

# ATTACHMENT 1

## **Attachment 1**

### **Statement of Public Need**

The proposed tower facility along West Hill Road will provide reliable wireless communications services to a large area in the Westover and Roxbury neighborhoods in the City of Stamford. The facility is needed by AT&T in conjunction with other existing and proposed facilities to provide reliable services to the public that are not currently provided in this part of Stamford. Attached is a Radio Frequency Engineering Report with coverage plots depicting the "Current Coverage" provided by AT&T's existing facilities in this area of the state and "Proposed Coverage". Additional statistics regarding the overall area, thousands of residents and roadway miles of expanded service in this area of Stamford are included in AT&T's report and the Application narrative in Section III.



# **RADIO FREQUENCY ENGINEERING REPORT**

## **Proposed Stamford, CT Wireless Facility - S1887 - Stamford, CT**



**Prepared by:**

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

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## Overview

This document is provided in support of AT&T's proposal to operate a ground mounted, wireless telecommunication facility in Stamford, CT. This document addresses AT&T's need for the proposed facility. Our analysis and plots are based on 700 LTE as opposed to existing 850 UMTS/HSPA+ technology. These frequencies and LTE are now being deployed throughout the State of Connecticut and are being used by AT&T as part of its network design. Our analysis validates that there are no other existing structures that meet AT&T's coverage objective for this area. The proposed facility located at 560 West Hill Road in the City of Stamford at a proposed antenna centerline height of 116 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 for reliable services to its customers.

## 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, mobile telephones and new and emerging wireless devices. A typical cell site, such as the one proposed, consists of antennas 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 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 several existing facilities in Stamford that serve some parts of the City, with additional coverage provided by AT&T cell sites from neighboring towns such as Greenwich and Darien.

Map 1, titled, "AT&T Current Coverage (700 MHz) at Stamford, CT", is a propagation plot that depicts current coverage in western Stamford and the neighboring town of Greenwich. In Map 1, you will note that the western part of Stamford has marginal or inadequate coverage and some areas where there is

no coverage at all. It also shows that there is inadequate coverage overlap between existing sites CT2148, CT2145, CT2208 and CT5036.

In the map, there are two threshold levels shown for propagation. The threshold color “green” represents the signal level that is  $\geq -83$  dBm to provide a robust consumer experience with reliable and fast service in a 4G LTE environment. The threshold color “yellow” represents the signal level that is  $\geq -93$  dBm and provides a lesser degree of reliability and speed in AT&T’s 4G LTE network.

AT&T determined that inadequate or significant coverage gaps exist even at 700 MHz in a larger geographic area of western Stamford (known as Westover and Roxbury) . Improving the coverage to residents who live in this part of Stamford and along several roads is a significant part of AT&T’s plan for reliable service in Stamford. Map 2, titled, “AT&T Proposed Coverage (700 MHz) at Stamford, CT with S1887 @ 116’ AGL”, shows the AT&T coverage at Stamford with the proposed facility turned on. Comparing Map 1 and Map 2, clearly shows the homes and roads that will have coverage after adding the proposed site. This would mean better quality and uninterrupted service for both fixed and mobile subscribers.

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 ( $\geq -83$  dBm) 20.85 square miles of Stamford and the proposed site will cover an additional 1.34 square miles, a gain of 6.43% relative to current coverage which also equates to 3.50% of the total area of Stamford, CT.

Area Coverage (sq mi)						
Signal Level	Stamford Total Area	Area covered by existing sites	Area not covered	Area that will be covered with the proposed site	Remaining Area not covered	Proposed Area Gain
$\geq -83$ dBm	38.33	20.85	17.48	22.19	16.14	1.34

Table 2 below shows the population analysis (2008 Census Block Data) for current and proposed coverage. AT&T currently covers ( $\geq -83$  dBm) 80,686 of Stamford population and the proposed site will cover an additional 5,234, a gain of 6.49% relative to population currently covered which also equates to 3.52% of Stamford total population.

Population Coverage (2008 Census Block Data)						
Signal Level	Stamford Total Population	Population covered by existing sites	Population not covered	Population that will be covered with the proposed site	Remaining Population not covered	Proposed Population Gain
$\geq -83$ dBm	148,509	80,686	67,823	85,920	62,589	5,234

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)
Long Ridge Rd., Stamford, CT	22,900
Stillwater Rd., Stamford, CT	6,900
Westover Rd., Stamford, CT	3,600
Mianus Rd., Stamford, CT	1,700

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

Site ID	Longitude	Latitude	Address	Town	State	Structure Type	Status	Antenna
								Centerline (ft)
CT2348S	-73.5451	41.1034	1011 HIGH RIDGE ROAD	STAMFORD	CT	ROOFTOP	Proposed	120
CTU2141	-73.519279	41.075415	652 GLENBROOK ROAD	STAMFORD	CT	WATER TANK	On-Air	96
CTU2145	-73.548364	41.071171	3001 SUMMER STREET	STAMFORD	CT	ROOFTOP	On-Air	96
CTU2148	-73.548637	41.091996	602 HIGH RIDGE ROAD	STAMFORD	CT	ROOFTOP	On-Air	45
CTU2208	-73.594449	41.101754	70 GUINEA ROAD	STAMFORD	CT	MONOPOLE	On-Air	151
CTU2647	-73.543608	41.061992	1633 WASHINGTON BOULEVARD	STAMFORD	CT	ROOFTOP	On-Air	85
CTU5036	-73.567058	41.104817	1051 LONG RIDGE ROAD	STAMFORD	CT	ROOFTOP	On-Air	47
CTU5314	-73.534159	41.065834	1 STRAWBERRY HILL COURT	STAMFORD	CT	ROOFTOP	On-Air	126
CTU5434	-73.51916	41.093617	18 KNAPP STREET	STAMFORD	CT	ROOFTOP	On-Air	157
S2028	-73.62016	41.092761	120 PERKINS ROAD	GREENWICH	CT	ROOFTOP	Proposed	80
S2818	-73.532396	41.075852	21 BURDICK STREET	STAMFORD	CT	ROOFTOP	Proposed	100

## Summary

The significant coverage gap seen on Map 1, demonstrates the need for an additional site within AT&T's network in the Westover and Roxbury area of Stamford even at 700 MHz and not even accounting for 1900 MHz which will be utilized by AT&T as well. It clearly shows that current coverage and reliable services are not provided with further insufficient coverage overlap between existing sites within Stamford. In other words, existing sites and facilities will not cover the gap in AT&T's service in this area of Stamford and a new facility is required.

## Statement of Certification

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

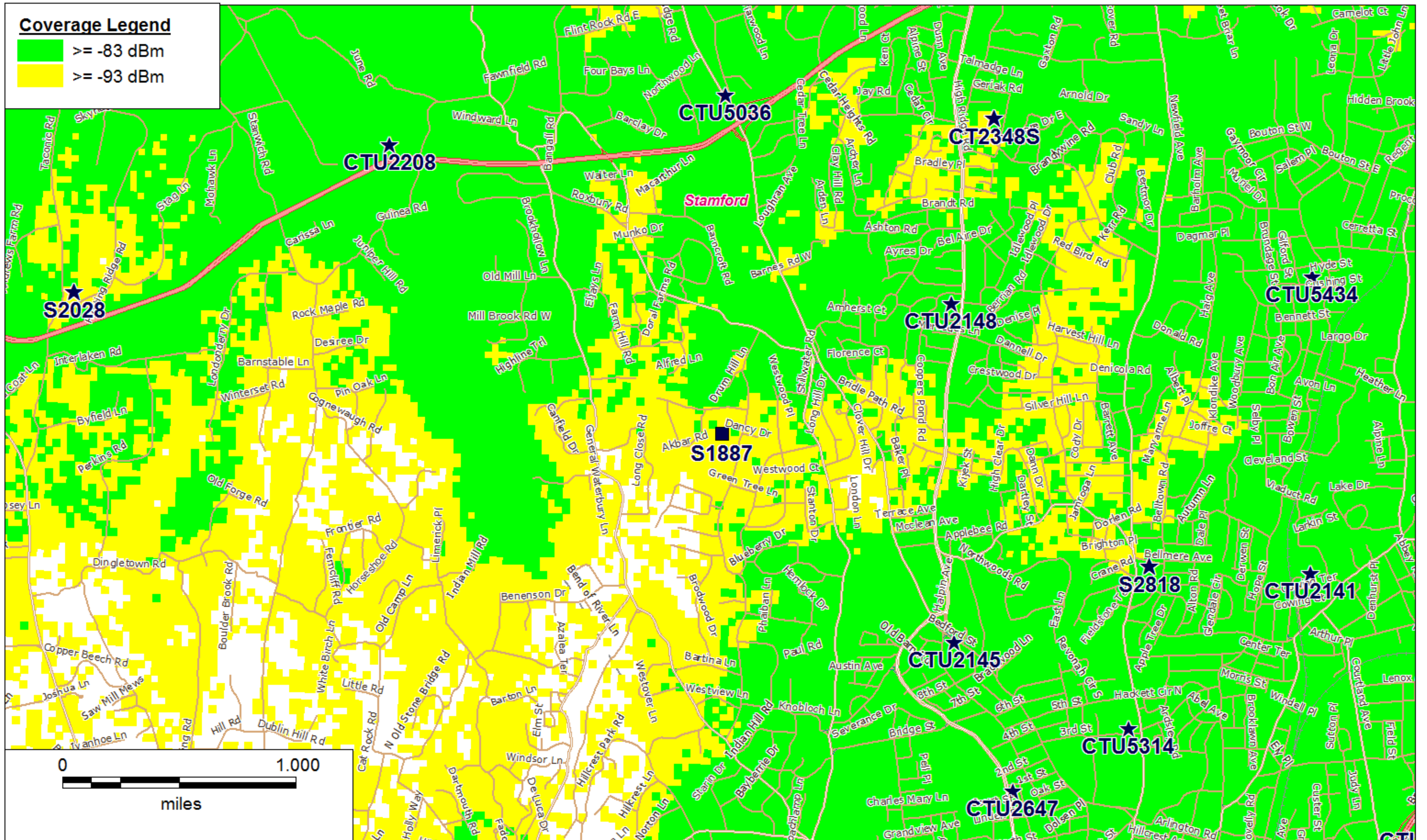


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Michael Lawton  
SAI Communications

February 25, 2014

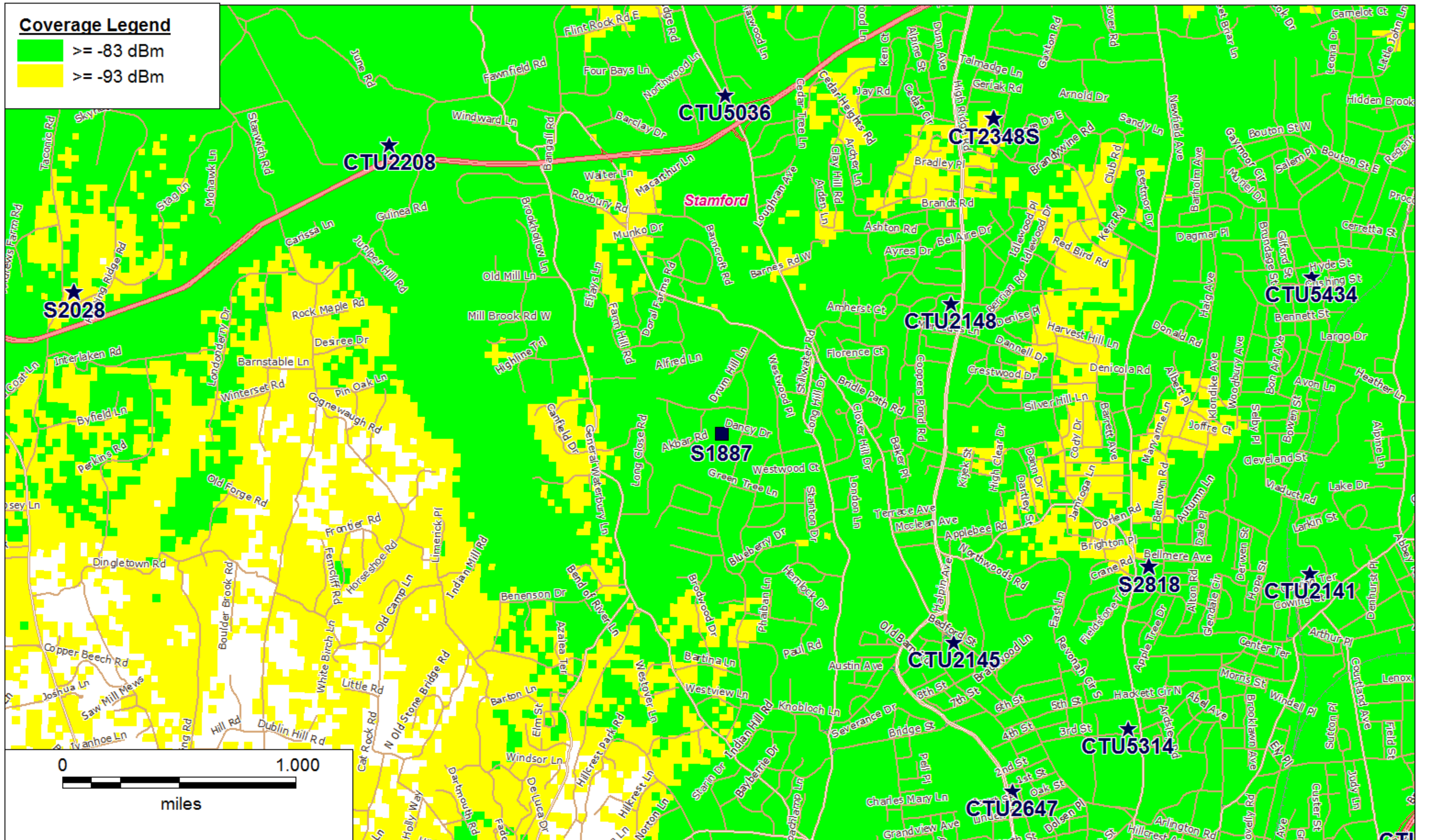
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**AT&T Current Coverage (700 MHz) at Stamford, CT**





**AT&T Proposed Coverage (700 MHz) at Stamford, CT with S1887 @ 116' AGL**