

# RF Report

## Proposed Burlington CRAN Facility

(cRAN\_RCTB\_MCAP\_003: 416 Main Street, West Dennis, MA )



May 22, 2025

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**ATTACHMENTS**

- Exhibit 1: Current Coverage at cRAN\_RCTB\_MCAP\_003 in West Dennis, MA
- Exhibit 2: Proposed Coverage at cRAN\_RCTB\_MCAP\_003 in West Dennis, MA

## **1. Overview**

New Cingular Wireless PCS, LLC (“AT&T”) is providing the following information in support of its application to the Dennis Zoning Board of Appeals to construct and operate a small wireless facility (“Facility”) outside of right-of-way in Dennis for its Personal Communication Services. The proposed Facility is to be located near 416 Main Street, West Dennis, MA (the “Site”). The Facility is needed to provide coverage for significant capacity issues that exist along Main Street, as discussed in this report. This report addresses AT&T’s need for the proposed Facility at the Site and confirms that there are no superior existing structures, buildings or towers in this part of Dennis that would meet AT&T’s coverage objectives for this area.

Included in this package are a brief summary of the proposed Facility’s objectives, an analysis of alternate site candidates considered, and radio frequency (“RF”) coverage plots showing the predicted propagation of the proposed Facility based on the antenna mounting height necessary to achieve AT&T’s goals.

## **2. AT&T’s Proposed Facility**

As shown on the zoning drawing plans submitted with the zoning application, AT&T proposes to construct, operate and maintain a small wireless facility consisting principally of the following elements:

- One (1) metal LED light pole (measuring 30 feet in height).
- One (1) canister antenna (measuring 24.7 inches in height) mounted to the top of the new metal pole.
- Fiber optic and DC power cables running along the pole, to the new electric meter.

## **3. Coverage and Capacity Objectives**

AT&T provides digital cellular communications service UMTS (also referred as 3G) technology in the 850 MHz and 1900 MHz frequency bands, as well as high speed data services commonly referred to as “long term evolution” (“LTE”) operating in the 700, 850, 1900, 2100 and 2300 MHz frequencies, all as allocated by the Federal Communications Commission, (“FCC”). AT&T is recognizing substantial demand growth in wireless data and in efforts to meet current and future demand is bolstering its network using small cells to provide high quality services covered under license from the FCC.

AT&T has determined that significant capacity demands on the network exist in Dennis along this area of Main Street, West Dennis, MA (Targeted Coverage Area).

Wireless communication services are no longer limited to providing mobility for voice services. They have evolved to offer a wider range of advanced services to include wide-area voice, data, internet, video, and broadband wireless data, among others, all in a mobile environment. In order to offer these competitive services to local residents and businesses and commuters traveling in and through the area of Main

Street, especially inside buildings. AT&T needs to improve the quality of its coverage by filling in as many of the existing gaps with adequate capacity, quality and signal strengths conducive to in-building and in-vehicle usage, and to provide the same bandwidth requirements in order to meet the increasing demand on the network.

#### **4. Site Search and Selection Process/Candidate Evaluation**

To find a site location that provides acceptable service and fills the gaps in coverage and capacity, computer modeling is used to define a search ring. The search ring is designed such that a site located within the ring would have a high probability of completing coverage in the Targeted Coverage Area (assuming that sufficient height is used).

Once the search ring is determined, AT&T's real estate consultants search within the defined area for existing buildings or tower structures of sufficient height that would fill coverage gaps and capacity deficiencies within the network. As more fully explained below, AT&T does not have an existing wireless facility that is capable of providing the required services to the Targeted Coverage Area. From both radio frequency coverage, quality, capacity and zoning perspectives, the proposed site at 416 Main Street is found to be best of all alternative site possibilities.

#### **5. Alternative Site Analysis**

AT&T has been unable to identify any existing or approved wireless facility or other suitable existing or approved building or tower in the specified search area of Dennis from which to address the significant coverage gaps in the Targeted Coverage Area. The Site would provide the coverage that AT&T's Radio Frequency experts are looking to achieve. Without a wireless facility at the Site, AT&T would be effectively prohibited from providing adequate coverage.

#### **6. Coverage Plots**

To demonstrate why the proposed Facility is necessary, I have developed the following radio frequency coverage maps:

- Exhibit 1, entitled "Current AT&T coverage in southern portion of Dennis", shows AT&T's existing wireless coverage in and around the Targeted Coverage Area without the Facility.
- Exhibit 2, entitled "Proposed AT&T coverage in Dennis", shows AT&T's proposed coverage in and around the Targeted Coverage Area with the Facility installed at the Site.

These coverage maps were generated using Forsk Atoll, an RF Propagation computer modeling program. The software takes into account the geographical features of an area, antenna models, antenna heights and RF transmitting power. The pie-shaped symbols depict existing wireless facility site locations. The areas in blue will have adequate outdoor or "in-vehicle" coverage, but insufficient signal strength for reliable in-building service. The areas in green will have good in-building service as well.

The map showing coverage without the proposed Facility indicates that AT&T cannot achieve its coverage objective with currently existing sites. Accordingly, the proposed Facility at the Site is necessary to fill coverage gaps, address capacity issues and upgrade AT&T's wireless service in and around the Targeted Coverage Area.

## **7. Summary**

No other existing structures are better suited than the subject Site to provide the coverage and capacity requirements needed for this area of Dennis, Massachusetts. The location and the Facility configuration were chosen to achieve an optimal balance between meeting coverage objectives and minimizing the aesthetic impact to the community while fully complying with the Dennis Zoning Bylaw. The Facility will comply with all applicable FCC regulations regarding RF emissions and other matters. The proposed Facility site is feasible and appropriate and will improve wireless service along Main Street and the surrounding vicinity near the Site.

## **8. Statement of Certification**

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



Kevin Breuer, RF Engineer  
AT&T Mobility

**05/22/2025**  
Date