ATTACHMENT 1

Radio Frequency Analysis Report

82 Short Beach Road
Branford, CT

&

171 Short Beach Road
East Haven, CT

April 6, 2012

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1. Overview

C Squared Systems was retained by New Cingular Wireless PCS, LLC ("AT&T") to investigate the extent of coverage that could be potentially obtained by constructing one of two proposed wireless communications facilities:

- 82 Short Beach Road, East Haven, CT at 103 feet AGL or
- 171 Short Beach Road, Branford, CT at 120 feet AGL

AT&T is licensed by the FCC to provide wireless communications services throughout the State of Connecticut including the Town of East Haven and the Town of Branford where one of the proposed facilities would be located.

This report addresses AT&T's need for a facility in this area and analyzes two alternative sites proposed to address the coverage gaps in their wireless communications network. C Squared Systems has reviewed and conducted this coverage analysis that confirms AT&T has a gap in reliable service that exists in East Haven and Branford, and that either proposed site will meet the coverage objectives in the area. As a result, AT&T is proposing both sites referenced above with the understanding that only one would be needed to fulfill their immediate coverage needs. Included as attachments in this report are coverage maps detailing the existing network and expected coverage from the proposed facilities, along with additional terrain and network layout maps.

2. Coverage Objective

There is a serious coverage deficiency in the existing AT&T wireless communications network in the subject area. A deficiency in coverage is evidenced by the inability to adequately and reliably transmit/receive quality calls and/or utilize data services offered by the network. Seamless reliable coverage provides users with the ability to successfully originate, receive, and maintain quality calls and/or utilize data applications throughout a service area. Overlapping coverage is required for users to be able to move throughout the service area and reliably "hand-off" between cells to maintain uninterrupted calls.

Due to terrain characteristics and the distance between the targeted coverage area and the existing sites, AT&T's options to provide services in this area are quite limited. Maps of the terrain in this area and the distance to neighboring AT&T sites from each of the proposed sites are included as Attachments 1, 2 & 3, respectively. AT&T's network requires deployment of antennas throughout the area to be covered, which are connected to receivers and transmitters that operate in a limited geographic area known as a "cell." AT&T's wireless network, including their wireless handsets and devices, operate by transmitting and receiving low power radio frequency signals to and from these cell sites. The signals are transferred to and from the landline telephone network and routed to their destinations by sophisticated electronic equipment. The size of the area served by each cell site is dependent on several factors, including the number of antennas used, the height at which the antennas are deployed, the topography of the land, vegetative cover and natural or man-made obstructions in the area. As customers move throughout the service area, the transmission from the portable devices is automatically transferred to the AT&T facility with the best connection to the device, without interruption in service provided that there is overlapping coverage from the cells.

In order to define the extent of the coverage gap to be filled, both propagation modeling and real-world drive testing has been conducted in the area of East Haven and Branford. Propagation modeling uses PC software to determine the network coverage based on the specific technical parameters of each site including, but not limited to, location, ground elevation, antenna models, antenna heights, and also databases of terrain and ground cover in the area. Drive testing consists of traveling along area roadways in a vehicle equipped with a sophisticated setup of test devices and receivers that collect a variety of network performance metrics. The data are then processed and mapped in conjunction with the propagation modeling to determine the coverage gaps.

Analysis of the propagation modeling and drive testing in East Haven and Branford reveal that AT&T's network is unreliable throughout much of the area due to gaps in coverage, and that there is a service deficiency as a result. In order to fill in these coverage gaps and improve the network reliability to Branford and East Haven, a new facility is needed in the area.

Attached are three coverage maps illustrating the existing coverage conditions as well as how each of the proposed sites would improve coverage for this area. As shown in Attachment 4: "Existing Coverage", there are currently gaps in coverage effecting service along Route 142 (Shore Dr. and Short Beach Road), Alps Road, and the surrounding neighborhoods. The coverage gaps are where the signal strength is < -82 dBm required for reliable in-vehicle coverage and < -74 dBm for in-building reliability. In an effort to provide the required level of coverage to these areas, AT&T is proposing to install a wireless facility at one of the two proposed locations. Attachments 5 and 6: "Existing & Proposed Coverage" show how each of the alternate proposed sites would fill in the coverage gaps and improve AT&T's network in this area.

Table 1 below lists the coverage statistics that were compiled for the two proposed sites: 82 Short Beach at 100 feet and 171 Short Beach at 120 feet (heights relative to antenna centerline). As discussed in the Application, the height of the proposed East Haven facility complies with the State Historic Preservation Officer's no adverse effect determination for this site.

		171 Short Beach Rd (Branford) at 120' AGL	82 Short Beach Rd (East Haven) at 100' AGL
Population Coverage:	"In-Building" (≥ -74 dBm)	4,693	4,083
	"In-Vehicle" (≥ -82 dBm)	4,133	4,316
Area Covered (mi²):	"In-Building" (≥ -74 dBm)	1.82	1.70
	"In-Vehicle" (≥ -82 dBm)	1.67	1.50
Roadway Coverage (mi):	Main:	1.37	0.95
	Secondary:	10.59	9.03
	Total:	11.96	9.98

Table 1: Coverage Statistics[1]

[1] Coverage Statistics are reflect "incremental" or new coverage added, based on the 850 MHz network

3. Conclusion

Each proposed tower location is suited to close the coverage gap in East Haven and Branford. No existing structures were identified and available to provide the coverage requirements needed for this area. The location and the minimum height selected were chosen to achieve an optimal balance between meeting coverage objectives, clearing the tree line, minimizing the aesthetic impact to the community, and future collocation.

As discussed in this report and depicted in the attached plots, either of the proposed AT&T sites will provide the public need for service in this area, providing an appropriate coverage footprint for the East Haven and Branford community along with effective connectivity to the rest of AT&T existing network.

Without a site in this area, at the height requested, significant gaps in service will exist within the Town of East Haven and the Town of Branford, and the identified public need for reliable wireless services in this area will not be met.

4. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate.

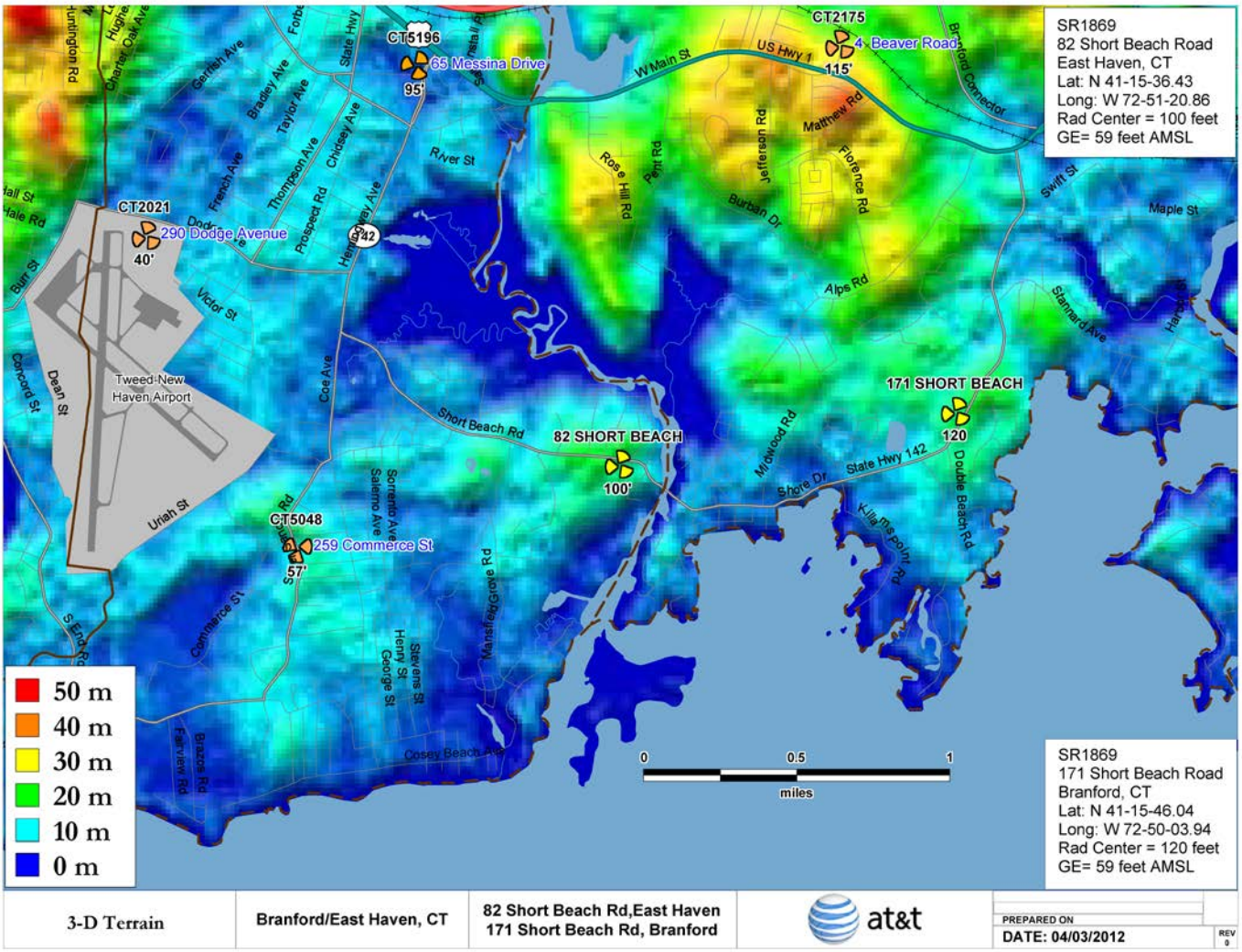
anthony wells

April 6, 2012

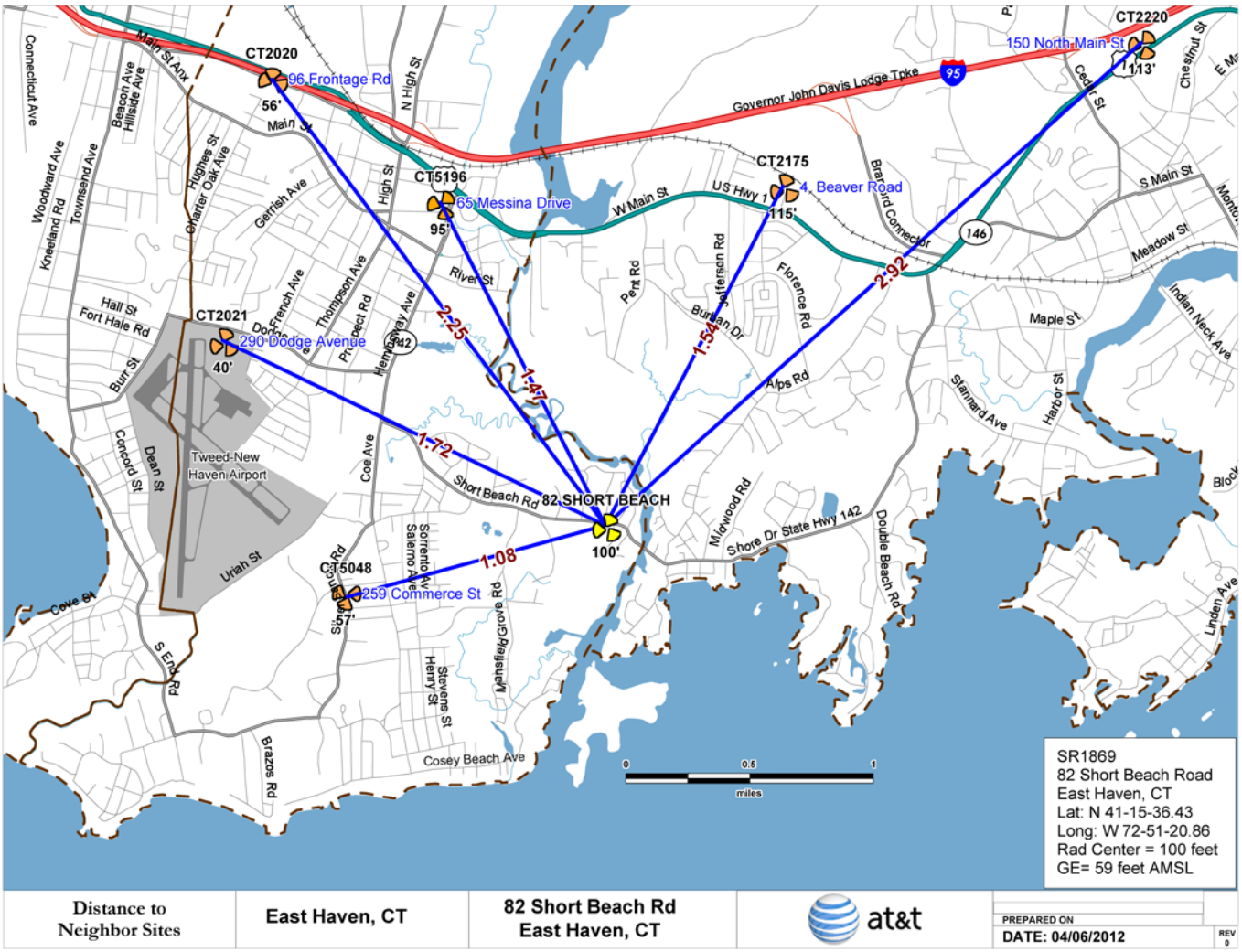
Tony Wells
C Squared Systems, LLC

Date

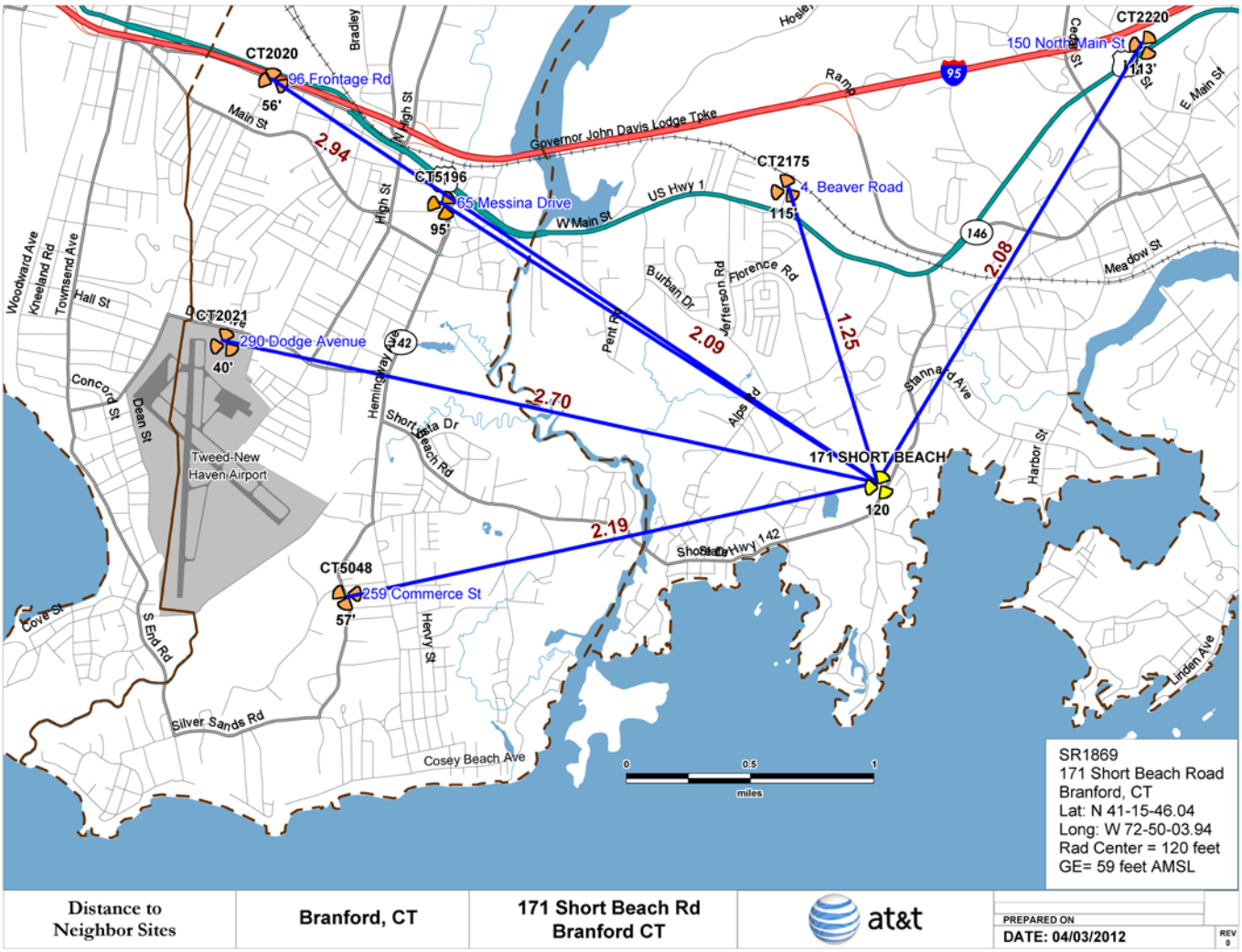
5. Attachments



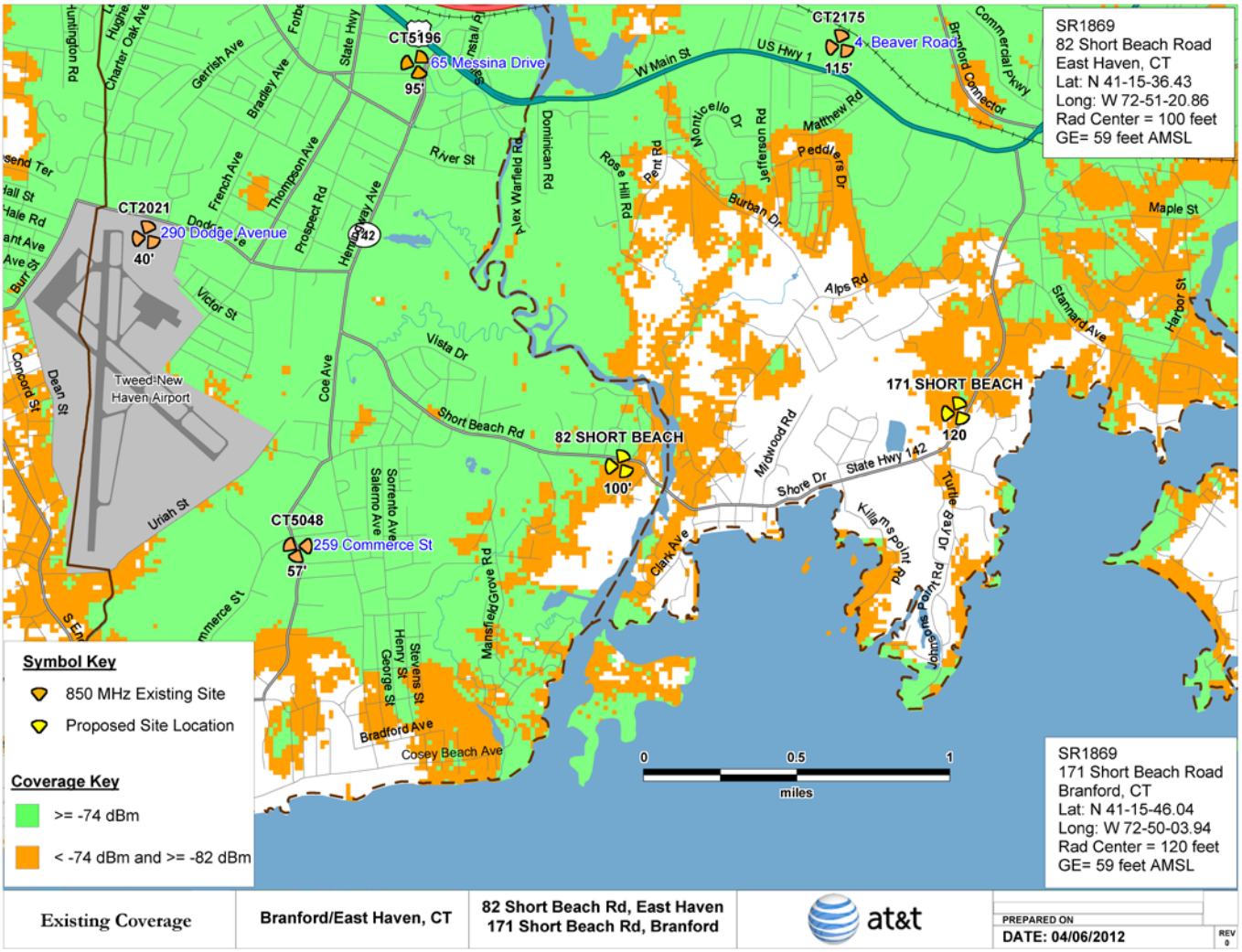
Attachment 1: 3D Terrain Map



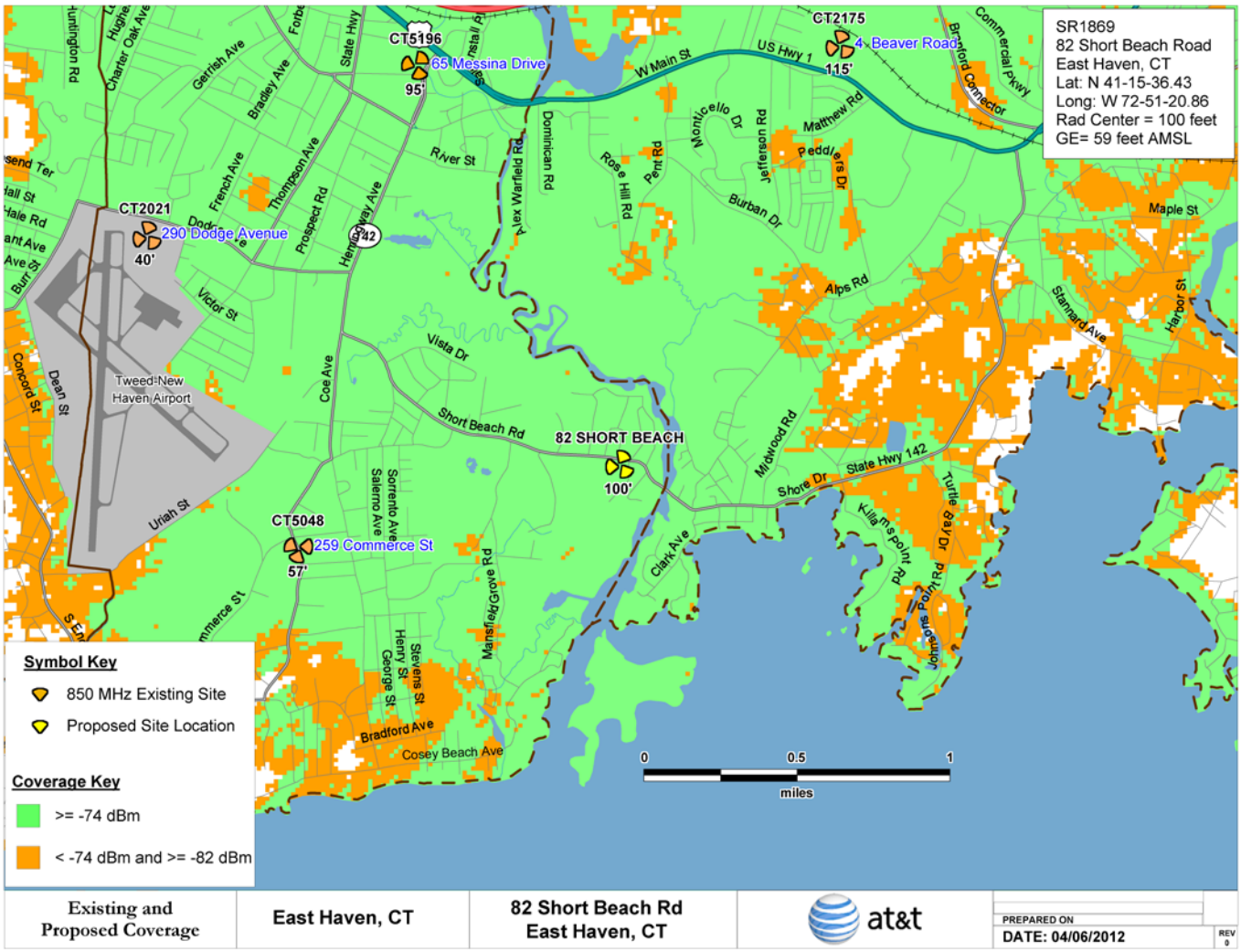
Attachment 2: Map of Distance to Neighbor Sites – 82 Short Beach Road



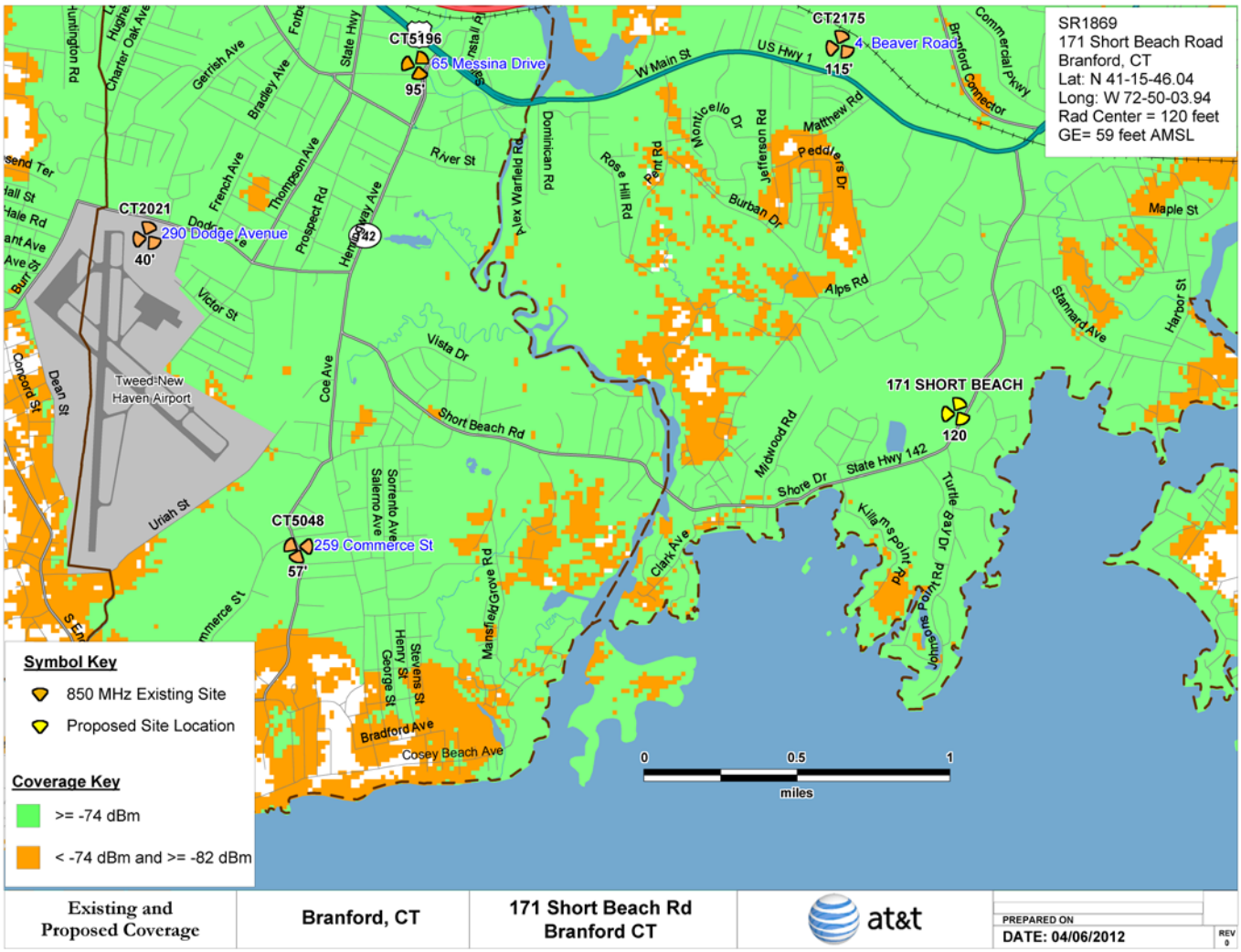
Attachment 3: Map of Distance to Neighbor Sites – 171 Short Beach Road



Attachment 4: "Existing Coverage" for the Current AT&T network



Attachment 5: "Existing & Proposed Coverage" for the AT&T network with 82 Short Beach Road site



Attachment 6: "Existing & Proposed Coverage" for the AT&T network with 171 Short Beach Road site