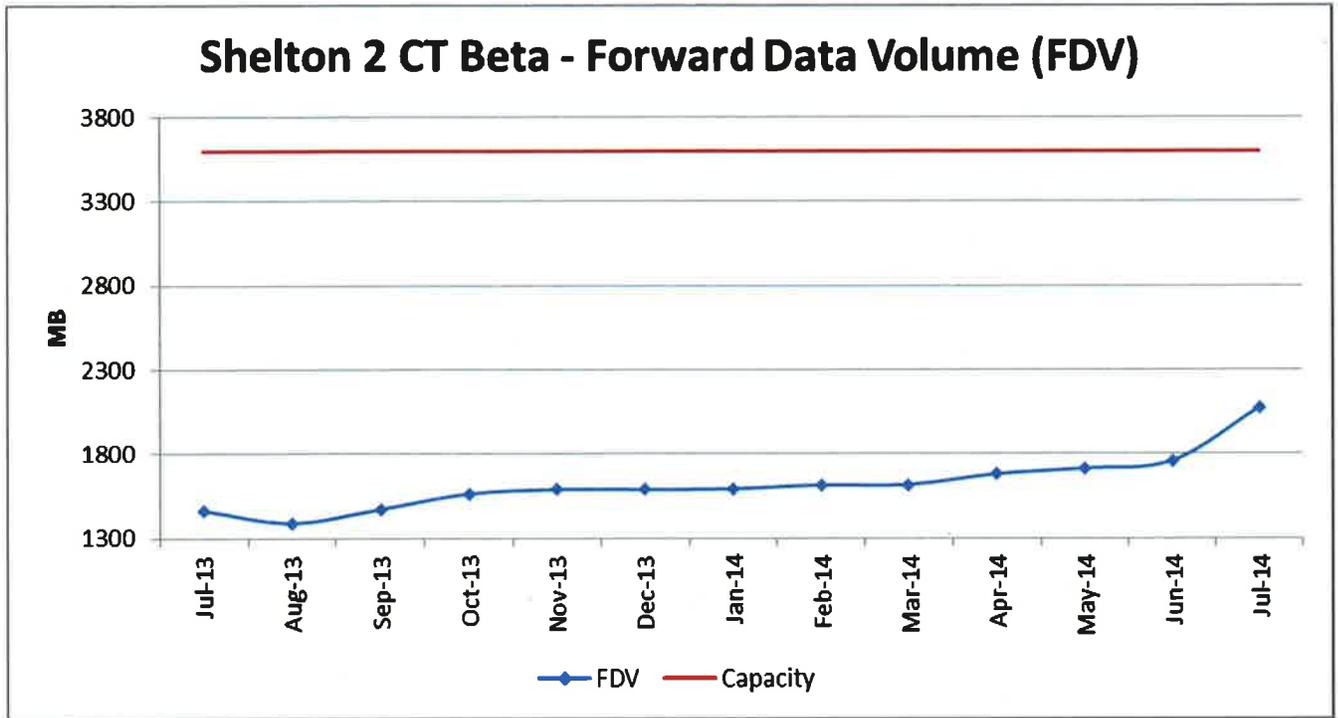


Note: The increase in ASEU starting January 2014 was a result of a formula change in the tool in order to provide more accurate ASEU forecasting.

Derby North CT Gamma Sector Exhaust Analysis Data (Continued)

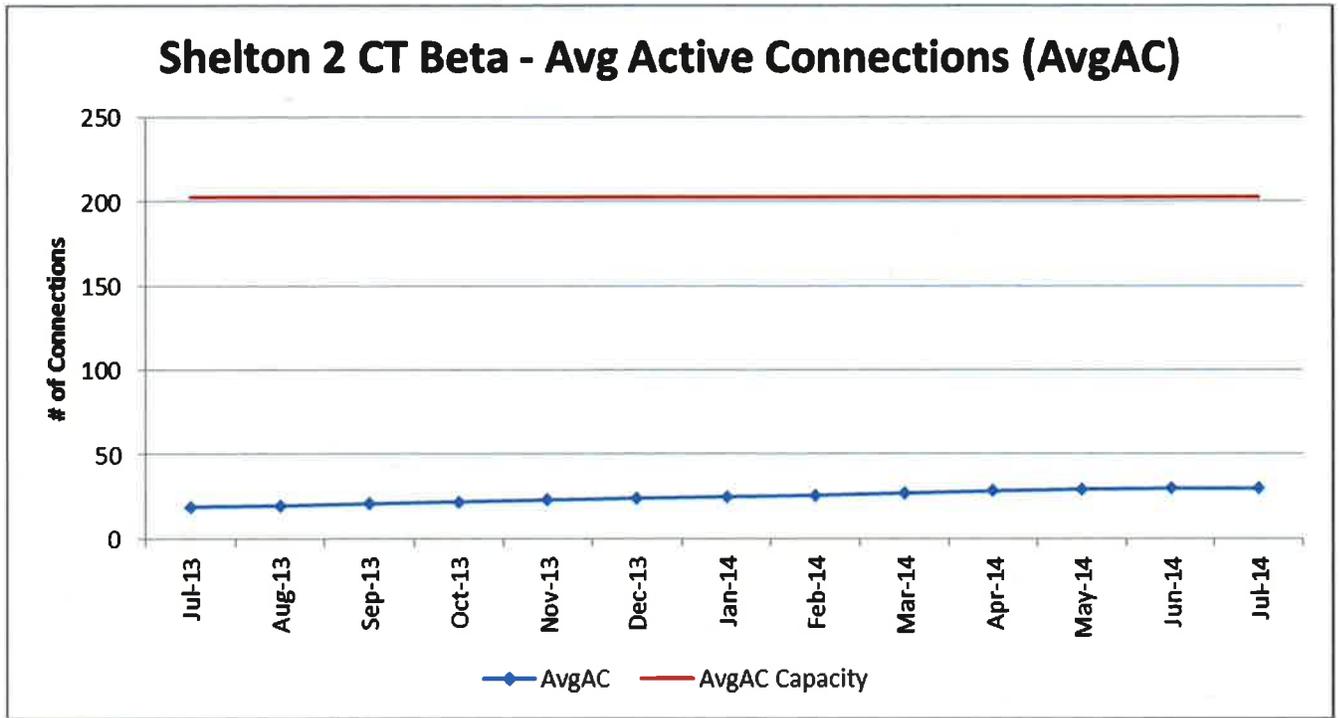


Shelton 2 CT Beta Sector Exhaust Analysis Data



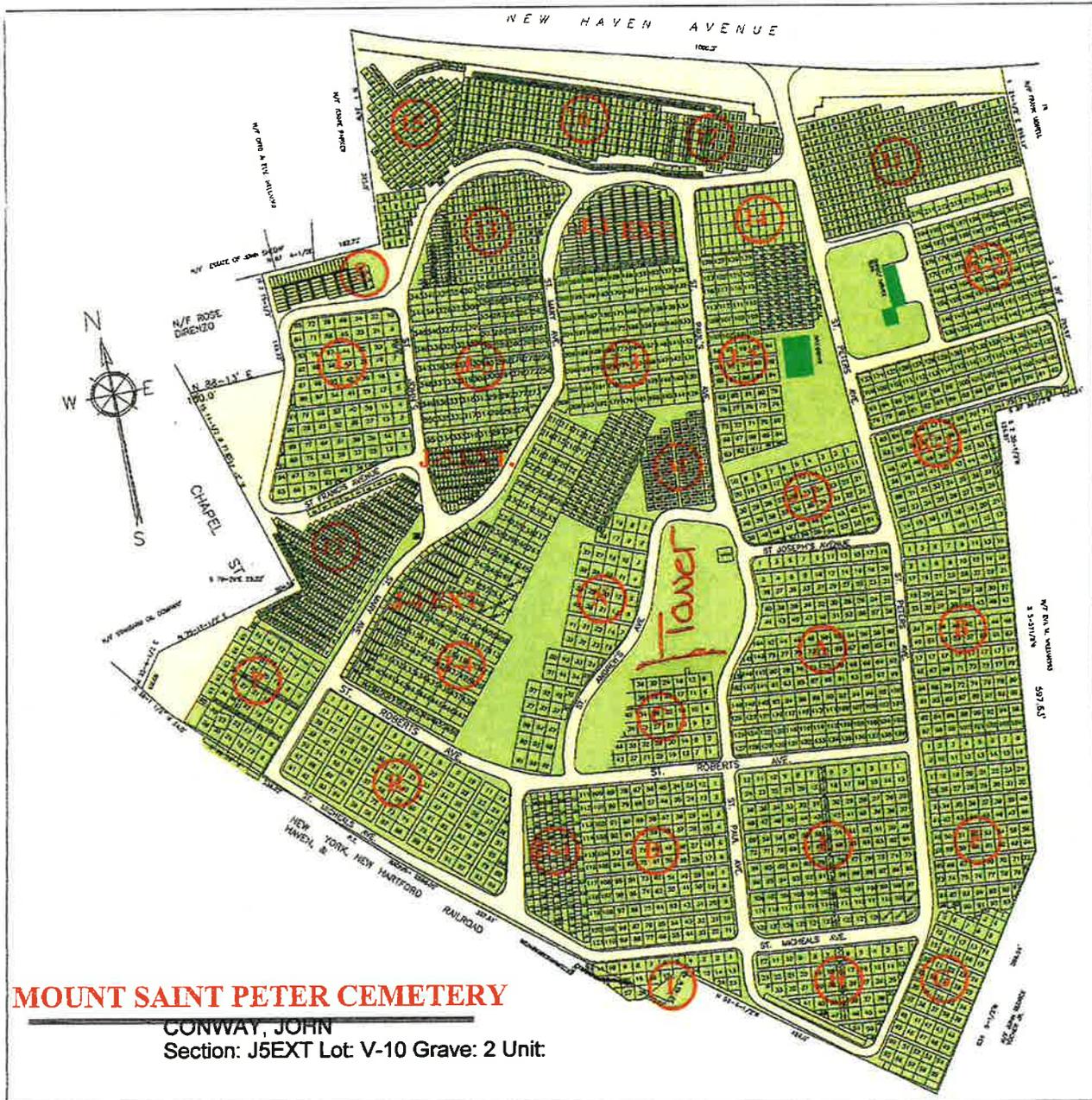
Note: The increase in ASEU starting January 2014 was a result of a formula change in the tool in order to provide more accurate ASEU forecasting.

Shelton 2 CT Beta Sector Exhaust Analysis Data (Continued)



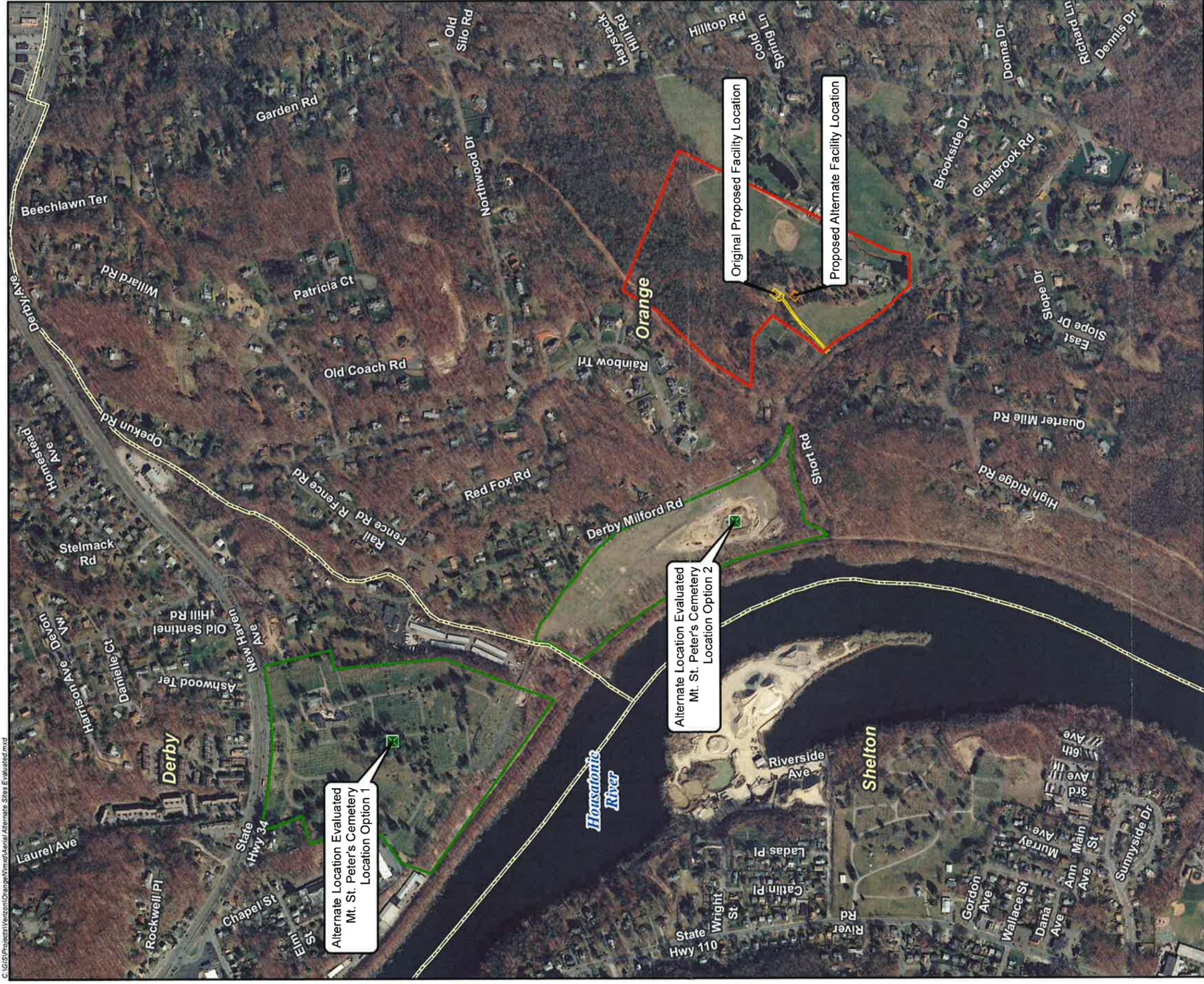
ATTACHMENT 5

Mt. St. Peter Cemetery



ATTACHMENT 6

C:\GIS\Projects\Verizon\Orange\Mxd\Aerial\Alternate Sites Evaluated.mxd



Legend

-  Original Proposed Facility Layout
-  Proposed Alternate Facility Location
-  Subject Property for Proposed Facility
-  Alternate Location Evaluated
-  Mt. St. Peter's Cemetery
-  Municipal Boundary



Alternate Sites Evaluated



Proposed Wireless
Telecommunications Facility
Orange North
831 Derby Milford Road
Orange, Connecticut



Base Map Source: 2012 Aerial Photograph (CTECO)
Map Date: September 2014