

Recognizing the Best in County Government Programs!



2011 Achievement Awards

ATTN: 2011 Achievement Awards Program
Virginia Association of Counties
1207 East Main Street, Suite 300
Richmond, Va. 23219-3627

Call for Entries



2011 VACo Achievement Awards

Deadline: June 1, 2011

Application Form

All applications must include the following information. Separate applications must be submitted for each eligible program. Deadline: June 1, 2011.

Program Information

Locality Hanover County, Virginia
Program Title Designing Public Safety Radio Towers for Co-location
Program Category Criminal Justice & Public Safety
Population Category 50,001 - 100,000

Contact Information

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Signature of county administrator or chief administrative officer

Name Cecil R. Harris, Jr.
Title County Administrator
Signature* *Cecil R. Harris, Jr.*

*Entries without this signature will not be accepted.



DESIGNING PUBLIC SAFETY RADIO TOWERS TO ACCOMMODATE WIRELESS CO-LOCATION

VACo ACHIEVEMENT AWARD APPLICATION

PROGRAM CATEGORY: Criminal Justice and Public Safety
POPULATION CATEGORY: 50,001-100,000



1. **Abstract of the Program**

Hanover County, as a part of the new radio communications systems project, constructed nine new public safety grade communications towers. Although the towers were being constructed primarily for public safety use they were designed to include space for wireless carrier co-locations. With this designed space for co-locators, the wireless providers know the available heights upfront and do not have to do a structural analysis each time they co-locate on a tower, as long as they are willing to use one of the pre-determined elevations. It makes the process much quicker and unless the tower compound needs to be enlarged to accommodate their ground equipment, no Planning Department approval is required. They can simply sign a lease agreement, obtain the needed electrical and building permits and start construction of their tower connection.

2. **The Problem/Need for the Program**

The new public safety radio communications required Hanover County to expand the number of towers from 4 to 16. Nine new towers needed to be constructed in different parts of the County. Seven of the nine were to be self-supporting towers, based on the site size, and two were guyed towers. The idea behind constructing the towers to include certain amount of designated space for wireless carriers was

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twofold: 1) to reduce the number of total towers needed throughout the County by public safety and wireless providers and 2) to create additional revenue opportunities for the County to help with on-going maintenance cost of the towers and the public safety communications system.

Due to economy of scale the telecommunications industry is open to the sharing of telecom infrastructure. In fact it is fast becoming a requirement and a regular way of doing business within the industry, where competitors are becoming partners in order to lower costs for their increasing investments. So for Hanover County it was a win – win situation. The Federal Communications Commission (FCC) passed the Telecommunications Act of 1996, which opened up the competitive environment for the U.S. telecommunications industry. It eliminated the monopoly situation by introducing competition into the market; this created the needed atmosphere and willingness to establish reciprocal compensation arrangements that would benefit the sharing of infrastructure among everyone involved.

3. Description of the Program

In building the needed radio tower sites for our new radio communications system we took a different approach than did other public safety communications agencies.

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We built extra capacity into our communications towers to allow for cellular co-locations. Based on the height of the tower we can accommodate a minimum of 4 or 5 co-locators on each tower and with additional analysis and augmentation others could be added based on the results of strength analysis.



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4. **The Cost of the Program**

Hanover County built seven self-supporting towers and based on the height spent between \$120,000 and \$200,000. The two guyed towers cost approximately \$35,000 and \$40,000 dollars depending on the height. The most significant benefit of this program is the generation of revenue to assist with maintenance and up-keep of the tower locations and the public safety radio system. The County has set annual lease rates of \$25,000 to \$30,000 dollars with a 15% escalator every five years. The annual lease is based on the height and location of the tower.

5. **The Results/Success of the Program**

Hanover County's tower construction project has created a positive working relationship between wireless carriers and local government. Hanover currently has co-locators on 8 of our 16 towers and is working to add an additional co-locator on a ninth tower in the near future. We are sure to receive further interest and requests for co-location as time passes and especially if a private/public partnership is created to implementing LTE Band-band for public safety.

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A major advantage of infrastructure sharing is the limited duplication of tower sites. Costs for capital investment of technology and infrastructure deployment in the telecom industry are significant. Maintaining and upgrading infrastructure increase these costs further. Infrastructure sharing can significantly reduce development risk and make the market more attractive to new vendors and more innovation. This provides telecom carriers with cost advantages based on economies of scale that can create reductions in unit cost as the size of a facility and the usage levels of other inputs increase. Local government benefits by the development of partnerships in building and maintaining needed infrastructure and new revenue streams.