

## TELECOMMUNICATIONS

### Intent

The intent of the Telecommunications Plan is to ensure the adequate provision of telecommunications infrastructure in the County that will support economic growth and public safety, and provide other essential communications services for the County in a manner that is compatible with adjacent and nearby land uses.

The Telecommunications Plan primarily focuses on establishing and implementing policies and strategies for mobile and land-based telecommunications equipment and facilities providing communications for personal mobile telephones, radios for commercial dispatching, wireless internet services, satellite communications, paging services, and public safety uses. In addition, the plan encourages the creation of various types of modern telecommunications infrastructure to serve County residents and businesses.

The Telecommunications Plan provides a framework for evaluating telecommunications proposals under the County's development review process, including special use permits and public facility reviews, pursuant to Virginia Code Section 15.2-2232.

Mobile and land-based personal service-type telecommunications facilities are characterized by relatively low-power transmitters that are not known to cause environmental or health hazards, nor cause interference with other transmissions when operated in accordance with federal regulations. The principal features of these facilities are: whip, panel, and parabolic (dish) antennas mounted on monopoles, towers or other structures. These facilities typically include unmanned equipment buildings. Telecommunications monopole or tower sites may be as small as a 50 by 50-foot area of land located on public property or on land leased by a telecommunications company or public agency from a private property owner. These sites may contain a single telecommunications monopole or tower or a group of such structures – generally ranging in height from 50 feet to 250 feet – but may be taller in some instances.

The County government's public safety telecommunications operations are generally planned for 40,000-square foot sites, measuring 200 by 200 feet. Each site will contain at least one telecommunications tower ranging in height from 120 feet to 300 feet, an equipment building, an emergency power generator, and a propane gas tank. Additional towers and associated equipment – that can be accommodated within the 40,000 square foot area – may be added by the County or by private telecommunications services over time.

A telecommunications site may accommodate several users simultaneously. While the top of a structure may be the optimum location for antennas, they can be attached along the sides of a structure down to the point where surrounding terrain or buildings obstruct the transmission of signals. The height and design of a structure that supports antennas are the prime determinants of a site's capacity for antennas. Available area for equipment buildings – normally located at the base of a monopole or tower – may also be a factor in determining a site's capacity to handle additional facilities. Notwithstanding the above, less prevalent facilities – such as broadcast stations, cable TV providers, point-to-point microwave, relay and switching buildings, satellite

earth stations, and radar facilities – are also intended to be included in the County’s telecommunications policies and are to be reviewed by the County pursuant to 15.2-2232 of the Virginia Code to the extent permitted by law.

The Telecommunications Plan – presented herein – recognizes the need to minimize the number of monopole and tower sites, while acknowledging the need for effective telecommunications operations to meet the County’s economic development goals. Demand for personal and public safety wireless telecommunications is increasing in the County, while appropriate locations for such facilities are becoming increasingly more difficult to find. Hence, the sharing of facilities is desirable and beneficial – to minimize the proliferation of monopoles and towers in the County, to promote the efficient use of land, to minimize incompatibility between land uses, to minimize interference with the County’s public safety telecommunications system, and to ensure coordination of the various systems.

The components of the Telecommunications Plan are:

- Intent Goals, Policies, and Action Strategies
- Existing and Potential Wireless Communications Sites Map (Figure 1)
- Existing and Potential County and/or Private Telecommunications Facilities

**GOAL 1:** To identify sufficient telecommunications facility locations so as to ensure a broad range of communications services, while promoting the sharing of facilities and the efficient use of land, minimizing the proliferation of monopoles and towers in the County, and assuring compatibility with adjacent and nearby land uses.

**GOAL 2:** To encourage the development of modern communications infrastructure in the County and the compatible integration of such technologies into new and existing commercial and residential communities, to promote economic development and improve public safety.

**GOAL 3:** To comply with the spirit and intent of the federal Telecommunications Act of 1996 and the rules and regulations of the Federal Communications Commission, so as to encourage competition between existing and new communications services and to promote a broad range of low-cost communications capabilities for County residents and businesses.

**GOAL 4:** To achieve limited visibility of telecommunications infrastructure in residential areas, historically significant areas, and protected conservation areas. This goal can also be achieved through the encouragement of “stealth” technology solutions.

**TELE-POLICY 1:** Plan for appropriate communications capabilities throughout the County. Locate such facilities so as to provide the broadest possible access to advanced communications services and to minimize the number of monopoles and towers needed to support such facilities.

**ACTION STRATEGIES:**

1. Encourage the placement of antennas on existing structures – including, but not limited to, water tanks, existing towers, utility poles, power line towers, athletic field light poles, building rooftops, and other tall structures – on both public and private properties. Consider such antennas and associated equipment that comply with the location, height, and other requirements of the Zoning Ordinance to be consistent with the Comprehensive Plan.
2. Encourage antennas to be placed on existing utility poles, camera standards, and sign structures and such structures that may be enlarged to accommodate antennas in public rights-of-way and on public properties. Consider such locations to be consistent with the Comprehensive Plan, if allowed by the approving authority.
3. At the time of a development application review for a building or buildings over 60 feet in height, seek or apply conditions to allow antennas on the roofs of buildings and provide space within the buildings or building lots for the associated telecommunications equipment.
4. Encourage shared-use (collocation) of new telecommunications facilities through the following means:
  - For structures over 150 feet, require all new monopole or tower proposals to include letters of intent to lease available space on a new facility to other wireless providers.
  - Require commitments for sharing of new monopole or tower sites as a condition of a special use permit.
  - Require the submission of a technical and operational analysis – including wireless coverage area maps – and statement(s) of why existing monopoles or towers, buildings, other suitable structures, or public properties within two miles of the proposed tower in the Rural Area and one mile in the Development Area cannot be used for new telecommunications facilities.
5. Maintain an inventory of all existing and proposed telecommunications facilities and their locations in the County, including all available tall structures – such as water tanks – that can be used for telecommunications antennas. Use this information to plan new telecommunications infrastructure that will serve the residents and businesses in the County.
6. Develop and maintain a map of wireless phone companies' coverage areas.
7. Ensure that new antennas and structures do not block or otherwise interfere with the pathways of the County government's or private microwave links. If new antennas and structures must be located within these pathways, ensure that the microwave signals are not degraded.
8. To prevent a potential monopole or tower over 150 feet from being underutilized, require entities that build monopoles and towers for the purpose of leasing antenna space, to have

at least one wireless service provider installed on the structure within 12 months of the granting of a special use permit.

9. Explore ways of expanding high speed internet and fiber optic access to public buildings, businesses, and residences throughout the County.

**TELE-POLICY 2:** Locate new telecommunications facilities in a manner that ensures compatibility with adjacent and nearby uses and in conformance with Federal, State, and County requirements and procedures for review and approval of such facilities.

**ACTION STRATEGIES:**

1. Use the following hierarchy/order of preference criteria when considering locations for potential new telecommunications facilities – including antennas, satellite dish structures, monopoles, and towers in the County:

Priority/ Order of Preference	Type of Activity	Location	Setback from Residential Structures
1	Collocate antennas on existing structures, towers, or planned towers	Countywide	N/A
2	Replacement or enlargement of a monopole or tower if it is taller than existing and less than 199'	Countywide	2 to 1
3	Structure over 50'	Public facility sites	2 to 1
4	Structure up to 199'	Areas planned and/or zoned industrial	2 to 1
5	Structure over 199'	Areas planned and/or zoned industrial	2 to 1
6	Structure up to 199'	Utility rights-of-way in nonresidential areas	2 to 1
7	Structure up to 199'	Areas planned and/or zoned for employment and commercial	2 to 1
8	Structure over 199'	Areas planned and/or zoned for employment or commercial	2 to 1
9	Structure over 50'	Areas planned and/or zoned for residential but not used for residential	2 to 1
10	Structure over 50'	Areas zoned residential and used for residential	2 to 1

2. In addition to the ranking criteria above, also use the Existing and Potential Wireless Communications Site Map as a general guide for siting new antenna locations.

3. Use the following tiered approach of permitting new facilities, including satellite dish structures, monopoles, and towers:

Structure Height	Ownership/Circumstance	Method of Permitting
0 to 50 feet	Private structure on private land Private structure on public land Public structure on private land Public structure on public land	Public facilities consistency determination by the Planning Director (administrative Public Facilities Review)
50 feet and greater	Public or private antenna installations on an existing structure on public or private land	Public facilities consistency determination by the Planning Director
50 to 199 feet	Private structure on public land	Public facilities consistency determination by the Planning Director or public hearing by the Planning Commission. If the proposed facility does not meet the performance standards of the Zoning Ordinance, a special use permit would be required.
50 to 199 feet	Private structure on private land in the B, O, and M districts	Public facilities consistency determination by the Planning Director. If the proposed facility does not meet the performance standards of the Zoning Ordinance, a special use permit would be required.
50 to 199 feet	Private structure on private land in A and R districts	Special Use Permit
50 to 199 feet	Public structure on public or private land in all districts	Public facilities consistency determination by the Planning Director or public hearing by the Planning Commission.
Greater than 200 feet	Private structure on public land	Public facilities consistency determination by the Planning Director or public hearing by the Planning Commission. If the proposed facility does not meet the performance standards of the Zoning Ordinance, a special use permit would be required.
Greater than 200 feet	Private structure on private land	Special Use Permit
Greater than 200 feet	Public structure on public land	Public facilities review public hearing by the Planning Commission.
Greater than 200 feet	Public structure on private land	Public facilities review public hearing by the Planning Commission.

4. Encourage telecommunications monopoles or towers – particularly lattice-frame telecommunications towers in areas planned or zoned for nonresidential uses, especially industrial areas – when such facilities comply with the requirements of the Zoning Ordinance. Discourage monopoles in industrial areas to ensure that adequate capacity exists on each new tower for several telecommunications providers. If a telecommunications tower is proposed in a residential area, encourage the use of monopoles, utility poles or other similar structures less than 100 feet tall.
5. Prohibit monopoles or towers in historic districts, and ensure that telecommunications structures do not unduly impact important views from the Manassas National Battlefield Park, Prince William Forest Park, Bristoe Station Battlefield, County Registered Historic

Sites (CRHS) sites, or views along County gateways and gateway corridors, as suggested by the Economic Development Chapter and the Strategic Plan. Require substantial setbacks from historically significant areas – as determined on a case-by-case basis – and focus on visibility as the primary determinant of appropriateness.

6. Measure setbacks of new telecommunications monopoles or towers (not including replacement towers) from the ultimate rights-of-way reflected in the Thoroughfare Plan. Encourage a one-to-one setback (one foot for every foot of structure height) of monopoles or towers from parkways and a 200-foot setback for other streets.
7. Encourage a two-to-one setback (two feet for every foot of structure height) of telecommunications monopoles and towers from adjoining properties that are zoned agricultural or residential. Focus on visibility as the primary determinant of appropriateness in residential areas. Ensure that ground-based equipment in residential areas is limited in size and designed in keeping with the character of the area. Also, ensure that antennas are mounted close to the supporting structure and designed to minimize visibility.
8. At a minimum, utilize the standards of the Zoning Ordinance to mitigate the visual impact of new telecommunications monopoles or towers and associated equipment – including equipment buildings or permanent buildings that may adversely impact adjacent and nearby developments. This includes adherence to the 15-foot wide buffer requirements around the perimeter of public facilities – unless a greater buffer width is required as part of a special use permit or for other reasons. Allow reductions or elimination of buffers in specific circumstances only where the buffer is not practical or appropriate or can be achieved by alternative compliance. Allow alternatives to the street and dwelling setbacks, cited above, for privately-owned telecommunications monopoles and towers as allowed by the Zoning Ordinance through the special use permit process, and with regards to the unique constraints and demands of the County's public safety radio system. In considering a proposed site for a monopole or tower, mitigating measures – such as mature vegetation, topography, line of sight studies, and sighting facilities behind existing buildings – should be factored in making determinations of consistency with this Chapter. In considering the proposed site of ground-mounted satellite dish antennas, the nature of the surrounding area, the size of the dish or dishes, and number of proposed dishes should be factored in making determinations of consistency with this chapter.

Also consider and encourage the following mitigating measures for new monopoles and towers, and for satellite dishes (only to the extent that state and federal laws are not applicable):

- Selecting the lowest height feasible, taking into account the potential for more than one user.
- Using shields on any required lights.
- When lighting is required, using constant burn red lights or limiting hours of flashing strobe lights to the extent permitted by Federal Aviation Administration standards.

- Siting facilities on large parcels of land – such as regional parks, or private lands that provide substantial setback from residential areas.
  - Siting facilities in wooded areas.
  - Siting facilities at the lowest possible point along ridge lines.
  - Landscaping appropriately around the perimeter of the facility.
  - Minimizing the size and extent of appurtenant facilities – such as antennas, dishes, and equipment buildings.
  - Using public properties highly-ranked as potential telecommunications facilities sites as depicted on the fold-out map that is part of this chapter.
  - Minimizing visibility in residential areas or areas of historical significance.
  - Using “stealth” technology solutions for masking views of antennas.
  - Using muted earth-tone colors or colors that match the background setting.
  - Permitting expedited review of telecommunications applications that will provide facilities with all or a substantial majority of these mitigating measures.
9. Allow for expansions of existing telecommunications facilities to the extent that the expansion is adequately justified through radio frequency propagation (wireless service coverage area) maps and other means, and to the extent that the expansion does not unduly impact nearby residential and historically significant areas.
10. Require, as part of a special use permit, that the top-most position of a monopole or tower be occupied with antennas to ensure that the ultimate structure height is justified.
11. Recognize that – because of the County’s need for a harmonious community and the need to have telecommunications facilities that are compatible with surrounding areas – optimal coverage may not be feasible for every wireless service at every location in the County.

**TELE-POLICY 3:** Locate telecommunications facilities to minimize interference among various service providers and to protect the health, safety, welfare and convenience of the County’s citizens.

#### **ACTION STRATEGIES:**

1. Discourage new telecommunications monopoles, towers, or other tall structures from being located in the transmission pathways of the County government’s telecommunications network. Ensure that a proposal for any structure over 60 feet in height is reviewed by the County’s telecommunications engineers. In addition – and to the extent permitted by law – allow for all new monopole, towers, and antenna proposals to be reviewed by the County’s telecommunications engineers, to ensure that the County’s public safety radio network does not experience interference, in accordance with the industry “*Best Practices Guide*”. Require a monopole or tower proposal to provide the relevant engineering data that indicates it is in compliance with federal standards – including latitude, longitude, datum reference, ground elevation, antenna heights above ground, transmitting frequencies, effective radiated power, and direction of radiation.

2. Ensure that radio frequency exposure to the public from antennas – individually and cumulatively – will be maintained in accordance with Federal standards and the standards of the Institute of Electrical and Electronic Engineers, Inc. (IEEE).
3. Require the timely removal of telecommunications towers and equipment when they are no longer needed as a condition of special use permit.
4. Develop and implement a modern, wireless telecommunications system to enhance the County public safety agencies' ability to improve the protection of the health, safety, and welfare of citizens.
5. Ensure that proposals for large, heavy-density or below-ground buildings be reviewed by the County's telecommunications engineers, to determine if such building will block effective two-way public safety radio communications to and from the building and to require mitigation of any deficiencies.

**TELE-POLICY 4:** Allow telecommunications facilities on public property. Promote public/private partnerships for building the County's telecommunications infrastructure. Encourage sharing of telecommunications facilities among public and private entities.

#### **ACTION STRATEGIES:**

1. Establish telecommunications facilities on public properties and public safety facilities when the following parameters can be met:
  - The use and character of public properties and adjacent properties is not adversely impacted.
  - The proposed telecommunications facilities are consistent with other elements of the Comprehensive Plan and the Zoning Ordinance.
  - Appropriate approvals and agreements are reached with the public agencies, boards, or authorities.
2. Encourage new telecommunications facilities to be built – particularly on public lands – through public/private partnerships when the telecommunications service needs of several parties can be met. Discourage the use of public properties for a single telecommunications provider, unless it has been demonstrated by the single provider and the public agency that joint use of the property is not desirable or feasible.
3. Continue the coordinated oversight of new telecommunications facilities on public facility sites throughout the County. Develop agreements that will allow leasing of such facilities to private telecommunications services at fair market value.
4. Amend the Zoning Ordinance to permit private towers and monopoles on public land as an addition to a public facility and subject to a public facility review, rather than a special use permit.

5. Plan for appropriate communications capabilities in all government facilities – including schools, libraries, and public telecommuting centers.
6. Encourage the use of the County’s public safety radio towers for both publicly and privately owned telecommunications services. Structurally engineer such facilities to support loading capacities of known and projected public and private telecommunications facilities. Encourage private personal wireless service providers to review these planned telecommunications facilities for their potential shared use prior to the design and engineering of the facility by the County.

## FACILITIES REQUIREMENT AREAS

Existing telecommunications sites, shown on the Existing and Potential Wireless Communications Sites Map (Map 1), are encouraged to be used for new telecommunications facilities and are considered part of the “Telecommunications Facilities Requirement Areas”. New telecommunications facilities proposed at existing facilities may be considered to be consistent with the Comprehensive Plan – depending on the Planning Director’s determination of the need for public review, pursuant to Section 15.2-2232 of the Virginia Code. Public facility review will take place for expansion of the County’s public safety radio system, including but not limited to increases in height to the existing public safety radio towers, adding antennas to a high-rise building or other existing tower, or a new facility with a 100-foot tower that does not provide collocation opportunities for other users.

Public safety sites, school sites, water tanks, and other public properties may be appropriate locations for telecommunications facilities. Telecommunications facilities located at these sites may also be determined to be consistent with the Comprehensive Plan, pursuant to TELE-POLICY 2, Action Strategy-2 and TELE-POLICY 4, and may be allowed on a case-by-case basis by the public agency or party responsible for the particular site.

## EXISTING COUNTY TELECOMMUNICATIONS FACILITIES

Tower/Site Name	Location	Fold-Out Map Number	Tower Height
Judicial Center	9320 Lee Avenue	1	230 feet
Independent Hill	14780 Joplin Road	2	320 feet
McCoart	3 County Complex Court	3	300 feet
Gar-Field Police Station	15960 Sindlinger Way	4	300 feet
Old Carolina Road Water Tank	7304 Old Carolina Road	To be assigned	32-foot extension on top of the water tank
Virginia Department of Corrections	2115 James Madison Highway	81	250 feet
Oakmont	3120 Oakmont Avenue	96	230 feet

## POTENTIAL COUNTY AND/OR PRIVATE TELECOMMUNICATIONS FACILITIES

### **Green Valley Water Tank Vicinity**

For possible future expansion of the public safety radio system, a 200 by 200-foot area is proposed that will contain a 260 to 300-foot tall (AGL) self-supporting telecommunications tower, a 40 by 60-foot communications equipment building, an emergency power generator, and a propane gas tank.

### **H.L. Mooney Plant** (Existing and Potential Facilities Fold-Out Map Site #12)

For possible future expansion of the public safety radio system, a 260 to 300-foot tall (AGL) self-supporting telecommunications tower is proposed, as well as a 40 by 60-foot communications equipment building, an emergency power generator, and a propane gas tank.

### **Sudley North**

For possible future expansion of the public safety radio system, a 200 by 200-foot area is proposed that will contain a 260 to 300-foot tall (AGL) self-supporting telecommunications tower, a 40 by 60-foot communications equipment building, an emergency power generator, and a propane gas tank.

### **Cherry Hill**

For possible future expansion of the public safety radio system, a 200 by 200-foot area is proposed that will contain a 260 to 300-foot tall (AGL) self-supporting telecommunications tower, a 40 by 60-foot communications equipment building, an emergency power generator, and a propane gas tank.

### **Bull Run Mountain I**

For possible future expansion of the public safety radio system, a 120 to 160-foot tall (AGL) self-supporting telecommunications tower, a 20 by 45-foot communications equipment building, an emergency power generator, and a propane gas tank.

### **Bull Run Mountain II**

For possible future expansion of the public safety radio system, a 120 to 160-foot tall (AGL) self-supporting telecommunications tower, a 20 by 45-foot communications equipment building, an emergency power generator, and a propane gas tank.

### **Old Antioch School Site**

For possible future expansion of the public safety radio system, a 200 by 200-foot area is proposed that will contain a 260 to 300-foot tall (AGL) self-supporting telecommunications tower, a 20 by 60-foot communications equipment building, an emergency power generator, and a propane gas tank.

**Locust Shade Park**

For possible future expansion of the public safety radio system, a 200 by 200-foot area is proposed that will contain a 260 to 300-foot tall (AGL) self-supporting telecommunications tower, a 20 by 60-foot communications equipment building, an emergency power generator, and a propane gas tank.

*From the Piedmont to the Potomac*

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Figure 1 - Existing and Potential County and/or Private Telecommunication Facilities

From the Piedmont to the Potomac

