



**NEW YORK SMSA LIMITED PARTNERSHIP d/b/a
VERIZON WIRELESS**

BELLE MEAD 3 SITE

**26 DEAD TREE RUN ROAD
MONTGOMERY TOWNSHIP, NEW JERSEY**

**RF ANALYSIS AND REPORT
JANUARY 29, 2020**

**DOMINIC C. VILLECCO
DAVID K. STERN**



EXPERT WITNESS RF ANALYSIS AND REPORT

V-COMM, L.L.C. has been retained by New York SMSA Limited Partnership d/b/a Verizon Wireless to provide expert analysis in association with its proposed wireless communications facility at the Monopine located at 26 Dead Tree Run Road, Montgomery Township, New Jersey.

QUALIFICATIONS

V-COMM, L.L.C. is a telecommunications engineering firm primarily focused on providing engineering and related business services to network operators in the telecommunication industry as well as municipalities. V-COMM was founded in late 1995 with the intent of providing services to the emerging wireless and wired segments of the telecommunication industry. V-COMM's client base includes PCS operators, cellular, paging, ESMR and microwave operators, utility/telecommunications cooperatives, cable TV operators and Competitive Local Exchange Carriers (CLECs) and Local Governments. Services performed for these clients over the past fifteen years include:

- Business and Strategic Planning
- Capital and Operational Expenditure Modeling
- Infrastructure Requests for Proposal (RFPs) and Analysis
- Infrastructure Contract Negotiation
- Technical and Financial Support in Obtaining Vendor and Equity Financing
- Interconnect Contract Negotiation
- RF Network Design, Implementation and Optimization
- Interconnect Network Design, Implementation and Optimization
- Telephony Signaling (SS-7) and Vertical Systems Design and Implementation
- Local Government Communication Systems
- Project Management of Network Implementation
- Expert Witness Zoning Testimony
- License Tender/Bid Technical Support

(Please see Mr. Villecco's and Mr. Stern's resumes at the end of the report)

THE CARRIER:

NEW YORK SMSA LIMITED PARTNERSHIP d/b/a Verizon Wireless has the B-Band Cellular License (880-894 MHz) and is licensed by the FCC to provide service in the New York, NY—NJ/Nassau—Suffolk CMA for Cellular, which includes Somerset County, New Jersey. Further, CELLCO PARTNERSHIP d/b/a Verizon Wireless has the C-Band Personal Communications Service (PCS) Licenses (1975-1990 MHz), the F-Band Personal Communications Service (PCS) Licenses (1970-1975 MHz), the A Band and B Band Advanced Wireless Services (AWS) Licenses (2110-2130) and the 700 MHz Upper C-Band License (746-757 MHz) and is licensed by the FCC to provide service in the New York BTA for PCS, in the New York – North New Jersey—Long Island BEA and New York, NY—NJ/Nassau—Suffolk CMA for AWS, and in the Northeast REA for 700 MHz, which includes Somerset County, New Jersey.



WIRELESS SYSTEMS

The FCC licenses a specific amount of Radio Frequency (RF) spectrum to each wireless carrier and stipulates that each carrier efficiently uses that spectrum to support its wireless customers. Traditionally, wireless carriers have achieved this efficiency by continuously reusing the allocated radio frequencies throughout their licensed service area. This is accomplished by building small radio base stations, or cell sites, in a particular pattern (also known as a grid). The application of the grid concept affords a wireless carrier the ability to effectively and efficiently plan the reuse of radio frequencies more easily. By following proper planning techniques (as originally defined by Bell Labs and further refined by the wireless industry), the same radio frequency can be reused at reasonably close intervals throughout the licensed area, without causing harmful interference. Noisy or dropped calls or the inability to originate a call are typical manifestations of harmful interference. When designing a wireless network, an RF Engineer starts with a theoretical grid pattern and applies it to the licensed area. Each licensed area has many variables that can affect the design and must be considered. These variables include terrain features, land use considerations, zoning ordinances, use of existing structures, traffic distribution and many others. In order to provide effective coverage while maintaining an efficient frequency reuse plan, the design engineer must perform a balancing test of all applicable variables. The primary variables that the engineer must take into consideration are the location and the overall height of the cell site. If a cell site is too high, it will have increased coverage, but cause interference throughout the rest of the wireless network thereby significantly affecting network efficiency. If a cell site is too low, it will provide ineffective coverage.

A proper wireless network design begins with strategically located cell sites. At each cell site there is a building, tower, water tank or other structure on which antennas are mounted. Typically, radio-transmitting equipment (base station) is located at the base of the structure. Radio signals leave the base station and travel through transmission lines to the antennas, or from fiber optic cable to the remote radio head (RRH) at the top of structure and then to the antennas. Radio signals are broadcast through the antennas and travel to the customer's wireless phone, completing a call. When a wireless customer places a call, the signal is received by the antennas and travels down the transmission line and into the base station. The base station converts the signal into digital data and combines it with all the other wireless calls and digital traffic at that cell site. This data is then sent over fiber optic digital leased lines to the main switching computer. The main switching computer or Mobile Switching Center (MSC) is interconnected to the national Public Switched Telephone Network (PSTN) and Internet service providers, where calls are routed to other wireless or land-line phones or Internet locations.

As this technology enables mobile calling, once a wireless call is originated and the customer travels away from the cell site of origination, the system tracks the changes and begins a process of determining whether there is a better serving cell site. Upon determination of a stronger serving site, the system automatically switches the wireless customer over to the new cell site. This process is known as a handover and allows for seamless coverage within a wireless carrier's service area. By design, this process is supposed to happen so quickly that the wireless customer does not perceive it. If the network is designed efficiently, there is no interruption of service and connection quality remains adequate. This efficient design includes the proper location of sites with minimal variance from the original grid pattern.



VERIZON WIRELESS EXISTING, APPROVED AND PROPOSED SITES IN AND AROUND MONTGOMERY

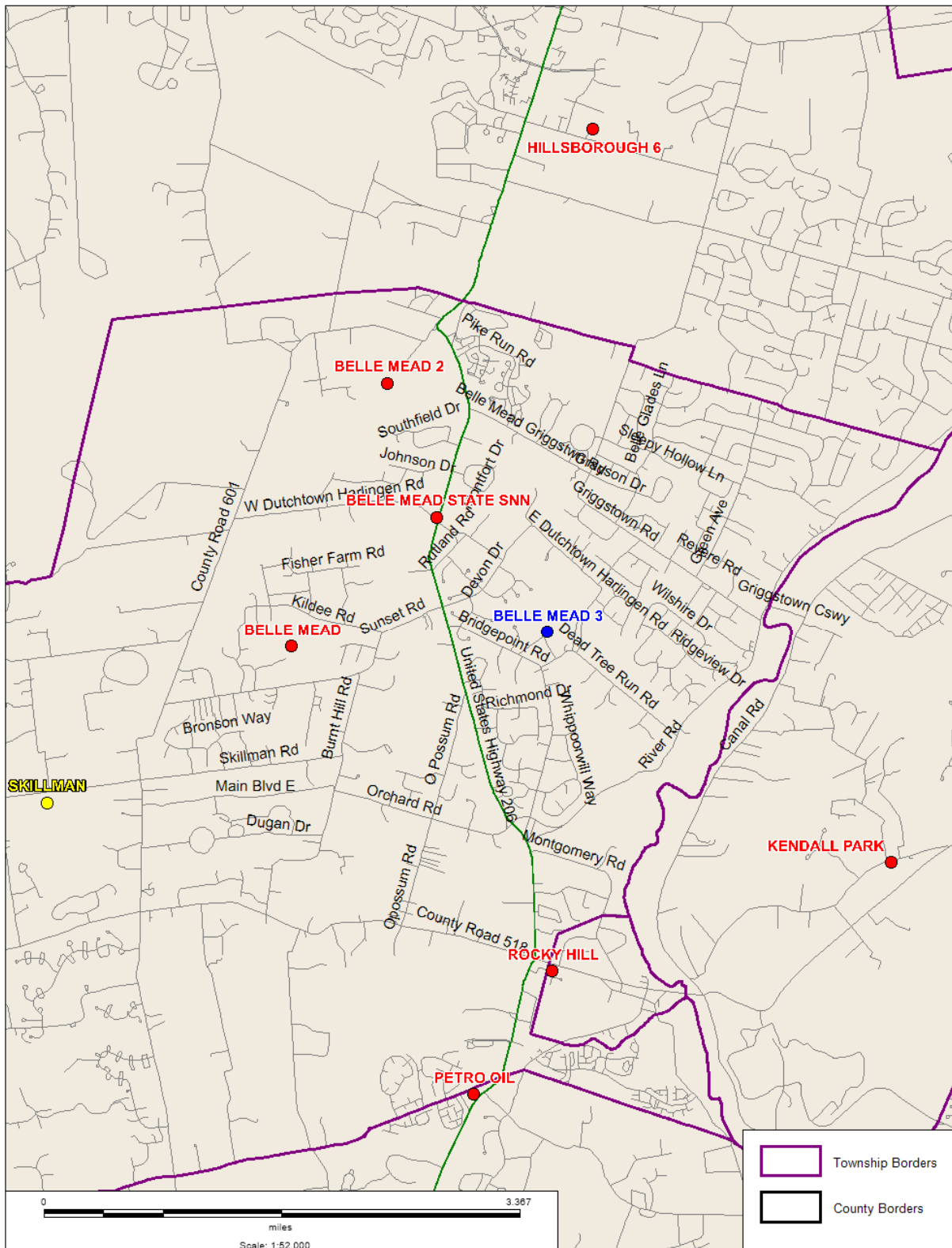
V-COMM has identified Verizon Wireless' existing antenna support structures that provide coverage to Montgomery Township. The structures are listed in Table 1 below and depicted on the attached Map 1 – Existing and Proposed Sites In and Around Montgomery.

**TABLE 1 – VERIZON WIRELESS EXISTING, APPROVED AND PROPOSED SITES IN AND
AROUND MONTGOMERY**

Cell No.	Cell Name	Address	Structure	Structure Ht. in Ft.	Antenna C/L in Ft.
<i>Subject Site</i>	Belle Mead 3	26 Dead Tree Run Road Montgomery Township	Monopine	135	132
659	Belle Mead 2	Reading Blvd. Belle Mead	Monopole	155	128
244	Belle Mead	38 Concord Lane Belle Mead	Water Tank	127	116
227	Rocky Hill	Young Drive (SE of Route 206/518 Intersection) Rocky Hill	Water Tank	90	88
824	Belle Mead State SNN	Harlingen Church 34 W Dutchtown Harlingen Road Belle Mead	Steeple	75	55.3
192	Petro Oil	800 State Road Princeton	Monopole	170	157
255	Kendall Park	63 Old Georgetown Road Rocky Hill	Lattice Tower	170	130
167	Hillsborough 6	209 Homestead Road Hillsborough			138
Approved	Skillman	Camp Meeting Avenue (405 Skillman Road) Montgomery Township	Monopole	135	130

The existing sites are depicted with red dots. The proposed sites and the subject site are depicted with blue dots on the map below. The approved sites are shown in yellow dots.

MAP 1 - VERIZON WIRELESS EXISTING, APPROVED AND PROPOSED SITES IN AND AROUND MONTGOMERY TOWNSHIP





RF COVERAGE

The critical issue for Verizon Wireless is the provision of “substantial” Radio Frequency (RF) service to serve its wireless customers. The wireless industry is governed by the Rules of the FCC. The FCC mandates in CFR 47, Parts §22.940 and §24.16 that each carrier must provide “substantial service” in its licensed service area, or risk having their license revoked. The FCC defines “substantial service” as service which is sound, favorable, and substantially above a level of mediocre service.

A metric called Reference Signal Received Power (RSRP) is used to specify the coverage capabilities of the Verizon Wireless network. This standard has been chosen to best represent the Long-Term Evolution (LTE) data technology (also known as 4G) being utilized as well as the Voice-Over LTE (VoLTE) technology, which is being deployed on 4G to augment and ultimately replace Verizon’s wireless voice capacity. RSRP is the average received power over all resource elements that carries a reference signal. Resource elements are the fundamental unit of frequency allocation in LTE and carry the information from the cell site to the mobile device and back. The reference signal is one of the components of the LTE channel that the mobile receiver uses to determine the channel power.

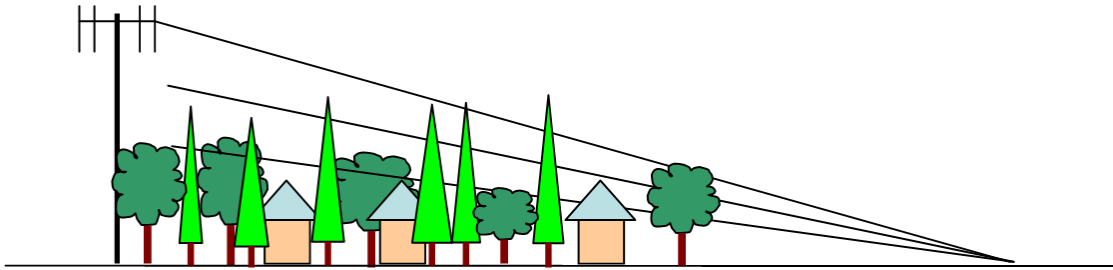
RSRP is measured in units of “decibels” referenced against 1 milliwatt, or dBm. The decibel is a logarithmic unit that allows ratios to be added or subtracted. The definition formula for decibels referenced against 1 milliwatt is $dBm = 10 \log(P / 1mW)$ with P measured in milliwatts. So 10 mW would be 10dBm, 100 mW would be 20dBm, etc.

The service boundary of a 4G site is defined using RSRP equating to an acceptable receiver signal threshold. This value is derived from industry standards, 4G received signal levels and quality and acceptable signal to noise ratios, along with statistically quantifiable variations in terrain. This threshold must also take into account additional losses associated with location of the mobile user.

To comply with FCC Rules, Verizon Wireless must provide service to all of its users including those in buildings. In order to account for users within buildings, additional margin must be added to RSRP so that adequate coverage exists inside. Industry standards and Verizon Wireless engineering policy adds an additional 10dB of margin to RSRP to be used for light suburban areas, with increasing values for higher density land usage. This additional margin also is required for in-vehicle service specifically to account for increased Path Loss associated with the use of hands-free headsets, where the phone usually winds up on the seat or center console.

As the antenna center line (ACL) descends from the proposed 132 feet, it enters into a range where clutter becomes an increasingly problematic factor. Examples of clutter are trees, houses, buildings, soil, and other physical objects on the ground. Clutter attenuates or weakens and disperses, the RF energy necessary for wireless telecommunications. As the ACL descends, RF energy is increasingly attenuated by the total accumulated volume of clutter. A graphic depiction of attenuation is found in Figure 1 (not to scale).

FIGURE 1 – IMPACT OF CLUTTER



V-COMM uses an industry standard RF computer-aided design tool to aid in the design of wireless networks. This tool can generate a plot of RSRP that shows underlying geographic (highways, arterial roads, etc.). For Montgomery Township, the subject site is in a predominately suburban area. The propagation map is drawn showing the region where the RSRP equates to the minimally acceptable received signal level for adequate service, as measured at the mobile's receiver. The propagation map includes the RSRP of the surrounding environment including the attenuation of In-Building and In-Vehicle use of service.

In the case of the Belle Mead 3 site, Verizon Wireless lacks adequate 4G LTE signal coverage. Therefore, the purpose of the proposed location is to fill the gap of the existing Verizon Wireless sites. Without this signal fill site, Verizon Wireless subscribers will experience gaps in service caused by insufficient signal strength.

The green shaded areas on the propagation maps represent the acceptable RSRP threshold, at the AWS frequency, as described above. Where there is no green shading between the sites, there is less than adequate service, which results in dropped calls, missed calls and lost data and data connectivity. These areas are known as gaps, where there is insufficient coverage to originate, maintain or receive calls from "Public Switched Telephone Network" and the Internet for VoLTE calls and data sessions.

Outside of the sites (towards the edges of the coverage maps) there may be coverage from other sites but these sites have been eliminated from this report as they do not impact the area surrounding the subject location and to keep focus on the sites in and around Montgomery Township.

The propagation maps generated at 1:26,010 scale show Verizon Wireless sites in Montgomery Township, with -95 dBm RSRP at the AWS frequency (2120 MHz). In addition to the RSRP level, the coverage that is generated from a given site is dependent upon the Verizon Wireless' licensed frequency band, the height of the antenna above the ground, as well as the terrain and morphology around the site.

VERIZON WIRELESS SERVICE

RF Coverage Deficiency

V-COMM analyzed whether there was sufficient RF coverage and found that there was a gap in coverage for Verizon Wireless in the PCS and AWS frequency bands. Verizon Wireless' FCC licensed frequencies allow for 1 LTE channel in the 700 MHz band and 1 LTE channel in the 2120 MHz AWS band, as well as 1 LTE channel in the PCS band. However, if the existing coverage in the 2120 MHz frequency band, or PCS band, is not adequate, which is the case in this section of Montgomery Township, then a new wireless facility is needed.



When Verizon Wireless Radio Frequency engineers identify a coverage gap in the system or sites that have or will reach data capacity exhaustion, they issue a search area in order to locate a possible site to fill this gap in wireless coverage or resolve the capacity problem. A search area is a geographical area located within the poor service area. A search area is designed such that if a wireless telecommunications facility is located within its area at an appropriate height, it will provide the required coverage. The goal of this search area is to provide full and seamless coverage to users of Verizon Wireless' services in and around the subject site.

Verizon Wireless received zoning approved to install a new tower at the Nassau Racquet Club in 2017 located at 1800 Route 206 in 2017, but the landlord would not agree to relocate the tower to the side of the property as approved by the zoning board. Verizon Wireless personnel investigated the area for suitable locations to fill the gaps in service and found the property located at 26 Dead Tree Run Road to replace the Nassau Racquet Club candidate. This site was analyzed using computer modeling, as well as a site visit. It was determined that this site would fulfill the objectives for Verizon Wireless' system throughout this section of Montgomery Township. Therefore, this site can be used to meet the requirements of the intended search area.

The proposed site will provide Verizon Wireless with additional 4G LTE capacity and improved coverage for the PCS and AWS frequencies. The improved coverage will allow for additional LTE capacity in the AWS and PCS frequency bands as well.

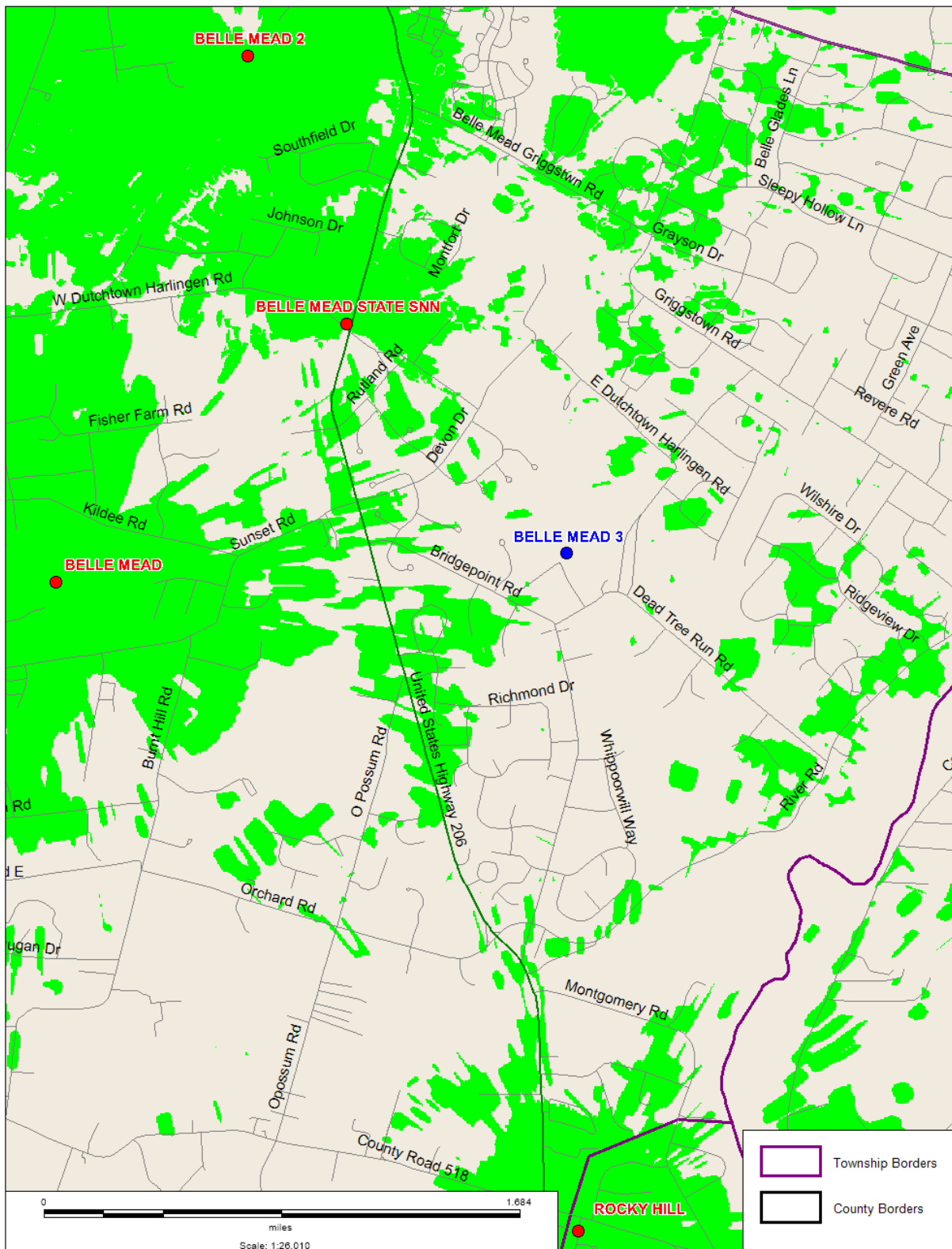
Verizon Wireless utilizes 4G LTE technology for its wireless base stations. Currently, Verizon Wireless has four existing sites immediately surrounding the subject site, as previously outlined in Table 1. The Belle Mead 3 site will be located on a new 135 feet Monopine located at 26 Dead Tree Run Road in Montgomery Township. Verizon Wireless proposes to install its antenna at a centerline of 132 feet Above Ground Level (AGL).

The propagation map titled "Map 2 - Verizon Wireless Existing Sites Coverage" depicts service from the closest existing sites without the proposed site. The map demonstrates that there is a coverage gap along United States Highway 206 towards Griggstown Rd, Dead Tree Run Road, Bridgepoint Road and other smaller streets within this boundary.

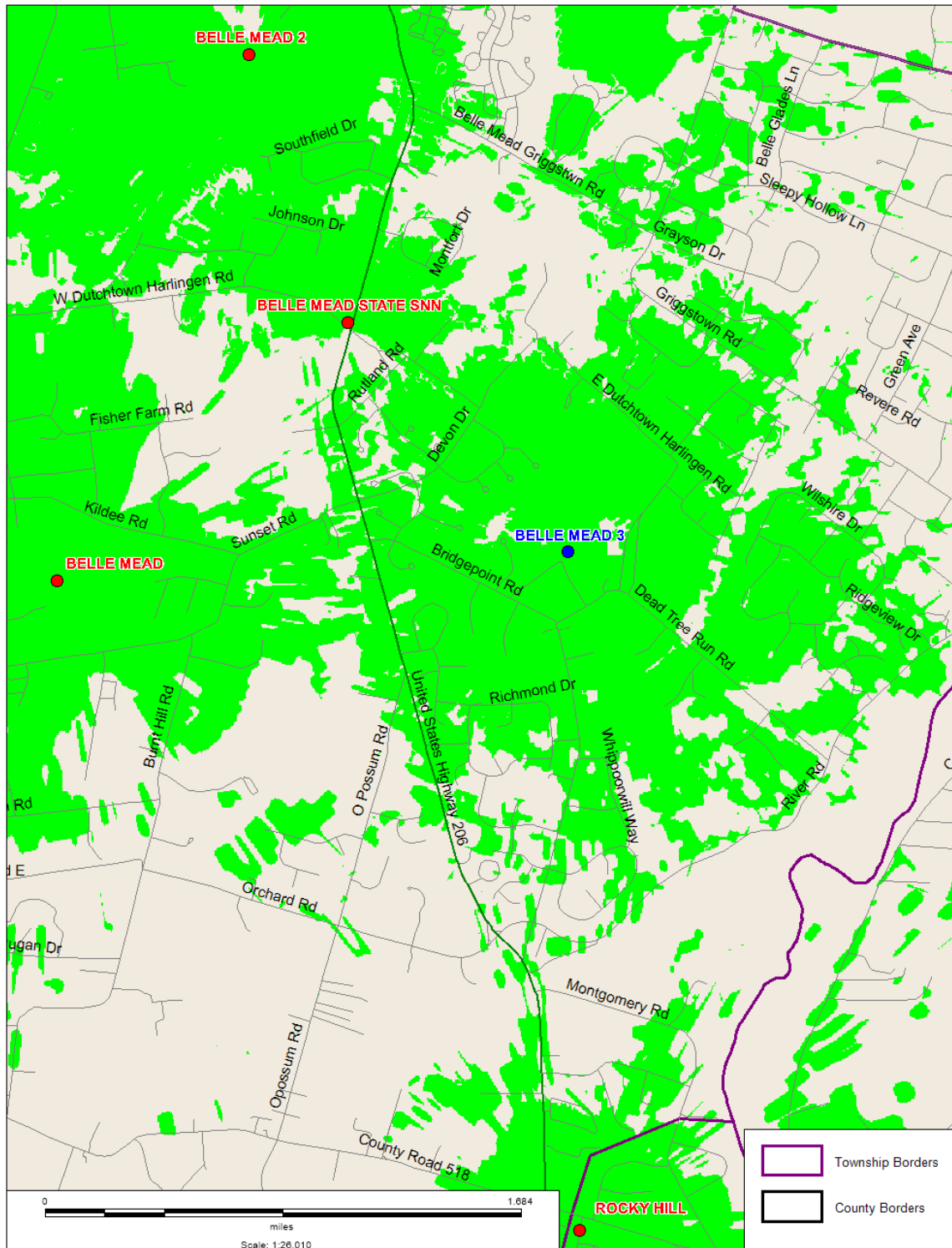
The propagation map titled "Map 3 - Verizon Wireless Coverage with Belle Mead 3 Site" depicts the service from the closest existing sites along with coverage from the subject "Belle Mead 3" site. The subject site fills in most of the coverage gaps with sufficient signal and provides service through this part of Montgomery Township.

The proposed centerline height of 132 feet AGL is the minimum height possible at this location to provide the desired reliable coverage. The location of the site will also provide capacity relief to the adjacent sites including the Rocky Hill and Belle Mead sites.

MAP 2 - VERIZON WIRELESS EXISTING SITE COVERAGE



MAP 3 - VERIZON WIRELESS COVERAGE WITH “BELLE MEAD 3” SITE





FIRST PRIORITY LOCATIONS

The first priority locations are on existing structures or on land owned by the Township. Fifteen (15) Montgomery Township owned properties were identified. Map 4 below shows the Montgomery Township First Priority locations and displays the approximate location of the structures, along with the proposed site location (labeled with red star).

Site ID Letter on Addendum Map	Site Location	Type of Existing Structure and Location of Antennas	Reason not approved as a proposed site location
A	Elizabethtown Water Tank Along Concord Lane	On Existing Water Tank	Priority Site currently used by existing Verizon Wireless “Belle Mead” site
B	3M Company North of Dutchtown-Zion Road	On Existing Water Tank	Priority Site too far from coverage gap
C	Blawenburg Reformed Church Along Route 518	Within Existing Church Steeple	Priority Site too far from coverage gap.
D	Montgomery United Methodist Church Along Sunset Road	Within Existing Church Steeple	Priority Site too close to Verizon Wireless “Belle Mead” site
E	Harlingen Church At the Corner of Route 206 & Dutchtown- Harlingen Road	Within Existing Church Steeple	Priority Site used for proposed Verizon Wireless “Belle Mead State SNN” site
F	Montgomery Evangelical Free Church Along Belle Meade- Griggstown Road & Willow Road	Within Existing Church Steeple	Priority Site too far from coverage gap
G	Existing Tower On Township Ballfield Site At End of Reading Boulevard	On Existing Tower	Priority Site currently used by existing Verizon Wireless “Belle Mead 2” site
H	Existing Silos On Farm Along Hollow Road	On Existing Silos	Priority Site too far from coverage gap
I	Existing Silo Along Route 518 Between Hollow & Great Roads	On Existing Silos	Priority Site too far from coverage gap

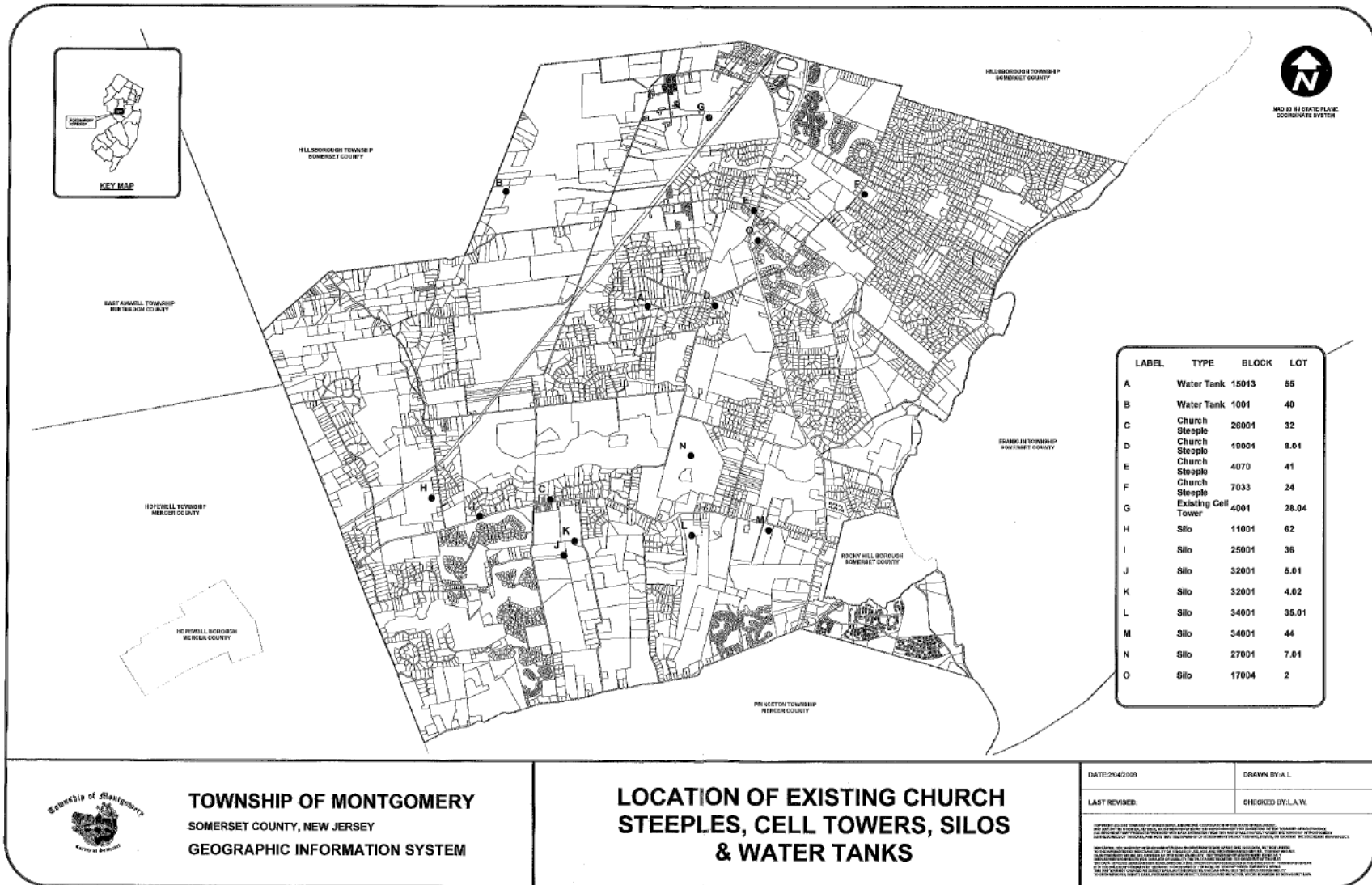


Site ID Letter on Addendum Map	Site Location	Type of Existing Structure and Location of Antennas	Reason not approved as a proposed site location
J	Existing Silo West of Mountain View Road	On Existing Silos	Priority Site too far from coverage gap
K	Existing Silos Along Mountain View Road	On Existing Silos	Priority Site too far from coverage gap
L	Existing Silo Off Pine Brae Drive	On Existing Silo	Priority Site too far from coverage gap
M	Existing Silos On Drake Farm Along Route 518 Near Vreeland Drive	On Existing Silos	Priority Site too far from coverage gap
N	Existing Silo On Skillman Dairy Farm Off Burnt Hill Road & South Of Orchard Road	On Existing Silo	Priority Site too far from coverage gap
O	Existing Silos On Matthews Farm Along Route 206 & Rutland Road	On Existing Silos	Priority Site too close to Verizon Wireless “Belle Mead State SNN” site

SECOND PRIORITY LOCATIONS

The second priority locations for wireless communication antennas are on lands within the “PPE,” “REO,” “MR/SP” and “LM” zoning districts. The proposed Belle Mead 3 site will be located in the “R-2” zone, the single family residential zone. The second priority locations closest to the proposed site, are either too far away to serve the intended coverage gap area or too close to an existing Verizon Wireless site. The closest property Mill Pond Soccer Complex is purchased with Green Acres Funding and therefore cannot be used for cell tower locations.

MAP 4 – FIRST PRIORITY LOCATIONS FOR WIRELESS COMMUNICATION ANTENNAS





COMPREHENSIVE PLAN

There are four (4) existing Verizon Wireless sites currently surrounding the proposed site. These sites include Belle Mead, Belle Mead 2, Kendall Park and Rocky Hill, all of which are on co-located wireless facilities. Both Belle Mead and Rocky Hill sites are located on existing water towers along with the other major wireless carriers. Belle Mead 2 is collocated on an existing monopole, which is also a priority site for the township. Kendall Park is not located within Montgomery Township, but is collocated on an existing lattice tower in Franklin Township. The proposed Belle Mead 3 site, which will be located on a new 135 ft. Monopole, has been planned to result in the fewest number of towers within and around Montgomery Township. The new monopole will also be used as a collocation for future wireless communication facilities of other wireless carriers.

Belle Mead 3 was strategically placed at the proposed location 26 Dead Tree Run Road. The surrounding sites all fill in coverage gaps outside of the intended area. Both Belle Mead and Belle Mead 2 cover the northwest section of Montgomery, while Rocky Hill and Kendall Park cover the southeast section of the township. Belle Mead 3 will fill in the gap between these surrounding sites. There is an existing light duty tower located on the Municipal property roughly 2.2 miles north from our proposed location. This light duty tower would need to be replaced by a heavy duty tower in order to support the antennas. Ultimately this site is too far away from the search area and will not provide adequate coverage to the coverage gap. There are no other existing towers within the coverage gap area that could remedy the deficient service. The closest tower is currently being utilized by Belle Mead 2, an existing Verizon Wireless site. There are no existing water towers or water standpipes within the coverage gap area. The closest water tank is currently being utilized by Belle Mead, an existing Verizon Wireless site. The second water tank is about 3.2 miles away from the proposed Belle Mead 3 site and is located too far from the intended coverage gap. There are also no high tension power line stanchions within two (2) miles of the subject site, both within and outside of the Township.

Although the surrounding sites help cover Montgomery Township, there is still a large gap in coverage from Route 206 to the Delaware and Raritan (D&R) Canal. Verizon Wireless is committed to providing full and adequate service throughout Montgomery Township. In addition to the proposed site “Belle Mead 3”, Verizon Wireless plans to build out the following site:

1. “Griggstown Alt.”— Pursuing a new site located on a proposed 135 ft. silo at 694 River Road in Montgomery Township. This site will fill the coverage gap in the northeast portion of the township.

The addition of these two new sites, will allow Verizon Wireless to meet its coverage and capacity objectives in Montgomery Township.

ALTERNATIVE LOCATIONS

The subject site was identified as a suitable location for a wireless communications facility and it also met Verizon Wireless' coverage objectives. A thorough review was conducted to determine whether there were any existing structures of suitable height upon which Verizon Wireless could mount its antennas, and there are none in the area that would provide necessary coverage relief, including the properties provided below.

Mill Pond Soccer Complex, Mill Pond Road, Block 18026 Lots 23 & 27, Skillman, NJ – Property purchased with Green Acres Funding and therefore cannot be used for cell tower locations.

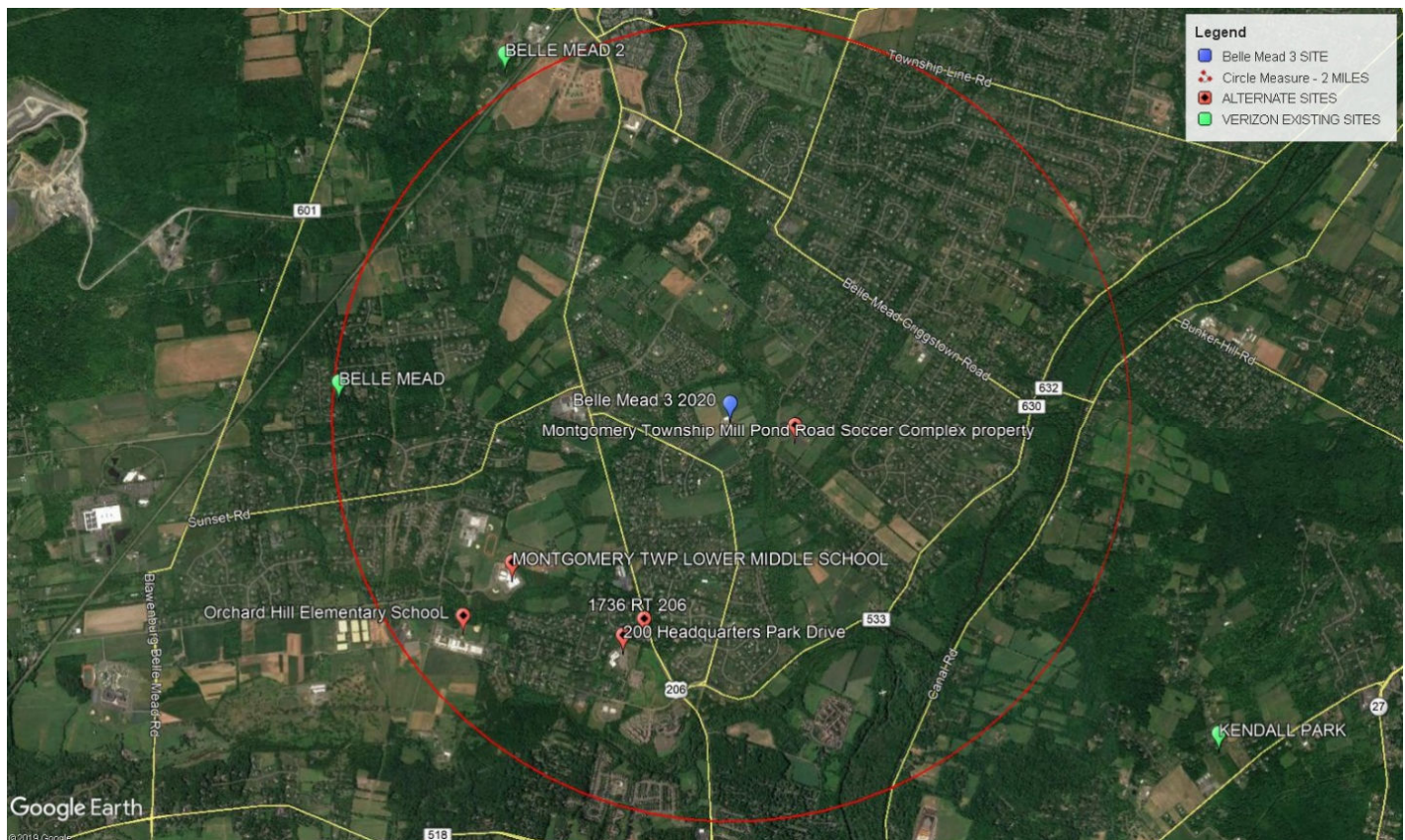
1736 Montgomery Realty LLC, 1736 RT 206, Belle Mead, NJ - The proposed property was pursued by Verizon with no response from the owner.

Conva Tec, Inc., 200 Headquarters Park Drive, Skillman, NJ – The proposed property was pursued by Verizon with no response from the owner.

Orchard Hill Elementary School & Montgomery Twp Lower Middle School
Montgomery Board of Education, 1016 Co Rd 601, Skillman, NJ - The proposed property was pursued by Verizon with no response from the owner.

Refer to Map 5 for all the existing and proposed sites in and around Montgomery Township.

MAP 5 – TWO (2) MILE RADIUS SEARCH AREA





ALTERNATIVE TECHNOLOGIES

As part of this analysis, V-COMM investigated the use of alternative technologies such as microcells or small network nodes and found that in a suburban area like Montgomery Township as many as 15 to 20 small network nodes, evenly distributed, would be needed to provide the same coverage as a single macrocell (full-size wireless communication facilities). Typically, small network nodes are used in a campus or dense urban environment to provide capacity or coverage in a specific venue to supplement the existing coverage and capacity of the macrocell network. Taking into account the coverage, capacity and design requirements of macrocell networks, it is not practical to deploy small network nodes as an alternate technology to meet Verizon Wireless' coverage requirements in Montgomery Township.



CONCLUSIONS

V-COMM reviewed the materials provided by Verizon Wireless and prepared an analysis of the existing sites with their respective RF coverage along with the proposed site. With the existing sites, there is a substantial gap in coverage which restricts Verizon Wireless customers from originating, maintaining and/or receiving calls from the "Public Switched Telephone Network" for Voice over LTE (VoLTE) calls. It is our expert opinion that Verizon Wireless' subject site at the building located at 26 Dead Tree Run Road, in Montgomery Township, NJ, will satisfy the coverage and data needs of the Verizon Wireless network and its subscribers in this portion of Montgomery Township.

In addition, V-COMM has reviewed the overall system plan for Verizon Wireless in Montgomery Township and finds that the plan is sound and consistent with industry standards and practices.

Dominic C. Vilecco
President, V-COMM, L.L.C.

1/29/2020

David K. Stern
Vice President, V-COMM, L.L.C.

1/29/2020

1/29/2020

Peter Longo, P.E.
NJ Professional Engineer License #24GE03476100

Date



**Dominic C. Villecco
President and Founder
V-COMM, L.L.C.**

Dominic Villecco, President and founder of V-COMM, is a pioneer in wireless telecommunications engineering, with 36 years of executive-level experience and various engineering management positions previously. Under his leadership, V-COMM has grown from a start-up venture in 1996 to a highly respected full-service consulting telecommunications engineering firm.

In managing V-COMM's growth, Mr. Villecco has overseen expansion of the company's portfolio of consulting services, which today include a full range of RF and Network support, network design tools, measurement hardware, and database services as well as time-critical engineering-related services such as business planning, zoning hearing expert witness testimony, regulatory advisory assistance, and project management.

Before forming V-COMM, Mr. Villecco spent 10 years with Comcast Corporation, where he held management positions of increasing responsibility, his last being Vice President of Wireless Engineering for Comcast International Holdings, Inc. Focusing on the international marketplace, Mr. Villecco helped develop various technical and business requirements for directing Comcast's worldwide wireless venture utilizing current and emerging technologies (GSM, PCN, ESMR, paging, etc.).

Previously he was Vice President of Engineering and Operations for Comcast Cellular Communications, Inc. His responsibilities included overall system design, construction and operation, capital budget preparation and execution, interconnection negotiations, vendor contract negotiations, major account interface, new product implementation, and cellular market acquisition. Following Comcast's acquisition of Metrophone, Mr. Villecco successfully merged the two technical departments and managed the combined department of 140 engineers and support personnel.

Mr. Villecco served as Director of Engineering for American Cellular Network Corporation (AMCELL), where he managed all system implementation and engineering design issues. He was responsible for activating the first cellular system in the world utilizing proprietary automatic call delivery software between independent carriers in Wilmington, Delaware. He also had responsibility for filing all FCC and FAA applications for AMCELL before it was acquired by Comcast.

Prior to joining AMCELL, Mr. Villecco worked as a staff engineer at Sherman and Beverage (S&B), a broadcast consulting firm. He designed FM radio station broadcasting systems and studio-transmitter link systems, performed AM field studies and interference analysis and TV interference analysis, and helped build a sophisticated six-tower arrangement for a AM antenna phasing system. He also designed and wrote software to perform FM radio station allocations pursuant to FCC Rules Part 73.

Mr. Villecco started his career in telecommunications engineering as a wireless engineering consultant at Jubon Engineering, where he was responsible for the design of cellular systems, both domestic and international, radio paging systems, microwave radio systems, two-way radio systems, microwave multipoint distribution systems, and simulcast radio link systems, including the drafting of all FCC and FAA applications for these systems.

Mr. Villecco has a BSEE from Drexel University, in Philadelphia, and is an active member of IEEE. Mr. Villecco also serves as the Vice Chairman of the Advisory Council to the Drexel University Electrical and Computer Engineering (ECE) Department.



Relevant Expert Witness Testimony Experience

Over the past twenty years, Mr. Villecco had been previously qualified and provided expert witness testimony in the following venues:

Expert Witness Zoning Testimony

- Avalon Borough, NJ
- Belleville, NJ
- Belmar, NJ
- Berkeley Heights Township, NJ
- Bernards Township, NJ
- Bernardsville, NJ
- Branchburg, NJ
- Bridgewater Township, NJ
- Brielle, NJ
- Bushkill Township, PA
- Colts Neck Township, NJ
- Cranbury Township, NJ
- Cresskill, NJ
- Cross Village / Emmett County, MI
- Cumru Township, PA
- Exeter Township, PA
- Fair Haven, NJ
- Fanwood Borough, NJ
- Franklin, NJ
- Freehold, NJ
- Garfield, NJ
- Glen Gardner, NJ
- Glen Rock, NJ
- Hampton Borough, NJ
- Hanover, NJ
- Hardyston Township, NJ
- Harrington Park, NJ
- Helmetta, NJ
- Hempstead, NY
- Highland Park, NJ
- Hoboken, NJ
- Holmdel Township, NJ
- Hopewell Borough, NJ
- Hopewell Township, NJ
- Howell Township, NJ
- Jackson Township, NJ
- Jersey City, NJ
- Kearny, NJ
- Kingston, NJ
- Lawrence Township, NJ
- Little Egg Harbor Twp., NJ
- Little Silver Borough, NJ
- Long Valley, NJ
- Lower Alsace Twp., PA
- Middletown Township, NJ
- Millstone Township, NJ
- Morris Township, NJ
- Neptune Township, NJ
- Newark, NJ
- New Castle County, DE
- New Providence, NJ
- N. Caldwell Township, NJ
- Orange, NJ
- Plainfield, NJ
- Princeton Township, NJ
- Reading Township, NJ
- Ridgefield, NJ
- Rochelle Park, NJ
- Rutherford, NJ
- Saddle Brook Township, NJ
- Sayreville, NJ
- Somers Point, NJ
- Somerville, NJ
- South Brunswick, NJ
- South Coventry Twp., PA
- South Plainfield, NJ
- Stone Harbor, NJ
- Tenafly, NJ
- Upper Allen Township, PA
- Upper Freehold, NJ
- Wall Township, NJ
- Wallington, NJ
- Wantage Township, NJ
- Washington Township, NJ
- Wayne Township, NJ
- Weehawken Township, NJ

United States Bankruptcy Court

Nextwave Personal Communications, Inc. vs. Federal Communications Commission (FCC)*

Pocket Communications, Inc. vs. Federal Communications Commission (FCC)*

*In these cases, Mr. Villecco was retained by the FCC and the Department of Justice as a technical expert on their behalf, pertaining to matters of wireless network design, optimization and operation



David K. Stern
Vice President and Co-Founder
V-COMM, L.L.C.

David Stern, Vice President and co-founder of V-COMM, has 35 years of hands-on operational and business experience in telecommunications engineering. While at V-COMM, Mr. Stern oversaw the design and implementation of several major Wireless markets in the Northeast United States, including T-Mobile - New York, Verizon Wireless, Unitel Cellular, West Virginia Wireless, South Canaan Cellular and Conestoga Wireless. In his position as Vice President, he has testified at a number of Zoning and Planning Boards in New Jersey, New York, Pennsylvania, West Virginia and Michigan, and qualified as an Expert Witness in US Federal District Court and Ocean County Superior Court, including:

- Bayonne, NJ
- Berkeley Township, NJ
- Brick, NJ
- Bridgewater Township, NJ
- Byram Township, NJ
- Carteret, NJ
- Cedar Grove, NJ
- Charlevoix, MI
- Charleston, WV
- Chatham Borough, NJ
- Chatham Township, NJ
- Clinton Township, NJ
- Cranford, NJ
- Dumont, NJ
- East Brunswick, NJ
- East Hempfield, PA
- Edgewater, NJ
- Edison, NJ
- Elizabeth, NJ
- Elmwood Park, NJ
- Englewood Cliffs, NJ
- Fairfield, NJ
- Fairlawn, NJ
- Fanwood, NJ
- Fort Lee, NJ
- Franklin Township, NJ
- Freehold Township, NJ
- Galloway Township, NJ
- Hackensack, NJ
- Haledon, NJ
- Hazlet, NJ
- Hempstead, NY
- Highland Park, NJ
- Hillsborough Township, NJ
- Hoboken, NJ
- Holmdel, NJ
- Hopatcong, NJ
- Hopewell Township, NJ
- Howell Township, NJ
- Huntington, NY
- Jackson Township, NJ
- Jersey City, NJ
- Keyport, NJ
- Kingwood Township, NJ
- Lakewood, NJ
- Lancaster, PA
- Lawrence Township, NJ
- Little Egg Harbor, NJ
- Livingston, NJ
- Lodi, NJ
- Long Branch, NJ
- Long Hill Township, NJ
- Lyndhurst, NJ
- Manchester Township, PA
- Manheim Township, PA
- Manalapan Township, NJ
- Marlboro Township, NJ
- Millstone Township, NJ
- Monroe Township, NJ
- Montgomery Township, NJ
- Montville Township, NJ
- Morris Township, NJ
- Mount Freedom, NJ
- Neptune, NJ
- Newark, NJ
- New Brunswick, NJ
- New Holland, PA
- Newton, NJ
- North Bergen, NJ
- North Brunswick, NJ
- Nutley, NJ
- Oakland, NJ
- Old Bridge, NJ
- Old Tappan, NJ
- Paramus, NJ
- Parsippany/Troy Hills, NJ
- Patterson, NJ
- Peapack/Gladstone, NJ
- Perth Amboy, NJ
- Plainsboro, NJ
- Piscataway, NJ
- Randolph Township, NJ
- Red Bank, NJ
- Rochelle Park, NJ
- Rockleigh, NJ
- Sayreville, NJ
- Shrewsbury, NJ
- South Plainfield, NJ
- South Brunswick, NJ
- Stafford Township, NJ
- Teaneck, NJ
- Tenaflly, NJ
- Tewksbury, NJ
- Trenton, NJ
- Union, NJ
- Union City, NJ
- Vernon, NJ
- Wall Township, NJ
- Wantage Township, NJ
- Washington Township, NJ
- Wayne, NJ
- West Caldwell, NJ
- West Milford, NJ
- West New York, NJ
- West Orange, NJ
- Woodbridge, NJ



Mr. Stern has a formidable background in wireless technologies including CDMA, EVDO, LTE, GSM, EDGE, 3G, TDMA, Project 25, and Wi-Fi. As an expert witness, David represented major wireless carriers, which aided in the expansion of their networks. One of his major accomplishments at V-COMM was the design and project management for Madison, NJ's Public Safety Communication Center. David was also a key in New York City's first PCS network launch. He is a member of APCO Region 8 and Region 28 Regional Planning Committees, and is dedicated to creating standards for 700 MHz Public Safety and Commercial Wireless deployments.

Prior to joining V-COMM, Mr. Stern spent seven years with Comcast Cellular Communications, Inc., where he held several engineering management positions. As Director of Strategic Projects, he was responsible for all technical aspects of Comcast's wireless data business, including implementation of the CDPD Cellular Packet Data network. He also was responsible for bringing into commercial service the Cellular Data Gateway, a circuit switched data solution.

Also, Mr. Stern was the Director of Wireless System Engineering, charged with evaluating new digital technologies, including TDMA and CDMA, for possible adoption. He represented Comcast on several industry committees pertaining to CDMA digital cellular technology and served on the Technology Committee of a wireless company on behalf of Comcast. He helped to direct Comcast's participation in the A- and B-block PCS auctions and won high praise for his recommendations regarding the company's technology deployment in the PCS markets.

At the beginning of his tenure with Comcast, Mr. Stern was Director of Engineering at Comcast, managing a staff of 40 technical personnel. He had overall responsibility for a network that included 250 cell sites, three Switching offices, four Motorola EMX-2500 switches, IS-41 connections, SS-7 interconnection to NACN, and a fiber optic and microwave "disaster-resistant" interconnect network.

Mr. Stern began his career at Motorola as a Cellular Systems Engineer, where he developed his skills in RF engineering, frequency planning, and site acquisition activities. His promotion to Program Manager-Northeast for the rapidly growing New York, New Jersey, and Philadelphia markets gave him the responsibility for coordinating all activities and communications with Motorola's cellular infrastructure customers. He directed contract preparations, equipment orders and deliveries, project implementation schedules, and engineering support services.

Mr. Stern earned a BSEE from the University of Illinois, in Urbana, and is a member of IEEE.