



## Section 9

### Telecommunications

Telecommunications, the transmission of signals containing voice or data over a distance, is essential for public safety and is becoming increasingly important in personal interactions and the transaction of business in Hanover County. Technological advances have enabled communication devices to become less dependent on ground-based, wired systems and to use wireless networks on an increasing basis. Hanover County regulations regarding the location of sites for telecommunications structures and facilities, including telecommunications towers and related facilities, are intended, first and foremost, to ensure that public safety employees are able to effectively communicate with each other. County policies and regulations are not intended to unduly burden the provision of telecommunications services by private companies for business and personal uses; however, in these situations, the impact by these structures and facilities on neighboring properties must be more closely examined and evaluated.

County Communications System: The County has begun the process of replacing an aging analog 800Mhz Communications System with a new digital 700/800Mhz communications system. As currently configured, the system will include a new 911 facility, the construction and use of new tower and transmitter sites, and the use of a number of existing tower and transmitter sites. This new system will provide County Communications System users with in-building portable radio coverage in 95% of the structures of Hanover County, a much higher level of system security, and enhanced interoperability capabilities. The system is scheduled to be completed and operational in 2009.

Private Telecommunications Networks: Growth in the industry providing mobile telephones, paging equipment and wireless Internet has created considerable demand for new facilities and structures in order to ensure a cohesive telecommunications infrastructure. Assessment of future sites for facilities and structures supporting private telecommunications networks must include an evaluation of the impact on surrounding land uses and the desire to enhance the telecommunications infrastructure throughout the County. Site evaluation should include an assessment of the safety, aesthetics, security, access, and technological needs for the area in close proximity to the facility or structure and the County as a whole.

Standard guidelines for all new facilities should include the following:

- All telecommunications facilities and structures must be located, designed and operated in a manner that meets all requirements imposed by the Federal Communications Commission (FCC) and the Federal Aviation Administration (FAA);
- Telecommunications facilities and structures must be located and designed in such a manner as to protect the safety of individuals nearby and to ensure that neighboring properties and structures are protected during the normal operation of these facilities and structures and in the event that the telecommunications facilities or structures are damaged or destroyed.;
- All telecommunications facilities must be located, designed and operated in a manner that avoids interference with County communication networks; and
- Existing or proposed private telecommunications facilities or structures should use co-location to the extent feasible to minimize the number of telecommunications facilities and structures throughout the County.

Telecommunications facilities, such as telecommunications towers, that go beyond what can be contained in a building or other structure can negatively impact the character of the surrounding area. Accordingly, these facilities should be designed and located in a manner that is compatible with the character of the surrounding area and has the least impact possible on neighboring properties. In order to accomplish this objective, a tiered method should be employed in general conformance with the following:

- Tier 1 - **Facilities that are ≤50' in height** Due to the relatively minor impact these facilities have on neighboring properties, an administrative review process is appropriate for all zoning districts. Criteria should be established to minimize the impact on neighboring properties, including camouflaging these facilities as flag poles, light poles, silos or other such landscape features and locating these facilities so that coloring or lighting is not required by the FAA.
- Tier 2 - **Facilities that are >50' but ≤100' in height.** Due to the greater impact of these facilities, a higher level of review is appropriate when these facilities are proposed for properties that have been designated for residential use, are located within a Mixed Use district, or are along designated scenic roads and waterways. This review can best be accomplished through consideration of an application for a Special Exception. In areas that are designated for Agricultural, Commercial and Industrial use, an administrative review process is appropriate. For those facilities within this tier, criteria should be adopted establishing a minimum setback from any offsite

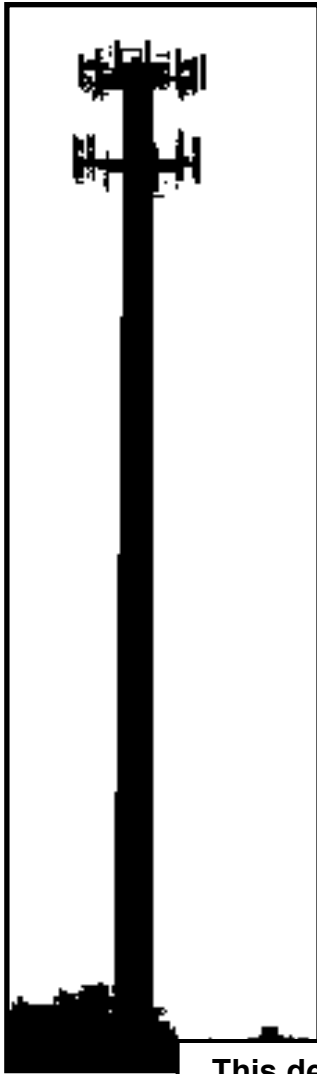
residential structure or right-of-way to ensure the safety of individuals and structures should the tower collapse or otherwise be damaged, the owner or user of the tower should camouflage or locate the tower and supporting equipment to blend with the surrounding environment and be adequately screened from neighboring properties and rights-of-way; and locate the facilities so that coloring and or lighting is not required by the FAA.

Tier 3 - **Facilities that are >100' but ≤140' in height.** Due to the greater impact of these facilities, a higher level of review is appropriate in all instances. Facilities within this tier are not appropriate for areas that are designated for residential use. In all other areas, a higher level of review than an administrative review process is warranted. This review can best be accomplished through consideration of an application for a Special Exception. Additional criteria should be adopted, including increased setbacks from offsite residential structures and rights-of-way. To the extent possible, these towers and supporting equipment should be camouflaged and located to blend with the surrounding environment and be adequately screened from neighboring properties and rights-of-way and located such that coloring or lighting is not required by the FAA.

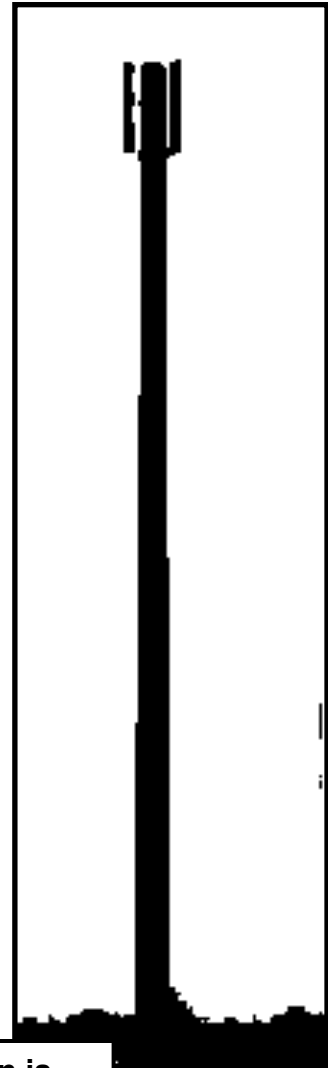
Tier 4 - **Facilities that are >140' in height and temporary structures.** Due to the major impact that these facilities have on the neighboring properties and the surrounding area, a tower greater than 140 feet in height should be approved only if the applicant demonstrates that adequate wireless coverage in the service area cannot reasonably be attained through the use of towers less than 140 feet in height or by collocation on an existing taller structure. *Unless specifically shown on the County's Community Facilities Plan map for emergency public safety communications*, facilities within this tier are not appropriate for areas that are zoned for residential use and along designated scenic roads and waterways. In all other areas, a high level of review is warranted to ensure that the impacts on neighboring properties and the public at large are minimized. This review can best be accomplished through consideration of an application for a Conditional Use Permit. Criteria should be adopted providing for increased setbacks from on-site and offsite structures and from rights-of-way. To the extent possible, these facilities and supporting equipment should be camouflaged and located to blend in with the surrounding environment and be adequately screened from neighboring properties and rights-of-way. These facilities should be located such that coloring or lighting is not required by the FAA.

**Additional Design Standards for Private Telecommunications Facilities:**

Tower heights and locations that require FAA coloring and or lighting should be avoided whenever possible. Towers and antennas should be neutral in color to blend with the visual backdrop. Within the Suburban Service Area, antennas should be kept close to the pole or support structure; dual-polarized or similar antenna design are preferred. Wooded sites should not be clear-cut during the construction or operation of a tower, and towers should be centrally located on site to maximize the buffering effect of trees and other vegetation. While landscaping will not be able to greatly reduce the visual impact of the tower itself, the support buildings should be landscaped or screened in accordance with County standards for other commercial uses and should be constructed of materials compatible with nearby surrounding buildings. No tower should remain standing for more than eighteen months if it is no longer in use. All costs associated with the tower, including the cost of demolition, removal and reclamation of the site should be borne by the property owner or the companies which use the tower.



This design should be avoided



This design is preferred