

Date Application Received: 5-5-2017

Total Fees Due: \$ 555⁰⁰
Date Paid: 5-5-2017 48

Application for Special Use Permit City of Harrisonburg, Virginia

www.harrisonburgva.gov/zoning-applications

Application Fee: \$375.00 plus \$30.00 per acre

Section 1: Property Owner's Information

Property Owner's Name: 865 East LLC - C/O Dain Hammond

Street Address: 865 Port Republic Road Email: dain@hammond-insurance

City: Harrisonburg State: Virginia Zip: 22801

Telephone: Work: 540-442-8885 Fax: 540-301-2222 Mobile/Home: _____

Section 2: Owner's Representative Information

Owner's Representative: Stephen Waller, AICP (agent for Verizon / authorized applicant)

Street Address: 8159 Cancun Court Email: stephen.waller@gdnsites.com

City: Gainesville State: Virginia Zip: 20155

Telephone: Work: 434-825-0617 Fax: _____ Mobile/Home: _____

Section 3: Description of Property

Location (Street Address): 865 Port Republic Road

Tax Map Number Sheet: 92 Block: F Lot: 1 Lot Area: _____

Existing Zoning Classification: R5C

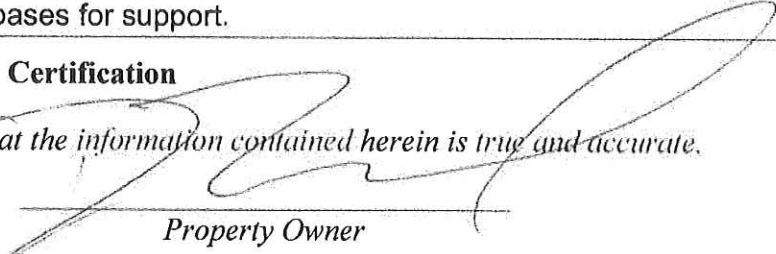
Special Use being requested: Section 10-3-196(2) Concealed Wireless Telecommunications Facilities
in the R5C - Residential District, for deployment of small cell data nodes.

Provide a detailed description of the proposed (attach additional pages or separate letter if necessary):

Installation of three data node antennas with associated transmit / receive equipment on the rooftop
of an existing building using concealment enclosure boxes mounted on non-penetrating, ballasted
platform bases for support.

Section 4: Certification

I certify that the information contained herein is true and accurate.

Signature: 
Property Owner

Section 5: Required Attachments

☒ Survey of Property or Site Map

NOTE: If applying for a Wireless Telecommunications Facility allowed only by SUP, then also submit a wireless telecommunications facility application.

Date Received: _____

Review Fee \$175.00 (not required when applying for a SUP): _____

Application for Wireless Telecommunications Facility

City of Harrisonburg, Virginia

409 South Main Street, Harrisonburg, Virginia 22801

Website: <http://www.harrisonburgva.gov>

Telephone: (540) 432-7700 Fax: (540) 432-7777

Property Owner: 865 East LLC - C/O Dain Hammond

Owner's Address: 865 Port Republic Road, Harrisonburg, Virginia 22801

Telephone: (Home or Work): 540-442-8885 (Mobile): 1-540-435-0664

Email Address: dain@hammond-insurance.com

I, Dain Hammond, consent to the installation of the wireless telecommunications facility applied for herewith and understand and accept the terms of Article CC Wireless Telecommunications Facilities Sections 10-3-200, 201, and 202. I further understand that building or sub-trade permits may also be necessary and that this process only provides zoning approval. City representatives may enter the property, as necessary, to review this application. (See reverse side for Zoning Ordinance Sections 10-3-200, 201, and 202.)

Signature: _____ Date: 4/10/17

Applicant or Contact Person: Stephen Waller, AICP (agent for Verizon / authorized applicant)

Address: 8159 Cancun Court, Gainesville, Virginia 20155

Telephone: (Home or Work): 434-825-0617 (Mobile): Same

Email Address: stephen.waller@gdnsites.com

Owner of Wireless Facility (after initial installation): Verizon - Southern Virginia Market

Address: 1831 Rady Court, Richmond, Virginia 23222

Telephone: (Home or Work): 804-521-0120 (Mobile): _____

Email Address: _____

Property Address: 865 Port republic Road

Zoning District: R5C Tax Map Number(s): 92 - F - 1

The information below shall also be included (for SUP requests, see reverse side for additional information):

- ☐ Location map and elevation drawings of the proposed facility prepared and certified by a professional engineer indicating: location, type, and height of all structures associated with the facility; facility's planned capacity (i.e. collocation potential/number of accommodations); on-site and abutting land uses; means of access; support structure's setbacks from property lines; and all applicable American National Standards Institute (ANSI) technical and structural codes.
- ☐ Screening Plan (i.e. fence type and/or vegetation to be planted)
- ☐ Photo Simulations of the proposed facility
- ☐ Evidence that the applicant has contacted the Emergency Communications Center (ECC) and verified the installation of the proposed equipment will not interfere with the ECC's operations. (ECC Director Jim Junkins - 540-434-4436.)
- ☐ If camouflaging, an explanation of how the facility will be camouflaged.
- ☐ If erecting a new telecommunications tower or concealed wireless telecommunication facility, a physical survey of the property must be submitted.

If applying for a wireless telecommunications facility allowed only by SUP, the below information shall also be submitted:

- ☐ A listing of all property owners within one quarter (1/4) mile from the subject property. These property owners shall be notified along with the property owners notified as required by Section 15.2-2204 of the Code of Virginia. (Staff may assist in supplying this list.)
- ☐ A description of how the proposed facility fits into the applicant's telecommunications network.
- ☐ An explanation as to why the particularly proposed wireless telecommunications facility is needed to meet the desired results as opposed to installing a facility allowed by right that may provide the same results.
- ☐ An explanation or evidence demonstrating that no existing support structure or building can accommodate the applicant's proposed facility or evidence that the applicant has made diligent good faith efforts to negotiate collocation on an existing support structure or building in the area needing service or improved service.
- ☐ If requesting to install a new telecommunications tower, concealed wireless telecommunications facility, or to increase the allowable height of a facility above that permitted by-right, a balloon test shall be performed. The special use permit application shall not be considered complete until the test is performed and staff has visually witnessed the test. The applicant shall contact the Department of Planning and Community Development to schedule a date and time when the balloon test will be conducted. If inclement weather prevents the scheduled test, a new schedule shall be established. The test shall consist of raising at least one (1) balloon from the site to a height equal to the proposed facility. Proposed collocated facilities which increase the height of existing support structures shall not be required to perform a balloon test.

Section 10-3-200. Reporting of wireless telecommunications facilities.

For each wireless telecommunications facility, the property owner on which a facility is located shall be responsible for ensuring a report is submitted to the Zoning Administrator once a year, no later than June 30, stating, at minimum, the following:

- (1) Name, address, telephone numbers, and email addresses of the property owner and, if applicable, the owner of the support structure.
- (2) The support structure's (including alternative support structures) location (latitude and longitude), street address, height, and structure type.
- (3) The current user status of the facility including the name and contact information of each active tenant/wireless service provider leasing space from the site. If vacant/collocation space is available, the report shall indicate such information and explain the facility's available accommodations.
- (4) An explanation or listing of each tenant's/wireless service provider's equipment identifying at least the type and number of all antennae, equipment cabinets, and any other supporting equipment. The location of such equipment shall also be described or illustrated.

Section 10-3-201. Maintenance of wireless telecommunication facility sites; enforcement.

- (1) All required screening, landscaping, camouflaging, concealment mechanisms, and other features shall be maintained, repaired, or replaced.
- (2) Enforcement and penalties due to violations of any section of this Article shall be as otherwise stated in this Title.

Section 10-3-202. Removal of defective or abandoned wireless telecommunications facilities.

- (1) Any component of a wireless telecommunications facility that is found to be defective or unsafe shall be repaired immediately by the owner or operator to comply with federal, state, and local safety standards or removed within thirty (30) days upon receipt of written notice.
- (2) A wireless telecommunications facility that is not operated for a continuous period of twenty-four (24) months shall be considered abandoned. The owner of the property on which the facility is located shall be notified in writing and given ninety (90) days from the receipt of the written notice to remove the facility and all associated components and equipment and return the site to its condition prior to construction of the facility or to a seeded or sodded condition.

Upon receipt of the notice, the first thirty (30) days of the ninety (90) day rectification period shall be the amount of time the property owner has to demonstrate the facility has not been abandoned. If the property owner fails to prove the facility is actively operating, the owner shall have the remaining sixty (60) days to remove the facility. If the facility is not removed within the allotted time, the City may cause the facility to be removed at the property owner's expense.

VERIZON SITE NAME: "HARRISONBURG NODES N001, N004 & N005"
ROOFTOP INSTALLATION OF SMALL CELL ANTENNA NODES ON 865 EAST
865 PORT REPUBLIC ROAD

Project Description:

Verizon respectfully requests approval of a Special Use Permit and Wireless Telecommunications Facility applications for a new facility, with concealed antennas and supporting remote radio heads to be attached to the rooftop of the 865 East Residences and Plaza building. The 6-story building subject to this request is located at 865 Port Republic Road, on property identified Tax Map Parcel ID# 92-F-1 by the City of Harrisonburg's tax records and GIS mapping service. The parcel contains a total of 5.47 acres zoned High Density Residential (R-5C, which allows Concealed Wireless Telecommunications Facilities to be installed by Special Use Permit.

The proposed antennas will not be visible from any adjacent street or property, as they be screened within three separate Stealth shroud enclosures that are made of RF-friendly materials, and designed to look like chimneys and painted match the building's façade. Each "small cell" data node will consist of are 6.7" (W) x 23.6" (L) panel antenna that will be mounted on 8' x 10' base frames that will be ballasted with stabilizing weights that will prevent the need to drill anchors that would otherwise penetrate the building roof or its protective membrane. The actual top of the building's roof is 60.7 feet high and it has a lower parapet walls with top heights of 65.3 feet, and taller parapet walls with a decorative façade that is 69 feet. The tops of the antenna concealment shrouds will be approximately 70 feet in height, which places them only 1-foot higher than the parapet wall.

Verizon's base station transmitting equipment will be installed below the antennas on the same mounting frames, using unistrut crossbars. This supporting equipment includes a radio transmitting cabinet, Hoffman utility box, remote radio head units and cable diplexers that will be mounted at a top height of approximately 4'-9". The mounting frames will be setback a at distance that allows the base station equipment, unistrut and lower parts of the mounting frame to be screened by the lower parapet walls on all sides of the building. Other power and fiber utility equipment will be placed inside of a basement utility room, then connected to Verizon's rooftop installation via conduit that will follow a run of floor to floor penetrations that were also made for existing utilities within this building.

Verizon has not been approached by additional wireless service providers expressing an interest in utilizing the rooftop of this building. Therefore, the proposed concealment elements have been designed as a single carrier facility which helps to mitigate visual impacts upon the neighboring properties and streets in this residential district. This decision was also made in order to maintain a relatively small profile, in comparison to the much heavier structural loading and wind resistance that must be engineered for traditional "macro" arrays with multiple antennas in each sector. However, neither the design and installation of Verizon's facility or the provisions of the lease agreement will prevent other carriers from proposing future facilities on this rooftop, aside from addressing any possible issues with interference between networks.

Character of the Area:

The 865 East building a contains mix of the property management offices, staff operations, resident amenities and restaurants on its main level; apartments on its upper levels; a rooftop lounge area for residents takes up a small area on the rooftop, while HVAC units are located

across the greater roof area and screened behind the parapet walls. The property is surrounded by low-rise residential developments to the east south and west, with a gas station / convenience store and restaurant to the north.

Network Improvements:

The deployment of this node and similar facilities throughout the area will help Verizon further improve its state-of-the-art, high-speed wireless data services that are being provided over the company's 4G LTE (Long-Term Evolution) network for the residents, visitors, business owners and consumers throughout the City of Harrisonburg. Slow data transmission due to greater distances from existing facilities and/or a high number of users during peak hours can directly impact citizens' ability to perform various tasks that range from doing business and schoolwork at their homes, communicating with family and friends, and even receiving messages regarding emergencies, weather, traffic and other local issues that may impact the quality of our daily lives.

Verizon is working across Virginia to increase the capacity for data transmission on its wireless networks to handle the increased demands for service by the company's growing customer base. These small cell/node facilities are much smaller in scale and far less visible than the more traditional "macro" facilities (such as a cell towers), which typically use multiple antennas that are six to eight feet (6'-8') tall. Small cell facilities often use a single and very inconspicuous antenna that is two feet (2') long or less, and supported by compact base station equipment meant to provide improved coverage in more densely-populated urban areas such as multi-unit residential developments, shopping centers, sports fields, entertainment venues and community centers where data usage tends to be high. The placement of small cell nodes within these dense areas that are currently covered by existing macro sites also allows network traffic to be offloaded from those macro sites to the small cells within their specifically targeted areas. This offloading helps to increase data speeds for users across the network, thus providing more reliable access to high-speed data transmissions and overall service improvements and seamless coverage for all users.

In addition to using the measurable data that is compiled by the company's Network Traffic Engineers, Verizon has also taken input it receives from the local community into consideration when designing and locating these small cell nodes. Customers who have filed reports of slower data speeds, spotty coverage and complete loss of service at certain times and locations throughout the area will benefit from the installation of this proposed facility. Due to the addition of these new small cell sites, area residents and businesses will benefit greatly from the technological advances that have taken place in the wireless industry since the introduction of smartphones and wireless broadband services.

Wireless networks will only continue to grow with the increased usage of smartphones, tablets, laptops and similar devices that allow users to work, research, shop and communicate, the needs for access to high speed, high quality. In fact, wireless networks have become such an integral part of our lives and our economy that access to the highest levels of service has in many cases allowed consumers to save money by eliminating their subscriptions to landline telephone service and/or other hardline communication utilities, such as cable and internet. To that end, the addition of this proposed data node antenna will allow Verizon to provide another high-quality option for data access and information streaming services within the City of Harrisonburg.

Service Objectives:

Verizon is licensed by the Federal Communications Commission ("FCC") to provide state-of-the-art wireless communication services to citizens, businesses and visitors within City of Harrisonburg. To that end, Verizon currently provides service in the area using several existing and more traditional towers along with other macro facilities collocated on structures such as rooftops. However, Verizon is also constantly seeking ways to improve these services through the deployment of state-of-the-art technologies and increasing capacity to support the growing needs for data. Today's citizens expect to be able to stream information, demonstrations and data through their tablets, and stay in constant contact with friends and family. While the existing wireless macro sites have supported network voice services for many years, the ability to meet the escalating demands for larger capacity data transfer is requiring that these small cells and data node antennas be located closer to the customers in areas with higher user intensity so that data service can meet the ever-increasing demand.

It should also be noted in most cases that these needs for access to higher capacity levels and the best data services are largely being experienced in the most densely developed areas that offer the fewest (if any) options and insufficient land area for the construction of traditional macro wireless facilities. On the other hand, these small cell nodes sites are being designed as unobtrusive and low-powered options that can be installed to meet the specific coverage requirements for those smaller geographical areas that are being targeted.

The compact antennas and smaller ground equipment footprint of this proposed installation will help to expand services into area near the intersection of Port Republic Road and Devon Lane, which is densely-developed with multi-unit residential, in addition to restaurants, a grocery store, and a large park. This facility's antennas will be concealed within shrouds that are designed and painted to match architectural elements of the building on which they will be installed. Therefore, this solution will result in far less visual impact than that traditional, macro cellular facilities using several antennas that are visible from farther distances within the areas they serve.

Sec. 10-3-196. - Wireless telecommunications facilities within residential districts and the MX-U, Mixed Use Planned Community District:

The requirements within this section apply to all wireless telecommunications facilities, except facilities as specified in section 10-3-195, as identified in all residential districts and the MX-U district.

- (1) Uses permitted by right.
 - a. There are no wireless telecommunications facilities allowed by-right within any residential district or the MX-U district.

A Special Use Permit application is being submitted as part of the request for this proposed installation. Verizon will address the SUP requirements for concealed facilities below.

- (2) Uses permitted only by special use permit.
 - a. Concealed wireless telecommunications facilities.
 - i. The height of such facilities may exceed the maximum height regulation of the district in which it is located but shall be limited to the height specified in the

special use permit application or as may be more strictly conditioned and approved by city council.

The Stealth box enclosures that are proposed as concealment elements for Verizon's three antennas are being proposed with a top height of approximately 69 feet. This will match the height of the highest parapet wall, while also allowing the enclosed antennas to clear the 65.3' portions of the lower parapet wall.

- ii. Minimum setback regulations shall be controlled by the district in which it is located or as may be more strictly conditioned and approved by city council.

Setbacks should not be a concern with this application, because the top height of Verizon's installation will match the tallest part of the building as it currently exists.

- iii. Equipment cabinets and related structures or equipment shall be screened or camouflaged and if not collocated shall meet the requirements for accessory buildings per section 10-3-114 or as may be more strictly conditioned and approved by city council.

Verizon's radio transmitting cabinet, remote radio heads and other supporting base station equipment will be installed on the same platforms as the antennas, with a top height of 4'-9". This will place the base station equipment at just 3" above the lower parapet wall, but views of those items will still be screened from surrounding properties and roads due to the angles at which the building's rooftop and the parapet walls are viewed from the ground level.

- iv. Unless otherwise required, or as part of the intent of the facility, artificial lighting is prohibited.

There is no lighting proposed as part of this request.

- v. No advertising of any type may be placed on the facility.

The proposed facility will not be used in any for the for advertising.

Sec. 10-3-125. - Review standards; special use permits:

- (a) A special use permit shall only be approved if the proposed use is permitted as a special use in the applicable zoning district.

Section 10-3-55.4(8) of the City of Harrisonburg's Zoning Ordinance states that concealed wireless telecommunications facilities are only permitted in the R-5 District with the issuance of a special use permit.

- (b) All applications for special use permit shall be reviewed using the following criteria:

- (1) The proposed use shall be consistent with good zoning practice and will have no more adverse effect on the health, safety or comfort of persons living or working in the area and will be no more injurious, economically or otherwise, to property or improvements in the surrounding area than would any use generally permitted in the district.

The proposed antennas will be screened within concealment elements are designed and colored to closely match the heights, existing materials and colors of the building and its parapet walls that extend above the roof's base. This will mitigate any visual impacts that might otherwise be experienced from the installation of a facility that was not concealed within an architecturally compatible enclosure. Additionally, the provision of more reliable wireless

and broadband services supports citizens and businesses greater access to a wide range of educational, recreational, economic tools and public service information that are important to achieving various goals that promote health, safety comfort and general welfare of residents, businesses and visitors to the area.

- (2) The proposed use shall be adequately served by essential public services such as streets, drainage facilities, fire protection, and public water and sewer facilities.

Verizon's proposed small cell node facility will be unmanned, so there will be no increased needs for public services to result from its deployment. At the same time this facility is necessary for the purpose of improving the quality and accessibility of data services for customers in the immediate area, while also offloading the strains on network capacity for the use of customers being served by other existing and proposed facilities throughout the city.

- (3) The proposed use shall be designated, sited, and landscaped so that the use will not hinder or discourage the appropriate development or use of adjacent properties and surrounding neighborhoods.

The proposed wireless facility with its concealed antennas will be installed on the rooftop and within the footprint of an existing building. The building's parapet walls also provide adequate screening for the base station cabinet and other supporting equipment, while the antenna concealment elements will be designed to match existing features of the building.

Conclusions:

A Special Use Permit is being requested to allow the addition of three concealed antennas and supporting equipment that will also be screened from neighboring streets and properties. This facility is needed to improve data capacity and wireless coverage for customers and businesses this densely developed and populated area of the City of Harrisonburg. The installation of small cell node facilities for the use and enjoyment of residents and visitors will contribute to quality of life enhancements by providing an increased availability of high speed, high quality wireless network services. Verizon is confident that the proposed facility should be deemed as acceptable under the guidelines for Wireless Telecommunications Facilities in the residential districts. This is because small cell nodes, such as the one proposed in this application, are already smaller and less visually obtrusive than those used for many other types of utilities. So, the fact that this application proposes the concealment of these antennas and their appurtenances should be further supported as favorable factors in reviewing Verizon's proposal.

Please contact me if you should have any comments, questions or needs for additional information.

Sincerely,



Stephen Waller, AICP

GDNsites

Site Development Consultants to Verizon



SITE LOCATION

PHOTO 1

253

Port Republic Rd



HARRISONBURG - N004

865 Port Republic Road
Harrisonburg, VA 22801
(Page 1 of 3)



Dewberry®

Actual View



HARRISONBURG - N004

Photo 1A

View Facing West
From Port Republic Road
(Page 2 of 3)



4805 Lake Brook Drive, Suite 200
Glen Allen, VA 23060
Phone: 804.290.7957
Fax: 804.290.7928
www.dewberry.com

Proposed View

Proposed Antenna Mounted To
Non-Penetrating Sled Mount



HARRISONBURG - N004

Photo 1B
View Facing West
From Port Republic Road
(Page 3 of 3)

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SITE LOCATION

PHOTO 1

253

Port Republic Rd


verizonwireless

HARRISONBURG - N001

865 Port Republic Road
Harrisonburg, VA 22801
(Page 1 of 3)



Dewberry®

Actual View



HARRISONBURG - N001

Photo 1A
View Facing South
From Devon Lane
(Page 2 of 3)

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Proposed View

Proposed Antenna Mounted To
Non-Penetrating Sled Mount



HARRISONBURG - N001

Photo 1B
View Facing South
From Devon Lane
(Page 3 of 3)

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PHOTO 1

SITE LOCATION

253

Port Republic Rd

Devon Ln



HARRISONBURG - N005
865 Port Republic Road
Harrisonburg, VA 22801
(Page 1 of 3)

Simulation Based On Rev-A Lease Exhibit Drawings Dated: 07/01/15



Actual View



HARRISONBURG - N005

Photo 1A

View Facing Southwest
From Port Republic Road
(Page 2 of 3)


verizonwireless

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Proposed View

Proposed Antenna Mounted To
Non-Penetrating Sled Mount



HARRISONBURG - N005

Photo 1B

View Facing Southwest
From Port Republic Road
(Page 3 of 3)

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4805 Lake Brook Drive, Suite 200
Glen Allen, VA 23060
Phone: 804.290.7957
Fax: 804.290.7928
www.dewberry.com

From: Dubiel, Jeff [<mailto:Jeff.Dubiel@VerizonWireless.com>]
Sent: Friday, October 28, 2016 10:05 AM
To: Jim Junkins
Subject: RE: Verizon Wireless - Small Cell Projects

Jim,

I am sorry it has taken so long. We got caught up in some internal processes, however, we have installed the temporary antennas. They went up yesterday. I thought we were just meeting on site to discuss what we were going to be doing, but the contractor was prepared to go. The plan is to leave the dummy antennas up until the 1st of the year unless you advise us otherwise. Please let me know if you have any questions. Thank you!

Jeff Dubiel

NETWORK BUILDING + CONSULTING
4435 Waterfront Drive | Suite 100 | Glen Allen, VA | 23060
P 804 548 4079 x5106 | M 804 218 5477 | networkbuilding.com

<image003.png>

From: Jim Junkins [<mailto:JJJunkins@HRECC.org>]
Sent: Wednesday, August 24, 2016 4:15 PM
To: Dubiel, Jeff
Subject: [E] Re: Verizon Wireless - Small Cell Projects

Good to go with test antenna. We have preliminary data. Let me know when it is up and we will do another path test.

Jim

On Aug 24, 2016, at 15:29, Dubiel, Jeff <Jeff.Dubiel@VerizonWireless.com> wrote:

Jim,

Due to some unfortunate circumstances, we have not been able to proceed with our build out of small cells in the Harrisonburg market. That being said, we are now able to move forward. During our meeting in December, you had expressed a concern with a possible interference issue that might exist with your microwave hop from Downtown to Stone Springs. The agreed upon decision at that time, was for Verizon Wireless to place dummy antennas on the rooftop of the building located at 865 Port Republic Road, to test for any interference. If this is something you are still wanting to move forward with, please let me know and we will get this project moving and we will coordinate with you with the testing. Please let me know if you have any questions. Thank you for your time and we look forward to working with you.

Jeff Dubiel

NETWORK BUILDING + CONSULTING
4435 Waterfront Drive | Suite 100 | Glen Allen, VA | 23060
P 804 548 4079 x5106 | M 804 218 5477 | networkbuilding.com

<image003.png>

Alison Banks

From: Jim Junkins [JLJunkins@HRECC.org]
Sent: Wednesday, March 08, 2017 6:43 PM
To: Adam Fletcher
Cc: Dave Gray; Alison Banks; Jim Junkins; Eric Hottinger
Subject: Re: 865 Port Republic Road

All:

In general, licensed radio frequencies are protected under FCC Rule (CFR Chapter 47 Part 90). We cannot specifically limit (absolutely or through undue time delays) the build out of other licensees "just because". Dave has a very valid concern but we must be specific and not just mention generals.

For example, an intermodulation analysis may be required if a licensee is concerned that specific frequencies proposed by the applicant may be harmful to an incumbent licensee's specific frequencies. Further, this analysis is only valid for equipment co-located or very near; defined as 100-200 meters. I cannot in good faith or technical grounds require an intermodulation analysis be performed by the applicant at 865 Port Rd with our StoneSpring public safety site. There could, however, be impact to other City systems (SCADA or Public Works stoplights) if in close proximity to the applicant site.

The kicker to all of this is "incumbent licensee". HRECC has frequencies licensed by the FCC for our exclusive use. The question is if Public Utilities SCADA and public Works wireless traffic control systems are licensed. My recollection is these systems use non-licensed "wi-fi" frequencies. If there is no FCC license, there is no protection whatsoever from the FCC regardless of how critical the system is. Dave...can you confirm if you have licenses for the SCADA system?

There is another matter pertinent to the HRECC with this specific application. I originally expressed concern about the potential interference to one of our highly directional microwave hops (think an invisible laser beam) between StoneSpring site and the ECC roof top. There is no physical interference meaning actual path blocking the "beam". Our path is about 600' to the west and 120' above the top of the 865 building. There still is the potential for what is called Fresnel zone interference. Think of this as a flashlight beam versus a laser.

(https://en.m.wikipedia.org/wiki/Fresnel_zone). Over the period of two months we performed coordinated tests with Verizon Wireless to see if their proposed worst case antenna could impact the 1st or 2nd Fresnel zones of our path. We tested for one month prior to them installing a test, non-operational antenna and then one month after installing.

There was no degradation to our microwave system. VZW has gone to great measures to make me feel confident that they pose no interference. Bottom line, I have no opposition to the applicant request.

Jim

On Mar 8, 2017, at 16:37, Adam Fletcher <Adamf@harrisonburgva.gov> wrote:

I believe the document that Dave is referring to is the Wireless Telecommunications Ordinance... yes, those regulations were approved and are now part of the Zoning Ordinance.

From: Dave Gray
Sent: Wednesday, March 08, 2017 4:34 PM
To: Alison Banks
Cc: Jim Junkins; Eric Hottinger; Adam Fletcher
Subject: Re: 865 Port Republic Road

Alison,

I don't think I'm technical enough to provide a concise and accurate answer to Mr. Waller's needs. I'll need to lean on the knowledge of those around us.

My comment is really just a recognition that Public Utilities operates a radio system that cannot be impeded by new commercial projects. I'm sure Jim Junkins has a similar concern with his systems. It was for this reason that several years ago the City gathered participants to draft a policy or guideline document for how we would address new radio frequency requests within the City. I don't recall whether this document was finished and published, and that's why I have copied Adam here.

In general the document stated what my comment states. HRECC and HPU operate on specific radio ranges that cannot be compromised by outside operations. I think we determined that interference was unlikely, but we wanted to be on record with our needs. Jim Junkins is most knowledgeable about how these things work and I'd need to rely on his expertise to be sure that the City's interests are protected here.

I can dig out our radio frequencies from our SCADA equipment manuals, but I think there are doubling and half frequencies that can also cause interference. Again, I'm no expert. I'll need some help from Jim here.

dave

From: Alison Banks
Sent: Tuesday, March 7, 2017 1:30 PM
To: Dave Gray
Subject: 865 Port Republic Road

Dave,

In October 2015 you reviewed a planning commission special use permit item for multiple antennas to be placed on top of 865 Port Republic Road (packet attached). Your review comment was "The City operates a wireless SCADA (Supervisory Control and Data Acquisition) system which monitors and controls the inventory of water storage tanks, pumps and control valves. The proposed system must operate in a range that will not interfere with this existing wireless communications network of the City's." This SUP was tabled by the applicant prior to going to planning commission and has been on hold since. The applicant is now ready to move forward with the request and has asked specific questions regarding the SCADA system (see below). Could you provide an answer for me to forward on to Mr. Waller, I have other information I am collecting as well and can combine everything into one email.

Thanks,

Alison

From: Stephen Waller [<mailto:stephen.waller@gdnsites.com>]
Sent: Wednesday, March 1, 2017 4:13 PM

To: 'Alison Banks' <Alisonb@harrisonburgva.gov>

Subject: RE: Verizon - Small Cell Node Project (865 Port Republic Road - Rooftop Installation)

Thanks Alison,

The larger list of comments was not included in the information that was handed over from me after Josie left so I am trying to locate the rest of Josie's files to see what else she might have started working toward addressing in addition to the HREC concerns. In the meantime, could you please get me some additional information regarding the city's SCADA system that is mentioned in Staff Comment #3. The most important information would be the frequencies at which the SCADA system operates.

Stephen

Stephen Waller, AICP

Planner / Site Development Consultant

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stephen.waller@gdnsites.com

Alison Banks

From: Jim Junkins [JLJunkins@HRECC.org]
Sent: Monday, March 13, 2017 9:57 PM
To: LBopst@aol.com
Cc: Dave Gray; Eric Hottinger; Jim Junkins; Alison Banks; lbopstiii@interfaceincorp.com
Subject: Re: SCADA Radio Frequencies

Lee

Yes, in that Public Utilities frequencies used are not licensed; ergo have no protection from interference.

Jim

On Mar 13, 2017, at 20:02, "LBopst@aol.com" <LBopst@aol.com> wrote:

Jim,

The Spread Spectrum series of radios, which operate at a power of 1 Watt or less, are all unlicensed. As far as I know, the only licensed radios in the 900 MHz range are the multiple address radios, which operate at 5 watts. It is my understanding that those frequencies are issued by the FCC, utilizing a separate transmit and receive pair. Additionally, they normally do not assign the same frequency pair inside a 90 mile radius, which is usually sufficient to prevent overlap or interference.

As an aside, I support and maintain another radio system which utilizes both of these types of radios in the same network. In a number of locations, I have both radios operating in the same enclosure, without interference. Please let me know if this answers your question, or if there is something else I should address.

Best Regards,

*L. Lee Bopst
Interface, Inc
752 Ardenwood Drive
Eldersburg, MD 21784
410-795-6795 (Office)
410-562-6204 (Cell)*

*In a message dated 3/13/2017 3:34:17 P.M. Eastern Daylight Time,
JLJunkins@HRECC.org writes:*

Lee,

Specifically, are these licensed frequencies? If so, can you provide the FCC call sign?

Jim

From: LBopst@aol.com [<mailto:LBopst@aol.com>]
Sent: Monday, March 13, 2017 3:21 PM
To: Dave.Gray@harrisonburgva.gov
Cc: Eric.Hottinger@harrisonburgva.gov; Jim.Junkins@harrisonburgva.gov;
Alisonb@harrisonburgva.gov; lbopstiii@interfaceincorp.com
Subject: Re: SCADA Radio Frequencies

Hi Dave,

We are using a GE Spread Spectrum radio identified as Transnet 900, data sheet attached. This radio operates in the 902 to 928 frequency band, same as cellular telephones. These units operate at a maximum of 1 watt, but typically are not transmitting at more than 1/2 of a watt. It utilizes a communications technique call Frequency Hopping. Basically the radio changes frequencies every 256 ms.

Please be more specific as to where you are entertaining the addition of other radios, as well as what type of radio and the operating frequency. Depending on what you are looking at, I may have to seek some addition help to completely address your question.

Best Regards,

*L. Lee Bopst
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752 Ardenwood Drive
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410-795-6795 (Office)
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*In a message dated 3/13/2017 2:19:58 P.M. Eastern Daylight Time,
Dave.Gray@harrisonburgva.gov writes:*

Lee,

The City is reviewing a new application for radio communications to be added on a building rooftop in Harrisonburg. I know we've had discussions before about protecting our SCADA signals from competing signals. What frequency do our SCADA radios operate at that we should try to protect them from interference? Should I also be concerned about the locations of these new signals from a perspective of "blocking" our signals?

I appreciate your input as I am not educated enough to know what to look for.

David H. Gray, PE

City of Harrisonburg, VA

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