

Verizon Wireless
Albemarle County's Wireless Policy on Co-locations

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Executive Summary

Since Albemarle County's Wireless Policy was developed a decade ago, demand for wireless services has increased dramatically. A growing number of citizens rely on more and varied services. Changing technology requirements have rendered the Wireless Policy outdated. It is impeding the wireless industry's efforts to provide services countywide and to install the infrastructure required for Fourth Generation (4G) service. To achieve widespread wireless coverage, including 4G services, the County must adjust its policies and review processes.

Public Needs and Expectations Have Changed

- The public now relies on mobile phones for all telecommunications needs.
- Citizens and local businesses require high-speed wireless broadband service for business, education, government, and entertainment.
- Over 70% of 911 calls are made from cell phones. Providing comprehensive wireless coverage and sufficient call capacity is essential for effective emergency services.

New 4G Technology Requires Carriers to Build Additional Facilities

- Carriers must deploy wireless networks based on multiple radio frequency bands to provide both cellular phone and wireless broadband services.
- Antennas transmitting signals with wavelengths close on the radio wave spectrum must be physically separated by antenna design -- across "full array" mounting brackets, vertically on taller monopoles, or on separate monopoles on a single property.

The County's Existing Wireless Policy and Ordinance Discourages Co-location

- The County restricts most new PWSFs to "tree top" type facilities which do not provide space for co-location of additional antennas.
- Where there are existing towers or monopoles, the County often requires Special Use Permits (SPs) for even simple requests to co-locate additional antennas on them.
- The SP process is generally a longer and less certain approval process than that required for constructing new "tree-top facilities."
- Requiring SPs for simple co-location requests often clashes with the Federal mandated "shot clock" requiring review of PWSFs in a timely manner (90 days for co-locations).

Recommendations

- Evaluate applications for SPs based on SP criteria (e.g. impact on neighboring parcels), not Tier II criteria, weighing relevant factors such as needed service and visual impact.
- Permit administrative co-locations on all existing PWSFs.
- Permit Planning Commission approval of replacements and extensions of existing Tier II PWSFs needed for co-locations.
- Consider alternate designs to flush-mount antennas for specific sites.

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I. Summary

Albemarle County's current Wireless Policy and Wireless Ordinance present challenges to wireless carriers serving Albemarle County, particularly as they seek to provide Fourth Generation ("4G") wireless service. The new 4G technology enables higher speed wireless broadband and other applications that current cellular services do not and will be in ever-increasing demand over the coming years. Providing 4G service in Albemarle County is a high priority for Verizon Wireless and could be accomplished rapidly once necessary County approvals are obtained.

Verizon Wireless' 4G network operates on a different radiofrequency from existing networks. Therefore, new antennas must be installed on existing wireless facilities, and new facilities must accommodate more technologies than facilities of the past. In order to facilitate provision of 4G service and improve cellular coverage for the community, Albemarle County, like many of the surrounding counties¹, should consider updating its Wireless Policy and Ordinance and, in the short term, adopt more flexible standards for approval of Personal Wireless Service Facilities ("PWSFs"). Specifically, such new standards should simplify co-location of PWSFs and make obtaining approvals for co-locations, extensions, and new PWSFs more predictable. In the meantime, Albemarle County should reassess how it evaluates special use permit requests for PWSFs, and take a more balanced approach when assessing potential visual impacts of proposed PWSFs against the benefits of improved service to the community.

II. Background

Wireless Policy

Albemarle County, Virginia adopted a "Personal Wireless Service Facilities Policy" in December of 2000 (the "Wireless Policy"). The policy was "intended to help the County, the public, and the wireless industry understand planning and zoning for personal wireless service facilities" and to promote "reasonable and feasible options to highly visible PWSFs." While the Policy has led to low visibility PWSF sites, it has also inhibited provision of coverage to rural areas of the County. Now, the existing Policy hinders 4G availability by making it difficult for carriers to extend existing facilities to add additional antennas. (See Attachment A – Carriers' Coverage Maps.)

¹ In the past few years, several neighboring counties have adopted amended wireless communications ordinances in recognition of the need to respond to changes in wireless technology and increased demand since their original wireless ordinances were adopted. Counties that have recently adopted or whose public bodies are actively considering draft wireless communications ordinance amendments include Louisa, Madison, Nelson, Fluvanna, Amherst, and Buckingham Counties. Bedford County's Planning Commission and Board are considering amending the County's 2002 Strategic Plan for Commercial Wireless Telecommunications Facilities.

Wireless Ordinance - "Tier" System

To implement the Policy, the County adopted PWSF regulations as part of its zoning ordinance (the "Wireless Ordinance").² These regulations established a "tiered" system which promotes less visible facilities by making it easier to approve such facilities than typical communications towers. The PWSF ordinance provides for three "tiers":

- "Tier I" concealed ("not visible") facilities which may be administratively approved;
- "Tier II" tree top ("low visibility") facilities which require planning commission approval; and
- "Tier III" facilities covering all other types of wireless communications facilities.

Tier III facilities require approval of a special-use permit ("SP") by the Board of Supervisors. The SP approval process typically takes longer and is much less certain than the process for approval of Tier II sites. *Since all facilities not falling within the narrow definitions of Tier I or Tier II facilities require an SP, even simple co-location requests must go through the most arduous review process regardless of their potential impacts on adjacent properties and County resources.*

III. Changes in Public Expectations and Wireless Technology

Public Needs and Expectations

The public demand for access to wireless services, including access to broadband technology, should be a significant consideration in the County's assessment of its Wireless Policy and Ordinance. In recent years, both individual citizens and local businesses have become highly reliant on wireless services. Thus, current public expectations contrast with those held at the time the Wireless Policy was originally adopted. At that time, mobile phone service was largely seen as a luxury. Now, many individuals no longer have a "land line" at home but rely exclusively on mobile phone service for all of their personal telecommunications needs, including emergency E911 access. Many small businesses rely on mobile phones and wireless broadband access to provide expected service to their customers and compete in today's market environment. Mobile phone and wireless broadband services are increasingly seen as necessary basic utilities, much like electrical and other utility services. The importance of wireless coverage is underscored by the FCC's estimate that 70% of all 911 calls are made from wireless phones.³

Addition of "Fourth Generation" ("4G") Service

Wireless data transmission has become increasingly important to businesses, schools, and government. Widespread demand for network services to send emails and texts, upload and download documents and e-books, stream video, and use the myriad of available internet applications requires much greater network capacity and speed than consumers needed or expected ten years ago. Currently, Verizon Wireless is beginning deployment of Long Term Evolution (or "LTE") 4G Service, which will provide data speeds estimated to be ten times faster than previously available technologies. LTE 4G will enable internet-based mobile broadband service for laptop computers, wireless modems, smartphones and other mobile devices, with enough data speed to accommodate streamed multi-media such as data streaming and video teleconferencing. This significant new change in technology requires additional physical facilities that were not anticipated at the time the Wireless Policy was adopted.

² See Albemarle County Zoning Ordinance Section 5.1.40 et. seq.

³ See <http://www.fcc.gov/guides/wireless-911-services>.

Following is a chart comparing the state of wireless technology and public expectations at the time the County’s Wireless Policy was adopted to the present:

	At time of Policy Adoption	Now
Technology	“Second generation (2G)” service	Going to “Fourth Generation (4G)” service.
Services Offered	<ul style="list-style-type: none"> • Voice 	<ul style="list-style-type: none"> • Voice • Text • High-speed data streaming • Broadband internet access
Carriers’ Goals	<ul style="list-style-type: none"> • Basic coverage along primary road corridors and densely populated areas 	<ul style="list-style-type: none"> • Universal “in-car” and “in-building” coverage • Increased capacity to handle demand for all services offered
Users’ expectations	<ul style="list-style-type: none"> • Convenience, additional phone to land line • Limited use for emergencies when traveling 	<ul style="list-style-type: none"> • Reliance for primary phone service • Text messaging • Access to internet (via broadband) with high data download/upload speeds • Substantially increased reliance for use in emergencies

4G Service Technical Needs

With the advent of 4G service, carriers need to deploy wireless networks based on multiple radio frequency bands. For example, LTE 4G service uses a radio frequency band (700 MHz) that requires additional antennas which must be physically separated from antennas used for other technologies because they are close enough on the radio wave spectrum to interfere with each other’s signals. In order to avoid interference, antennas for LTE must be either: (1) horizontally separated along a spread “full array” mounting frame; (2) vertically separated on a monopole or tower; or (3) placed on different towers separated by a certain minimum distance. *Ideally, carriers would simply add an additional antenna set on the structure at each existing PWSF site to provide 4G service rather than constructing entirely new wireless facilities to accommodate the additional technology.*

IV. Existing Policy, Ordinance and Practice Inhibits Implementation of New 4G Service

Verizon Wireless and other carriers face considerable challenges in implementing new LTE and other 4G service in Albemarle County. Traditionally, Albemarle has favored construction of “tree top” monopoles permitted under Tier II. The height of these monopoles is restricted to just 7 feet above an adjacent reference tree. If a carrier provides additional justification, it may achieve an antenna height up to 10 feet above the reference tree – the maximum height presently permitted under Tier II. Tier II monopoles are also limited to accommodating only flush-mounted antennas (which do not extend beyond 12” from the surface of the monopole).

Because of these severe restrictions on pole height and type of antenna array, co-location of new LTE 4G facilities on existing monopoles cannot be accomplished without a Tier III approval involving an SP.

Wireless carriers' experience over the past several years shows that such Tier III SP applications will be met with intense scrutiny and often result in a drawn out, unpredictable process. The difficulties in this approval process will unnecessarily delay delivery of 4G service to the Albemarle County community.

V. County's Existing Policy and Practice Discourages Co-locations

Wireless Policy is Inconsistent

The County's Wireless Policy and practices have resulted in conflicting attitudes towards co-location of new PWSFs on existing towers and poles. First, the Policy states "[t]he County supports co-location of personal wireless facilities provided it has no or negligible adverse visual impact" (see Policy page 7). Yet the Policy also states "[f]rom a visibility perspective, co-location should be discouraged" (see Policy page 21). The ambivalence toward co-location inherent in the County's Policy is reflected in both the Wireless Ordinance and County staff's approach to reviewing co-location applications.

Wireless Ordinance and Staff's Approach Disfavors Co-locations

The Wireless Ordinance makes co-location of even the most innocuous PWSFs difficult by requiring an SP for almost all co-locations on existing towers or monopoles. By requiring an SP, the County forces carriers to engage in an application process that is longer and less certain as to approval for even the most simple co-location proposal. This also leads to situations where the County may violate the 90-day timeframe for review of co-location applications (also known as the "Shot Clock") set by the Federal Communications Commission (FCC). A recent SP application to make minor changes to co-located antennas on the existing tower at Rio Road took eight months to secure approval. (See Attachment B – FCC News Release on Timeframes for Processing Wireless Applications.)

Recently Approved Co-location Indicates Need to Focus on Visual Impact, Not Visibility

Staff has also consistently interpreted the Wireless Policy to disfavor co-location applications. Staff often judges any PWSF application that requires an SP by the mere visibility of the proposed facility. As an example, staff recently recommended denial of several very minor changes to the antenna configuration on the existing tower at Rio Road simply because one replacement microwave dish would be relocated higher on the existing tower, even though the overall size of all new antenna equipment was reduced. Staff focused on the change in visibility of the antennas rather than actual visual impact on adjacent properties. Visual impact on adjacent properties and resources should be the focus of any SP application analysis as provided for under the County's SUP review criteria, not simply whether proposed antennas or facilities are visible or not. (See Attachment C - Zoning Ordinance Section 36.6.1). Increased visibility or an increased number of antennas does not necessarily mean there will be a greater visual impact on adjacent properties and resources.

Focus on Visibility Rather Than Visual Impact Adds Uncertainty to Approval Process

The effect of requiring an SP for co-located PWSFs and then having staff focus on the fact of visibility rather than the impact of visibility, makes securing approval of co-locations unduly difficult and uncertain. In Verizon Wireless' experience, Albemarle County is the only locality in the state that has policies and practices that actively discourage co-location of new PWSFs on existing towers and monopoles. Most jurisdictions require only site plan and building permit approval to add antennas to existing PWSFs, encouraging the use of existing PWSFs, buildings, and electric towers.

VI. Co-location on Existing Tier II Sites

County Discourages Vertical Co-location on Tier II "Tree Top" Monopoles

Presently, Tier II sites only permit monopoles with a height of 7 to 10 feet above the height of a reference tree with the County Planning Commission's approval. This limited height, coupled with a requirement for antennas to be flush mounted (no greater than 12" from the monopole itself), prevents co-location on such tree top facilities unless an SP is obtained to add additional height to an existing monopole. Staff has generally indicated that adding additional height to existing monopoles is disfavored, leading carriers to avoid fruitless SP applications to do so.

Horizontal Co-location at Tier II PWSF Sites Provides Only Limited Solution

Because carriers have been discouraged from seeking additional height for existing monopoles, they have sought to construct additional tree top monopoles at existing PWSF sites. These horizontal co-locations have proven effective in providing coverage to key areas of the County, including sites at Newtown (near Afton) and along Dry Bridge Road. However, even such horizontal co-location is restricted because only three monopoles may be built on a single site unless an SP is obtained for any additional monopoles. Due to this restriction, and the physical limitations of some existing sites, horizontal co-location is a limited solution for providing LTE 4G service. It should also be noted that horizontal co-location may not always be desirable because constructing a second monopole often results in greater environmental impacts (due to increased grading, clearing and tree removal) than would be necessary to simply add additional height to an already existing monopole.

County's Practices Delay Improvements to Service by Requiring Less Efficient Solutions

Since carriers must budget fiscal resources for the construction of new PWSFs, any time the County's Policy is used to force an inefficient use of such resources, it delays the addition of more PWSFs within the community and thus delays the delivery of much needed wireless services. Co-location on existing towers and monopoles is the most efficient approach and should, as in almost all other localities, be favored over requiring the construction of multiple additional PWSFs.

Recently Approved Site Illustrates Problems with Co-location on Tier II Sites

Verizon recently received Planning Commission approval of a Tier II site known as "Cedar Bluff," located on Panorama Farm off Earlysville Road. This site illustrates how meeting the Tier II criteria can impose greater environmental impacts and costs than a single monopole with no greater visual impact. Verizon filed a Tier II application for this new site in order to secure an approval that would be more certain and expeditious than an SP application. To stay within the Tier II guidelines, the site was designed with two separate towers placed 65 feet apart. The two towers require such spacing due to the potential for interference between the radio frequencies broadcast from each tower (one for LTE 4G and one for cellular services). (See Attachment D – Elevation and Plan of Cedar Bluff Site). To construct two monopoles, more trees will need to be removed and a greater area will need to be cleared and graded. However, the balloon test conducted for this site, which was conducted by Verizon staff with County planning staff in attendance, demonstrated that constructing one monopole with additional height would not have any greater visual impact on adjacent properties or resources.

VII. Recommended Actions to Promote 4G Service and Improved Coverage

County Should Encourage Co-locations

Albemarle County, in order to allow carriers to improve existing service, to promote a more timely deployment of effective 4G services to the community, and to deter proliferation of PWSFs should encourage co-locations. The County can promote co-location by streamlining the permitting process in two ways. First, the County should permit carriers to add new antennas to existing monopoles by administrative approval, rather than requiring an SP for every co-location. Second, the County should streamline the process for extending existing monopoles in order to add additional carriers or technologies.

County Should Not Require SPs for Extensions to Tier II Monopoles

The Wireless Ordinance could be amended to permit administrative or Planning Commission approval of extensions to existing Tier II "tree top" monopoles if the applicant demonstrates that there is no significant additional visual impact. The present requirement for an SP to add an extension of any height to an existing monopole creates a longer, more uncertain process for carriers than is needed to reasonably evaluate such a simple co-location request.

County Should Follow SP Criteria for Tier III Sites Focusing on Visual Impact Not Visibility

The County should strictly follow the SP criteria set out in the zoning ordinance when reviewing Tier III PWSF SP applications, and not inappropriately compare such applications against the criteria for Tiers I and II PWSFs. Such comparisons have inhibited any form of flexibility or creativity intended to be fostered through Tier III. Staff should be directed to focus on all SP criteria, including potential visual impacts on adjacent properties and County resources, rather than merely judging the visibility of proposed co-location facilities.

VIII. Conclusion

Albemarle's Wireless Policy was adopted over a decade ago. Since that time, technological improvements have moved at lightning speed, while consumer demand for more and faster wireless services grows daily. Wireless carriers like Verizon Wireless are ready to deploy new technology to significantly improve and expand existing services. However, such work cannot be done within the constraints of the Wireless Ordinance as currently implemented. Albemarle County must act quickly to update its review standards and processes under the Wireless Ordinance and, ultimately, to revise its Wireless Ordinance and Wireless Policy or its citizens will be left behind in the ever-advancing wireless world. Existing PWSF sites should be viewed as a valuable resource, and extensions of existing monopoles and co-location of antennas on such facilities to improve existing coverage should be encouraged through County policies and procedures. Simplifying the review process for co-locations would encourage them and would save County Supervisors' and staff's time, as well as County resources. Further, promoting co-location on existing PWSFs and simplifying the review process will accelerate deployment of 4G service to the Albemarle community, thus greatly benefiting County citizens, businesses, schools, and government.