

Wireless Communications Technical Workshop

Executive Summary

Introduction

From the wireless industry perspective, Pinellas County is a prominent service area. It is home to nearly one million permanent residents, with more than four million seasonal visitors annually, and a community that is growing steadily younger, more affluent, and more technologically savvy. As the county continues to redevelop, the industry can safely project the continued growth of its customer base into the future.

At the same time, consumer demand for more advanced services will require ever more extensive infrastructure. While the county's twenty-two local wireless ordinances have performed adequately in the past, local governments will begin to face greater challenges as new technologies emerge, and demand for new facilities accelerates.

The Pinellas Planning Council (PPC), with assistance from CityScape Consultants, Inc., has been exploring how best to prepare for this future. At a countywide technical workshop held on March 21, 2003, the following four strategies were proposed:

- *Countywide Model Ordinance.* This document would serve as a template for communities wishing to update and strengthen their wireless ordinances.
- *Enhanced Facility Tracking Database.* Updating the database of existing wireless facilities and improving ongoing tracking methods would allow local governments to better plan for future deployments, and reduce the risk of illegal or unsafe facilities.
- *Assistance with Revenue Generation.* Communities choosing to lease public lands to wireless carriers can increase their revenue potential through negotiation and marketing.
- *Countywide Wireless Master Plan.* This document would guide all aspects of wireless facilities management, providing communities with tools to assist with the above strategies.

The purpose of this executive summary is to reiterate the information presented at the workshop, provide a means for local governments to evaluate the various strategies, and allow the PPC to determine whether there is interest in implementing any of them.

Background

The Federal Telecommunications Act of 1996

Section 704 of the federal Telecommunications Act of 1996 gives local governments zoning authority over the deployment of wireless telecommunication facilities, subject to several specific guidelines.

First, land use development standards may not unreasonably discriminate among the wireless providers, and they may not prohibit or have the effect of prohibiting the deployment of wireless infrastructure. For example, prior to passage of the Act, some communities adopted development standards restricting the distance between towers to three miles. In some geographic locations with sparse populations, this may have been adequate for first-generation (1G) technology. But because second-generation (2G) facilities must be located closer together to function, the laws of physics make it impossible for current wireless deployments to meet this spacing requirement.

Second, local governments must act on applications for new wireless infrastructure within a reasonable amount of time. If a community adopts a moratorium on new wireless deployment, it must be for a limited amount of time, and the community must demonstrate a “good-faith” effort to resolve outstanding issues during the moratorium time period.

Third, incentives may be adopted to promote the location of telecommunications facilities in certain designated areas; and the Act encourages the use of third party professional review of site applications.

Fourth, provided federal standards are met by the wireless provider, a local government cannot deny an application for a new wireless facility, or the expansion of an existing one, on the grounds that radiofrequency radiation emissions are harmful to the environment or to human health.

Emerging Technologies

In the United States, the wireless industry has been significantly affected by a decline in the technology markets, and consequently is not deploying the infrastructure at the fast rate it has in the past. Deployments have not stopped, but they have significantly slowed.

Deployment of wireless infrastructure in the United States has been significantly behind schedule when compared to Europe and Asia, where consumers have had access to the third generation of wireless services (3G) since 2001. Combining traditional wireless

phone service with video and Internet access, 3G has been enthusiastically accepted by consumers in these countries. These advanced services are only made possible, however, by an extensive network of new facilities.

Some skeptics have predicted that American consumers would generate little demand for emerging wireless services. However, the United States is now starting to experience the first deployments of 3G, and as technological advances have made new services possible, consumers have begun to purchase them.

Wireless services, and the facilities that support them, continue to evolve. While the United States is just beginning to experience the first deployments of 3G, other parts of the world are being introduced to 4G. This cutting-edge generation of wireless phones offers high-resolution video displays, TV tuners, voice recognition software, access to satellite-guided Global Positioning Systems, and processing power that is comparable to desktop computers. However, even more extensive infrastructure will be required to supply these advanced services.

At the same time that wireless phone networks are proliferating, new technologies are arising to compete with them. Satellite telephone service providers have petitioned the Federal Communications Commission (FCC) to allow additional deployment of land-based relay stations, to allow them to compete more aggressively with existing cellular and PCS services. In addition, wireless Internet services using a protocol known as 802.11, more popularly known as “Wi-Fi,” are attempting to compete with 3G Internet services. If these technologies prove successful, local governments will see even more demand for the placement of new facilities.

The bottom line is that more wireless communication facilities, not less, will be needed over the next decade to serve existing wireless service providers and emerging technologies.

Local Government Issues

During the registration process, workshop participants were asked to list issues that they were interested in discussing. This information, together with comments offered by local staff and officials during the workshop planning process, and by audience members during the question-and-answer session at the event itself, is summarized below.

Regulation

- Local government planning staff were concerned with broad spectrum of issues pertaining to wireless facilities, such as siting, aesthetics, regulatory and review processes, and state and federal law.
- The most common staff questions related to the regulation of height and visibility, including incentives that could be offered for camouflaged facilities. Several also asked how new technologies will fit in with existing regulatory practices.
- Representatives of the wireless and tower-building industries asked for greater clarity in the requirements they must fulfill, and more incentives for camouflaged facilities.
- Local government officials expressed concern over new state legislation (HB 1307) designed to ease the approval process for some types of facilities.

Tracking/Inspection

- A few participants expressed concern over the structural safety and environmental impact of facilities.
- Senior Pinellas County planning staff expressed interest in improving the countywide facilities tracking system, which the county maintains.

Revenue

- Local government officials and staff expressed interest in receiving assistance with improving revenue generation opportunities.

Strategies for Addressing Identified Issues

Strategy: Countywide Model Wireless Ordinance

A countywide model wireless ordinance would provide guidance to communities wishing to update and strengthen their regulations. Each community would be responsible for evaluating its own ordinance, with a checklist created by CityScape. As an example, strong ordinances should include the following provisions:

- *Intent of Regulations*

To clarify the intent and purposes for the proposed regulations, this section should be updated to reflect current regulatory efforts concerning the wireless industry. The items listed in this section identify goals and objectives of the development standards, and establish ground rules for tower deployment. Findings of fact for tower approvals and denials are formulated on the “Purposes and Intent” of the standards and, therefore, are a necessary inclusion in text revisions.

- *Definitions*

This section provides definitions that are applicable to wireless communications facilities (itself a defined term), with the intent to simplify understanding of the regulations and their applicability. A comprehensive list of definitions reduces varying interpretations of the ordinance and adds clarity to related issues.

- *Applicability*

This section should specifically include the types of facilities that are regulated, as well as exclude certain types of wireless communications facilities from the regulations. The excluded items are those that have some level of either state or federal preemption associated with their services, such as amateur radio facilities, satellite receivers, regular maintenance of facilities, substitution of antennas with certain provisions, government-owned facilities for public communication services, and commercial radio and television broadcast facilities.

- *Uses by District*

This section illustrates the zoning districts where different types of defined wireless communication facilities could be permitted and what level of review is required for such facilities.

- *Development Standards in Each Category*

Development standards address compatibility issues between locations of wireless infrastructure and existing land uses. For example, standards for setbacks, height, structural integrity, construction material, lighting, collocation feasibility, color, landscaping, fencing, signage, aircraft coordination, and compatibility with community character are established in this section.

- *Expert Review*

Due to the complexity of the methodology or analysis required to review some applications related to wireless communications facilities, staff may require a technical review by a third party expert. Cost should be borne by the applicant so as not to place the financial burden on the local government.

Strategy: Enhanced Facility Tracking Database

If a community is to successfully manage the deployment of wireless infrastructure, it must maintain an accurate database of existing antennas, support structures, and sites (both privately- and publicly-owned) that could accommodate future facilities.

Such a database serves the following purposes:

- Mapping the locations of existing towers can help communities to discourage their proliferation. With an accurate map of these structures, the community can direct applicants for new towers to rule out collocation options before approval is granted.
- Identifying and mapping existing infrastructure reveals current deployment patterns, which is a necessary step for predicting where future demand will likely occur.
- Locating public properties that can accommodate new antennas, especially in areas where there are few or no existing facilities, allows local governments to more effectively market their real estate assets (see below).

Strategy: Assistance with Revenue Generation

Leasing publicly-owned lands to wireless service providers can bring benefits to local governments. As new sites are developed on public land, the community generates lease revenue from the tower owner and any tenants. Some communities maintain many such contracts, and may generate millions of dollars over the duration of the leases, without issuing bonds or raising taxes.

In addition to creating new revenue streams for the community, leasing public sites also allows the community—as the landlord—to exercise more control over the appearance of facilities than is possible in a regulatory capacity. For example, the local government can require antennas to be camouflaged on water towers or municipal signs, or towers to be disguised as trees or flagpoles.

There may be other benefits as well. As public properties are evaluated and utilized for these facilities, local government staff may gain valuable knowledge about how wireless sites are chosen and constructed, which will aid them in future site plan designs and evaluations on both public and private properties. In addition, high aesthetic standards set by the local government can serve as a positive example for future sites on privately-owned properties.

Strategy: Countywide Wireless Master Plan

With evolving technologies, local wireless regulations must be fluid and capable of evolving to accommodate additional carriers and services (e.g., wireless internet, a commodity that was not envisioned when Telecommunications Act of 1996 was written and is the next major impending technology). They must also be able to adapt to population growth and future infrastructure development.

A wireless master plan serves as a guide for this process. The document combines the land-use planning strategies used in public policy with industry-accepted radiofrequency engineering standards, to create an illustrative planning tool that complements the local wireless ordinance. It is more than a set of prepackaged guidelines for wireless development; rather, it is a functional representation of the community’s physical space, which identifies deployment patterns for both existing and potential wireless facilities. With a master plan, the community will be able to predict and guide the deployment of future telecommunications infrastructure, rather than simply reacting to demands from multiple service providers or tower owners.

The master plan, as enabled by the ordinance, lessens the burden on staff by streamlining the application process for those applicants who develop in accordance to the ordinance and master plan, as well as shifting the technical review from staff to a third party who is certified in those disciplines necessary to conduct and certify such reviews.

The first step in creating a master plan is to identify existing tower locations and their corresponding signal coverage conditions. Second, this information is compared to the locations of publicly-owned land and existing public policy, followed by a series of evaluations founded on land use principles and engineering practices. The plan offers strategies to reduce tower infrastructure by improving efforts to “merge” wireless

deployments from various service providers, thereby minimizing tower proliferation by increasing shared sites.

The final master plan should include:

- An inventory of existing antenna-supporting structures and buildings, upon which wireless antennas are currently mounted, and an inventory of publicly-owned sites where future wireless infrastructure can potentially be built.
- An analysis of anticipated wireless facility growth for the next ten years.
- An engineering analysis of potential coverage based on public policies.
- Recommendations for managing the development of wireless infrastructure for the next ten years, designed to decrease the proliferation of new towers and increase the community's revenue from leasing public sites.

Conclusion

There are twenty-five local governments, including the unincorporated county, in Pinellas County, and there are twenty-two different local ordinances addressing various land development standards related to wireless infrastructure deployment. The countywide population is approaching one million. The beaches, bay, and warm climate contribute to large seasonal population increases throughout the year. These facts are not unnoticed by the wireless industry, and make the county a high-profile service area from the wireless industry perspective.

Developing a countywide model ordinance would provide guidance to communities that would aid in managing future wireless deployments, and add some continuity on the appearance of future infrastructure throughout the county.

Updating the database of existing infrastructure locations would improve tracking methods. This information can then be used for wireless infrastructure master planning purposes. Basic propagation models illustrating current wireless coverage and predictions of no, or poor, service areas in the county are effective planning tools. Comparing deployment predictions to current land use development standards allows the community to address wireless network design issues proactively, rather than reactively.

Communities desiring to locate wireless infrastructure on public lands can designate appropriate sites in advance of future deployments, thereby expediting the time associated with site plan approvals. Advance preparations will further encourage the industry to utilize public sites, resulting in greater revenue for the community.