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November 20, 2012

Ian Murray, Chairman Town of Saratoga Planning Board 12 Spring Street Schuylerville, New York 12871

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RE: Interim Response to Public Hearing Comments

Chairman Murray and Members of the Saratoga Planning Board:

Enclosed is our interim response to the public hearing comments received thus far, including those made at the October 25, 2012 public hearing that is presently tabled open. This will provide an overview of the comments we intend to make at the extended public hearing on November 28, 2012.

The critical issue from our standpoint is determining the preferred location on the Peck property for the proposed facility. It appears that the majority of the comments would prefer that Verizon Wireless not build the facility at all (or move it to another geographic area), although a small number of comments have been received favoring a location further up the hill with a shorter overall facility height (e.g., alternates 1 or 3) over the larger tower closer to Wagmans Ridge Road (alternate 2). We are available tonight to discuss the relative benefits of each location with the Planning Board, and answer any other questions the Board members may have.

Thank you for your consideration.

I ... M

Michael E. Cusack, Esq.

Encl.

# INTERIM RESPONSE TO PUBLIC HEARING COMMENTS Cellco Partnership d/b/a Verizon Wireless Burgoyne II Communications Facility November 20, 2012

#### INTRODUCTION

Cellco Partnership d/b/a Verizon Wireless ("Verizon Wireless") proposes the construction, maintenance and operation of a new public utility/personal wireless service facility (the "communications facility") on a portion of lands n/f owned by Patricia D. and Joseph D. Peck, located at 178 Wagmans Ridge Road in the Town of Saratoga, Saratoga County, New York (Tax Map Parcel No. 181-1-5) (the "premises").

The communications facility proposed by Verizon Wireless consists of the following general components: one unmanned equipment shelter approximately 12 ft. wide x 30 ft. long x 11 ft. tall on a concrete slab on grade; an 80± ft. tall monopole tower (84± ft. total when including a 4 ft. lightning rod); twelve (12) panel antennas mounted at a center-line height of 76± ft. above ground level ("AGL"); and all related microwave antennas, coax cabling and utility services (power and telephone/fiber). To provide additional space for co-location by other users as required by §§ 400-13[G] and [K][1] of the Town of Saratoga Zoning Regulations, the monopole will be designed with structural capacity for three (3) additional users and extendable to 100± ft. AGL if additional height is needed (104± ft. total including the 4 ft. lightning rod).

The premises are located in the Rural (R) District, the only zoning district in the Town of Saratoga which allows new telecommunications towers. The premises are part of a large 146± acre farm tract, and the communications facility is leased from a single parcel as required by § 400-13[I][1] of the Town of Saratoga Zoning Regulations. The proposed monopole is located a minimum distance of approximately 236 ft. from the nearest residential dwelling, and approximately 300 ft. from Wagmans Ridge Road. The monopole ranges a minimum distance of approximately 160 ft. from the nearest property line (McConnell Tax Map Parcel No. 168-3-68) to a maximum distance of approximately 1,829 ft. from Southard Road. These distances fully comply with the required setback from any property line equal to 100% of the height of the tower, as specified in §400-13[I][2] of the Town Zoning Regulations (i.e., 84± ft. setback when including the 4± ft. lightning rod).

The proposed communications facility is unmanned, and will be visited for routine maintenance purposes approximately 1-3 times per month. As such, this project will not have any impact on existing water and sewage services. In addition, neither pedestrian nor vehicular access will be significantly impacted.

## THE BURGOYNE II COMMUNICATIONS FACILITY FILLS A SIGNIFICANT GAP IN COVERAGE IN THE NORTHWESTERN AREA OF THE TOWN OF SARATOGA

The purpose of the Burgoyne II communications facility is to remedy significant gaps in Verizon Wireless coverage in the northwestern area of the Town of Saratoga, primarily east of the City of Saratoga Springs, south of the Town of Wilton and west of the Burke Road/Walsh Road ridge line in the Town of Saratoga. Quoting from page 1 of the Applicant's Site Selection Analysis:

"First, this facility will provide new emergency and non-emergency fourth generation (4G) Verizon Wireless coverage (in-building and mobile) to significant portions of the Town of Saratoga, including areas: east and west along State Route 29; north and south along State Route 9P, County Route 67 (Quaker Springs Road) and County Route 70 (Wayville Road); along Burgoyne Road, Southard Road, Fitch Road, Chapman Hill Road, Nelson Road, Caldwell Road and Sweet Road; and to numerous residences, local thoroughfares and places of business in the vicinity." [Application Package, TAB 6 at p. 1]

A detailed description of the coverage gaps in northwestern areas of the Town of Saratoga, with technical information and Radio Frequency (RF) Propagation Analyses illustrating the coverage gaps and areas to be served by the new Burgoyne II communications facility, can be found at **TAB 6**, **pp. 1-4 and Exhibits "A" and "B"** of the Applicant's Site Selection Analysis (also discussed in further detail in the Applicant's **August 1**, **2012 Radio Frequency (RF) Engineering Report**). Without limitation to this information, the proposed communications facility will provide new local coverage to an estimated 19.7 road miles in the Town of Saratoga, 1,139 persons in the Town of Saratoga (or approximately 20% of the Town population), and more than 13 square miles of territory in the Town of Saratoga (or approximately 30.5% of the total square miles in the Town).

It would be inaccurate to state that the Burgoyne II cell site is intended to solve coverage or capacity problems in the City of Saratoga Springs or other adjoining municipalities, and not the Town of Saratoga. The coverage objective is squarely within the northwestern area of the Town of Saratoga, and only a small amount of overlap is necessary to connect (or integrate) with the existing wireless network in Saratoga Springs and Wilton. This is not, as raised several times in the public hearing, a project that is primarily intended to benefit adjoining municipalities, as in fact the limited service that exists in the northwestern portion of the Town of Saratoga originates from these surrounding communities.

Verizon Wireless has provided a wide variety of technical information, statistical and drive test data to document these coverage deficiencies, and the fact that unprecedented growth and sharply increasing wireless usage patterns since 2009 have resulted in a nationwide shortage of available spectrum and severe capacity limitations within existing wireless networks, particularly near densely-populated and —developed urban and suburban population centers like the adjoining City of Saratoga Springs and Town of Wilton [Application Package, TAB 6 pp. 3-4 and Exhibits "A" and "B"; August 1, 2012 Radio Frequency (RF) Engineering Report, pp. 5-7 and Attachments].

## THE APPLICANT AND TOWN OF SARATOGA PLANNING BOARD HAVE EVALUATED A REASONABLE RANGE OF ALTERNATIVE SITES AND SITE DESIGNS

#### Alternative Camouflage Silo Design

Based upon comments received from the Town of Saratoga Planning Board at the June 27, 2012 Planning Board meeting, the application was revised to include alternative design consisting of an 80± ft. camouflage ("stealth") silo structure with an optional 10± ft. ornamental dome or "cap" (maximum overall height of 90± ft. AGL). This alternative design will minimize and/or eliminate potential visual impact to the surrounding community, and more completely blend the facility in with the agricultural rural landscape and vista. This alternative silo design is also capable of being extended to 100± ft. AGL (maximum overall height of 110± ft. AGL when including a 10± ft. ornamental cap or dome), if the Town of Saratoga Planning Board requires this option being built into the design.

#### **Alternative Site Evaluation**

Without limitation to other materials in the record, the Applicant and Town of Saratoga Planning Board have also evaluated potential alternative sites and/or designs on the Peck farm property, and conducted a site walk on the Peck Farm with the public at an open workshop meeting of the Planning Board held on October 10, 2012. The alternative sites investigated are generally described as follows (*see, also, Costich Engineering, P.C. Figure 4B, Drawing No. GS101*, attached hereto):

<sup>&</sup>lt;sup>1</sup> This evidence is not contradicted by anecdotal comments indicating a satisfactory service in certain areas or households in the Town. From a network or system standpoint, coverage is entirely lacking in significant portions of northwestern Saratoga, with small patches of non-contiguous and spotty coverage in higher elevation areas where an unobstructed line-of-sight radio path is realized to surrounding (but distant) Verizon Wireless cell sites.

- The first alternative site is at the same ground elevation (approximately 413 ft. AMSL), approximately 295.9 ft. south of the current location. As the ground elevation and required tower height at this location are essentially comparable to the original location proposed by Verizon Wireless, the monopole and camouflage silo design described above are each feasible from this location.
- The second alternative site is at a lower ground elevation area (approximately 399 ft. AMSL), approximately 840 ft. south of the proposed site (east of Wagmans Ridge Road and the existing farm access road, and north of the existing concrete farm silage bunkers on the Peck Farm). Verizon Wireless' Radio Frequency Engineer has determined that a tower height of 120± ft. AGL is required from this location (or 140± ft. AGL if tower height were expanded at some future date to provide for additional collocation as referenced above) (see, e.g., RF Line-of-Site Plots annexed hereto). Due to a significantly taller required tower height, the camouflage silo design is not feasible from this location.
- The third alternative site is at a slightly lower ground elevation (398± ft. AMSL), approximately 290 ft. east northeast of the proposed site, alongside the existing farm access road. Verizon Wireless' Radio Frequency Engineer has determined that a tower height of 90± ft. above ground level (AGL) is required from this location (or 110± ft. AGL if tower height were expanded at some future date to provide for additional collocation as referenced above). The monopole and camouflage silo design are each feasible from this location.
- The camouflage silo at alternative 1 and 3 can be designed with the capability of being extended approximately 20 ft. in height to provide additional co-location space, subject to additional approval from the Town of Saratoga Planning Board at a future date. The overall height of the camouflage farm silo design may also be slightly taller to accommodate the 10± ft. ornamental dome or "cap", if the Town of Saratoga Planning Board requires this option in the final design.

Importantly, all alternatives evaluated by the Town of Saratoga Planning Board fully comply with the required setback from any property line equal to 100% of the height of the tower, as specified in Zoning Regulations §400-13[I][2]:

Residence/Address	Proposed Site (approx. ft.)	Alternative 1 (413± ft. AMSL)	Alternative 2 (Barns/Silage	Alternative 3 (Near Hulka
	(466.6% : 6.7	(1202 10.7 11.102)	Bunkers)	Boundary)
G - Murphy 148 Wagmans Ridge Rd	235′	313′	753′	540′
F – McConnell 144 Wagmans Ridge Rd	256′	492'	981′	536′
B – Austin 142 Wagmans Ridge Rd	362′	643′	1,154′	568′
E - Dalzell/Sullivan 138 Wagmans Ridge Rd	563′	856′	1,379′	685′

#### Other Alternatives Considered

Without limitation to the above, the Applicant's Radio Frequency (RF) Design Engineer has documented the geographic area within which the communications facility needs to be located (the "search area") to satisfy applicable coverage objectives. The Applicant's experts have also completed a thorough evaluation of the relevant search area and surrounding environs and documented that: (a) there are no suitable existing towers or other tall structures within or near the designated search area that can be used by Verizon Wireless to satisfy coverage objectives in the northwestern portion of the Town of Saratoga; and (b) there are no existing tower sites within or near the search area that can be used for the "clustering" of an entirely new tower. Accordingly, construction of an entirely new tower at a new tower site is required in this case. See, e.g., Site Selection Analysis at Application Package TAB 6; August 1, 2012 Radio Frequency (RF) Engineering Report.

It would be inaccurate to state that Verizon Wireless can satisfy coverage objectives in the northwestern portion of the Town of Saratoga by collocating on other existing farm silos in the area, as any existing silos within or near the search area are too short and/or sit at too low of a ground elevation to overcome significant signal blocking and/or interference from steep and rolling terrain (including the very hillside to the north where this project is proposed, and significant terrain in the 450 - 582± ft. AMSL range along the ridge line at Walsh Road, Mabb Road and Burke Road to the northeast, east and southeast) and/or dense mature vegetation approximately 60 – 65 ft. in height in the surrounding community.

To illustrate this point, Verizon Wireless' RF Engineer has prepared a propagation analysis illustrating the theoretical coverage gaps that would result if Verizon Wireless were to co-locate antennas at 50 ft. above ground level ("AGL") on the existing silo on the Hulka property at 199 Southard Road (**Propagation Analysis attached**). As this propagation analysis demonstrates, coverage in all directions is extremely limited and blocked by terrain and/or dense mature vegetation in the surrounding community, as well as low overall height relative to the coverage objective, leaving large portions of the targeted coverage area outside of service. This is a good part of the reason why the project's search area is located in a specific and designated area, and we defer to Verizon Wireless' prior submissions for further discussion [see, e.g., Application Package TAB 6; August 1, 2012 Radio Frequency (RF) Engineering Report].

It would also be inaccurate to state that Verizon Wireless can satisfy applicable coverage objectives by deploying Lucent "lightRadio Cube" technology in the community. As a general matter, this small cell technology operates at an extremely low power level that is  $1/40^{th}$  of the power level of a macro-cell such as currently proposed, more suitable to an urban environment or densely-populated area (e.g., interior portions of malls, airports, subway tunnels, etc.) where there is a need to provide "targeted" coverage to a small and very specific area or hot-spot. This technology is not capable of providing wide area coverage to the northwestern portion of the Town of Saratoga. Additionally, broadcast signals from the lightRadio Cube antenna would still be subject to the laws of physics, and require sufficient height above ground level to overcome significant blocking due to local terrain and vegetation.

As noted in the application materials, the Applicant has also evaluated a number of alternative sites located well outside of the designated search area, and established through competent proof that there are no existing towers or other tall structures that can be used to satisfy the coverage objectives in the northwestern portion of the Town of Saratoga. This evaluation includes without limitation evaluation of (i) an existing Independent Tower facility on Town property off Dump Road / Hayes Road (discussed in further detail below), and (ii) consideration Verizon Wireless' existing and planned cell sites in multiple surrounding municipalities (including the Towns of Wilton, Stillwater and Greenfield, Village of Schuylerville and City of Saratoga Springs), which as noted in Verizon Wireless' application materials are too distant (located a range of approximately 3.5 – 5.75 miles from the proposed site), overburdened (above or near full capacity), blocked by significant terrain and/or vegetation in the community, and incapable of satisfying applicable coverage objectives in the northwestern section of the Town of Saratoga. See, e.g., Application Package TAB 6; August 1, 2012 Radio Frequency (RF) Engineering Report.

## THE INDEPENDENT TOWERS SITE AT THE TOWN LANDFILL CANNOT SATISFY COVERAGE OBJECTIVES IN THE NORTHWESTERN SECTION OF THE TOWN OF SARATOGA

As noted in the application materials and public hearing testimony, the Independent Towers site at the Town Landfill off Dump Road and Hayes Road covers a separate and distinct area in the *northeastern* section of the Town of Saratoga. The dividing line between coverage from the proposed Burgoyne II site and Independent Towers site at the Town Landfill off Dump Road & Hayes Road is the ridge line that runs generally north-south along Walsh Road, Mabb Road and Burke Road in the Town of Saratoga. To demonstrate this point, the Applicant has prepared Line-of-Sight Plots to establish, as a simple matter of topography, that this ridgeline and dense mature vegetation in the community block signal coverage to much of the northwestern area of the Town of Saratoga. *See*, **August 1, 2012 Radio Frequency (RF) Engineering Report**.

From a physical perspective, Verizon Wireless' antennas if mounted at the 450± ft. AMSL top of the Independent Towers facility at the Town Landfill site off Dump Road / Hayes Road would be blocked from "seeing" into large sections of the northwestern areas of the Town of Saratoga by the significant natural ridgeline along Burke Road, Mabb Road and Walsh Road, which ranges from approximately 450 – 582 ft. AMSL immediately east, southeast and east of the Independent Towers facility. Radio transmissions would also be further blocked and/or impaired by dense mature vegetation in the 60-65± ft. tall range throughout this area.

From a technical perspective, the Applicant has documented in its April 4, 2012 Site Selection Analysis [Application Package TAB 6] that cellular radio is generally a "line of sight" technology. While radio signals do some degree of bending (known as "diffraction") around obstacles, radio signals will not pass through land mass and are subject to significant interference and/or blocking due to vegetation. Distance is also a critical consideration, because increased space to and from the coverage objective means that the facility (and all mobile devices communicating back and forth with that facility) must operate at a higher power level. Moreover, this technology operates at significantly reduced effective transmit and receive power levels, making modern wireless networks more susceptible to blocking and/or interference than in prior years.

From a financial perspective, no amount of investment will overcome these challenges, as the laws of physics are not negotiable. Radio signals cannot penetrate or go around the adjacent land mass of the Burke Road / Mabb Road / Walsh Road ridgeline, which is of comparable height and ranges upward approximately 100-130 ft. higher than the top of the Independent Towers facility. Nor can radio signals bypass the dense mature vegetation in the  $60-65\pm$  ft. range throughout the community, which increases the level of interference and or signal blocking. Clearly, the Independent Towers site is designed to serve areas east of this ridge line, in the northeastern section of the Town of Saratoga.

Based upon these factors, the Applicant has established through competent proof and by any reasonable definition that use of this facility is not "practical" for providing service to the northwestern area of the Town of Saratoga, on the opposite side of this ridge line.

# THIS PROJECT WILL PROVIDE SIGNIFICANT BENEFITS TO THE PUBLIC HEALTH, SAFETY AND WELFARE OF THE TOWN OF SARATOGA

As a final point, we wish to emphasize that this project will provide new emergency and non-emergency communications coverage within the northwestern area of the Town of Saratoga. Assuming this facility is approved in 2012, it will include legacy "voice" service along with new 4G LTE service (it being recognized that Verizon Wireless' technology is constantly evolving and improving, and that in a digital environment "voice" communications are actually another form of data communications). If approval does not occur in 2012, the site will be equipped with the upgraded 4G LTE voice communications service only, currently scheduled for deployment in late 2013.

This is an important point to understand because as noted in our Site Selection Analysis [Application Package TAB 6] and August 1, 2012 Radio Frequency (RF) Engineering Report, Verizon Wireless is in the midst of completing a multi-year comprehensive upgrade of its legacy third-generation ("3G") Code Division Multiple Access ("CDMA") digital network, to state-of-the-art fourth generation ("4G") Long Term Evolution ("LTE") digital technology. In simple terms, the network is evolving to the next level — much the same as it has during Verizon Wireless' previously transitions from analog and first generation ("1G") digital technology to second generation ("2G") 1xRTT technology (in 2000-01), and again from 2G technology to third generation ("3G") Code Division Multiple Access ("CDMA") technology in (2004-05). At some point in the evolution process, Verizon Wireless stops talking about the older technology (and manufacturers stop making equipment supporting that older technology) to focus solely on the current technology.

Regardless of these distinctions, Verizon Wireless's 4G LTE technology will provide a number of new and significant benefits to the public health, safety and welfare of northwestern areas of the Town of Saratoga, including without limitation the following:

- → Verizon Wireless 4G LTE technology will increase access to broadband internet technology by providing download speeds of up to 5 12 Mbps (megabits per second) and upload speeds of approximately 2 5 Mbps, bringing high-speed wireless internet connectivity to rural and suburban areas of the Town of Saratoga and improving emergency and non-emergency communications in this area (including for example law enforcement & medical telemetry technology).
- → Using this new 4G LTE technology, Verizon Wireless plans to launch Next Generation 911 service including the nation's first text-to-911 service, designed to a provide those who are deaf or hard of hearing (or persons who are unable to speak due to concerns with personal safety or other reasons) the ability to contact emergency services via SMS.
- → On February 22, 2012, President Obama signed the Middle Class Tax Relief and Job Creation Act of 2012 (Public Law 112-96) (the "TRA") into law, a comprehensive federal regulatory package to provide incentives for the creation of jobs and other purposes (including advanced wireless broadband deployment for first responders). Pursuant to this legislation, Congress established the First Responder Network Authority to build out a new Nationwide Public Safety Broadband Network. This network will be based upon 4G LTE technology (TRA §6203[c][2]) (47 USC 1423), and the First Responder Network Authority is encouraged where appropriate to use existing 4G networks such as Verizon Wireless' for all or a portion of its needs (TRA §6206[b][3]) (47 USC 1426).
- → As part of the *Clinton Health Matters Initiative*, Verizon Wireless will support technologies and wireless networks enabling patients to take vital signs at home and send readings directly to their physician, as well as alert physicians when patients with chronic disease require medical intervention. This support also includes connectivity for telemedicine networks that are intended to bring much-needed specialty care and image interpretation services to rural areas.

In sum, Verizon Wireless has FCC licenses to provide advanced wireless services and the right to build out its 4G LTE network in accordance with applicable laws, rules and regulations. The Burgoyne II communications facility is consistent with all applicable requirements in the Town of Saratoga Zoning Regulations, and will resolve a significant identified gap in wireless coverage in the northwestern area of the Town of Saratoga. Additionally, this project will ensure that rural and suburban areas in the northwestern section of the Town of Saratoga have the same advanced 4G wireless technology and service as larger metropolitan areas.





175 CALKINS ROAD ROCHESTER, NEW YORK 14623



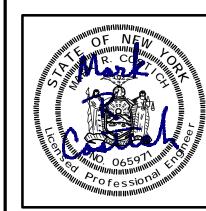
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D.A.W. C.J.M.

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ORIGINAL SIZE IN INCHES

SITE INFORMATION

**BURGOYNE II** PROJECT #2008313316 LOCATION CODE: 190889

TOWN OF SARATOGA COUNTY OF SARATOGA STATE OF NEW YORK

SHEET TITLE

FIGURE 4B

C.E. JOB NUMBER 4511.01

SHEET NUMBER **GS**101

SHEET 1 OF 1

