

Attachment 1



RADIO FREQUENCY ENGINEERING REPORT

Proposed Washington, CT Wireless Facility - S2417 - Washington, CT



Prepared by:

SAI Communications
260 Cedar Hill Street
Marlborough, MA 01752
Desk: (508) 573-5408
Fax: (508) 485-0107

Revision Date:

August 27, 2013

Table of Contents

1. Overview.....	3
2. Introduction.....	3
3. Coverage Objective.....	3
4. Summary.....	6
5. Statement of Certification	6
6. Attachments.....	7

List of Tables

Table 1: Area Coverage Analysis.....	4
Table 2: Population Coverage Analysis.....	5
Table 3: Average Daily Traffic.....	5
Table 4: List of Existing Sites.....	6

List of Attachments

Map 1: AT&T Current Coverage at Washington, CT.....	7
Map 2: AT&T Proposed Coverage at Washington, CT with S2417 @ 126' AGL.....	8

Overview

This document is provided in support of AT&T's proposal to operate a ground mounted, wireless telecommunication facility in Washington, CT.

This document addresses AT&T's need for the proposed facility and validates that there are no other existing structures that meet AT&T's coverage objective for this area. The proposed facility located at 10 Blackville Road in the city of Washington at a proposed antenna centerline height of 126 feet above ground level will best address the coverage objective and provide the needed interconnectivity to AT&T's existing neighboring sites and surrounding communities.

Introduction

As enabled under its Federal Communications Commission ("FCC") Licenses, AT&T seeks to design its wireless network to provide reliable and adequate wireless services to its customers, whether those customers are on the street, in a vehicle, or in a building. Providing reliable and adequate service to its customers in each context is critical for AT&T to provide the quality of wireless service that customers demand, and to meet objectives of Congress that a robust, competitive and low cost wireless communications capacity be developed to serve the entire nation.

In order to build out its network and meet customer demand for voice and data services, AT&T must have in place a system of low power "cell sites" to serve portable wireless communication handsets and mobile telephones. A typical cell site, such as the one proposed, consists of antenna mounted to a building, tower, church or other structure. The antennas are connected to radio operating equipment housed at or near the structure.

To maintain effective, reliable and uninterrupted service, there must be a continuous series of cell sites located within close proximity to each other so as to overlap in a system comparable to a honeycomb pattern. If there is no cell site available to accept/receive the signal, network service to the mobile telephone/data service will terminate involuntarily. Accordingly, the overlap of coverage is necessary for the signal to transfer from one cell to another cell site seamlessly and without involuntary termination.

A number of factors determine the distance between the cell sites, including, but not limited to, topography, physical obstructions, foliage, antenna height, operating frequency and line-of-site.

Coverage Objective

AT&T currently has a couple of existing facilities in Washington that serve some parts of the city, with additional coverage provided by AT&T cell sites from neighboring town of New Milford.

Map 1, titled, “AT&T Current Coverage at Washington, CT”, is a propagation plot that depicts current coverage at Washington and the neighboring towns. In Map 1 Central part of Washington has marginal or very poor coverage and areas where there is no coverage at all. It also shows that there is inadequate coverage overlap between existing sites CT2550 and CT1059 and CT2155.

In the map, “green” (\Rightarrow -74 dBm) represents “in-building” coverage which allows for signal penetration losses (solid walls, partitions, etc.) of 10 dB. Color “yellow” represents “in-vehicle” (\Rightarrow -82 dBm) which takes into account 5 to 8 dB of vehicle penetration attenuation.

AT&T determined that significant coverage gaps exist particularly in the following roads:

- Green Hill Rd., Washington, CT
- Calhoun St., Washington, CT
- Bee Brook Rd., Washington, CT
- Blackville Rd., Washington, CT
- Church Hill Rd., Washington, CT
- Foulis Rd., Washington, CT
- River Rd., Washington, CT
- Cook St., Washington, CT
- Sabbaday Ln., Washington, CT

Improving the coverage on above mentioned roads would not only benefit commuters but also provides better signal penetration on houses and other establishments within the area as well. Map 2, titled, “AT&T Proposed Coverage at Washington, CT with S2417 @ 126' AGL”, shows the AT&T coverage at Washington with the proposed facility turned on. Comparing Map 1 and Map 2, clearly shows the roads mentioned above that will have coverage after adding the proposed site. This would mean better quality and uninterrupted service for subscribers travelling between these roads as well as better signal penetration for houses, business establishments, etc. The following tables will show the area and population in this area that will have service from the proposed facility.

Table 1 below shows the area analysis for current and proposed coverage. AT&T currently covers 4.29 square miles of Washington and the proposed site will cover an additional 3.7 square miles, a gain of 86.25% relative to current coverage which also equates to 9.57% of the total area of Washington, CT.

Area Coverage (sq mi)					
Washington Total Area	Area covered by existing sites (\Rightarrow -82 dBm)	Area not covered ($<$ -82 dBm)	Area that will be covered with the proposed site (\Rightarrow -82 dBm)	Remaining Area not covered ($<$ -82 dBm)	Proposed Area Gain
38.65	4.29	34.36	7.99	30.66	3.7

Table 2 below shows the population analysis (2008 Census Block Data) for current and proposed coverage. AT&T currently covers 408 of Washington population and the proposed site will cover an additional 411, a gain of 100.74% relative to population currently covered which also equates to 11.20% of Washington total population.

Population Coverage (2008 Census Block Data)					
Washington Total Population	Population covered by existing sites (=> -82 dBm)	Population not covered (< -82 dBm)	Population that will be covered with the proposed site (=> -82 dBm)	Remaining Population not covered (< -82 dBm)	Proposed Population Gain
3,670	408	3,262	819	2,851	411

Table 3 below shows the roads that will be covered by proposed site with average daily traffic data available from CT DOT website.

Street Name	Average Daily Traffic (2012)
Green Hill Rd., Washington, CT	4,500
Calhoun St., Washington, CT	3,900
Bee Brook Rd., Washington, CT	3,800
Blackville Rd., Washington, CT	2,000
Church Hill Rd., Washington, CT	2,000

Table 4 below includes AT&T's existing surrounding sites.

Site ID	Longitude	Latitude	Address	Town	State	Structure Type	Antenna
							Centerline (ft)
CTV1059	-73.367449	41.631917	399 CHESTNUT LAND ROAD	NEW MILFORD	CT	MONOPOLE	130
CTV2001	-73.437474	41.599403	33 BOARDMAN ROAD	NEW MILFORD	CT	STEALTH STRUCTURE	120
CTV2550	-73.365289	41.6691	6 MOUNTAIN ROAD	WASHINGTON	CT	MONOPOLE	167
CTV2155	-73.408582	41.590853	4 ELKINGTON FARM ROAD	NEW MILFORD	CT	MONOPOLE	154

Summary

The significant coverage gap seen on Map 1, demonstrates the need for an additional site within the area. It clearly shows that current coverage does not provide sufficient coverage overlap between the sites within Washington. In other words, existing sites and facilities will not cover the gap in AT&T's service in this area of Washington.

Statement of Certification

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



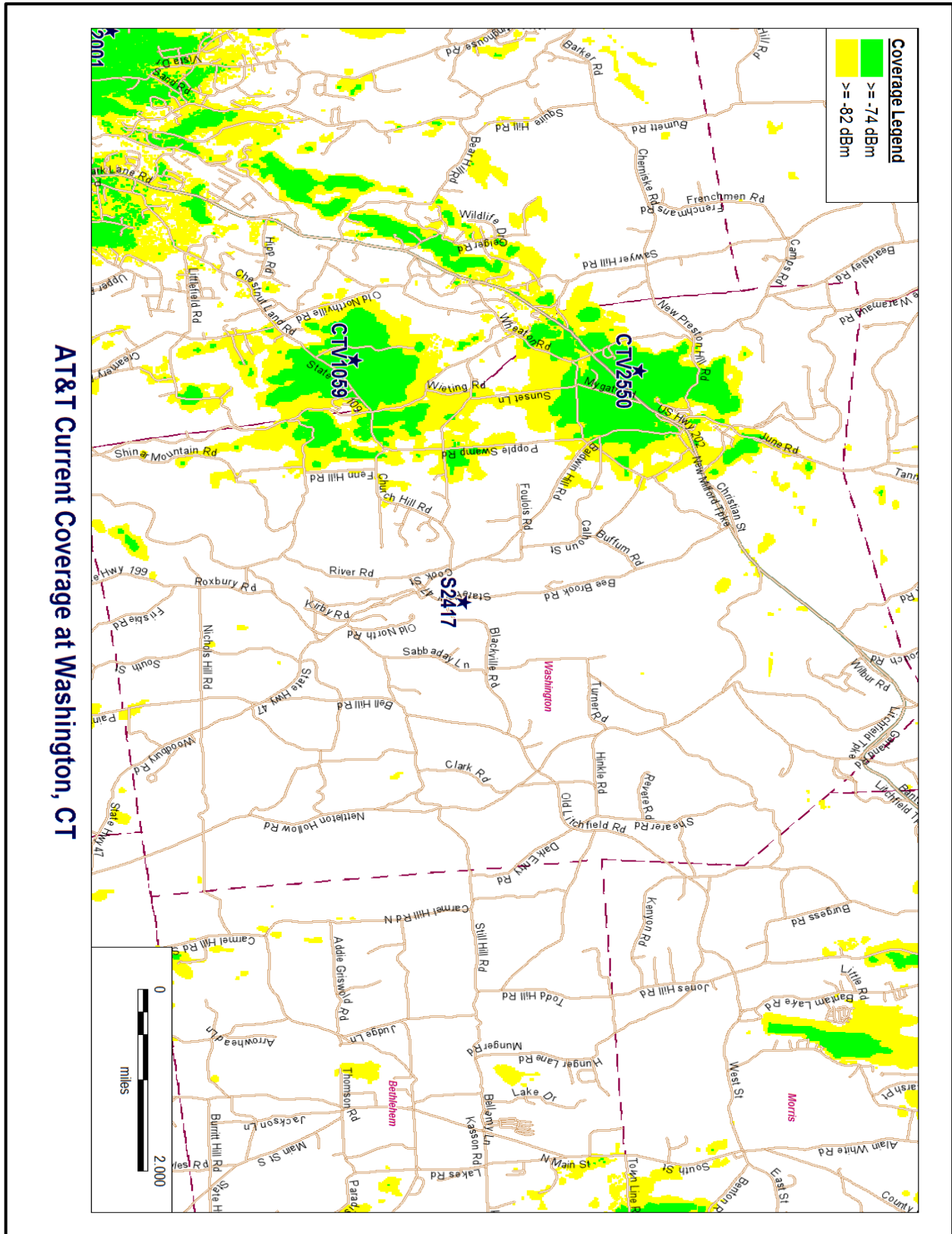
 Michael Lawton
 SAI Communications

August 27, 2013

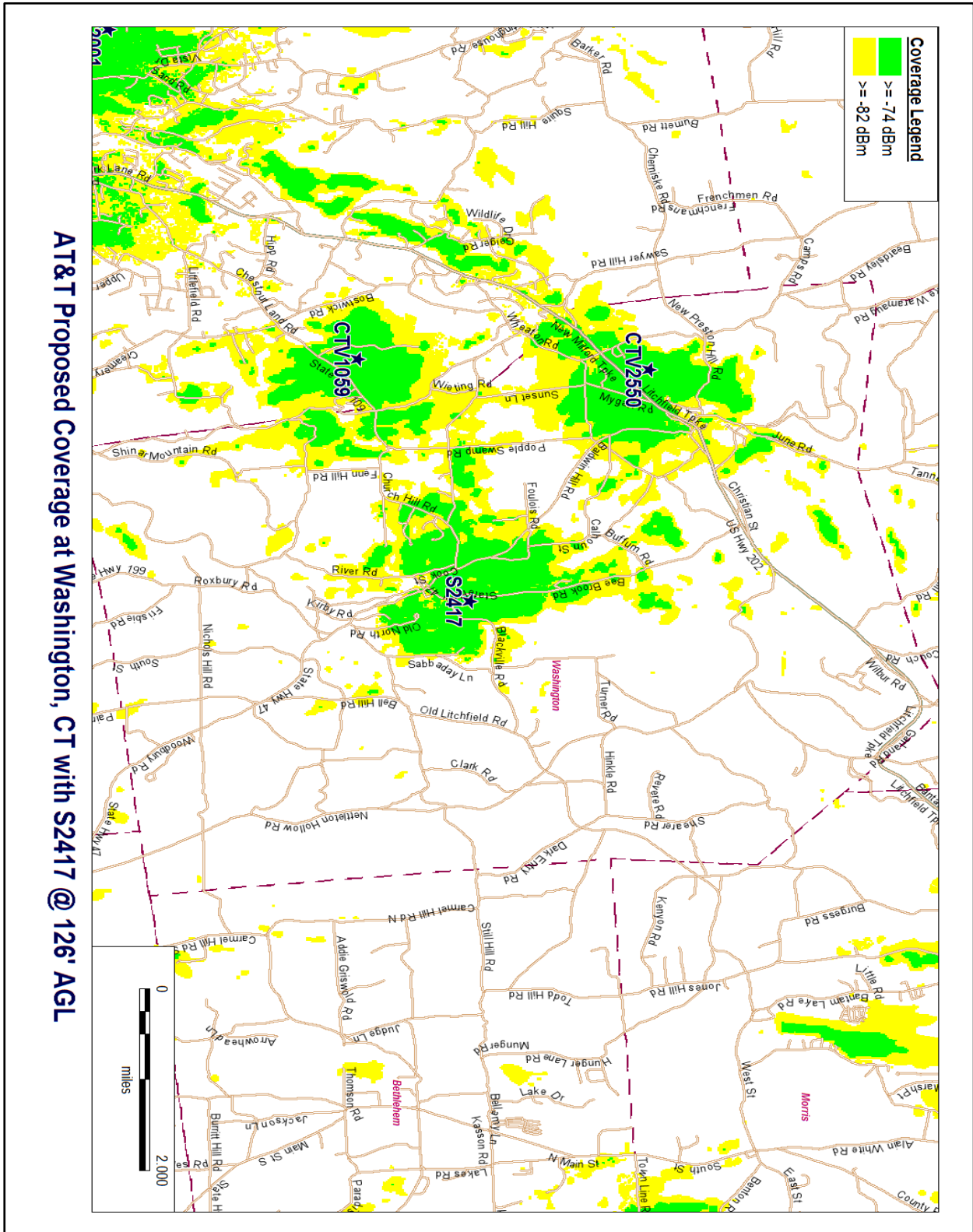
 Date

Attachments

Map:1



Map:2



Existing Tower/Cell Site Listing

There are three (3) communications facilities located within approximately four (4) miles of the site search area for the proposed site in Washington, including one (1) "self-supporting lattice" tower and two (2) "monopole" towers. Each location is also shown on the following map. None of the existing facilities set forth below would provide adequate and reliable coverage to the target area. Indeed, two (2) of the towers listed below (A & B) are currently being used by AT&T to provide service outside of the area targeted for service for this proposed Washington Facility.

Candidate	Tower Owner	Address	Height	Structure Type	SOURCE	Latitude	Longitude
A (CTV1059)	Crown Castle	399 Chestnut Land Road, New Milford, CT	160'	monopole	CSC Database	41.631943°	-73.367500°
B (CTV2550)	Verizon	6 Mountain Road, Washington, CT	170'	monopole	CSC Database	41.669127°	-73.365289°
C	CL&P	26 Chapin Road, New Milford CT	247'	Self- Supporting Lattice	CSC Database	41.605183°	-73.366998°

Existing Tower/Cell Site Locations

