

# SETTING YOUR SITES

—Successful Wireless Development—

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**S**uccess in developing wireless antenna sites depends on sound front-end planning. Issues that make the difference include quality research of existing structures, favorable zoning conditions, early identification of potential problem sites, careful organization and the ability to negotiate contracts quickly. System planners must consider each project unique and thoroughly review all factors.

In light of the numerous potential parameters that face site acquisition, zoning and construction at antenna sites, careful radio frequency (RF) design is imperative. Correct field data for existing sites and local zoning ordinances is necessary to effectively minimize the timeline from the start of a site acquisition to the conclusion of construction.

## The Scouting Mission

A time-tested method to kick off the

system development process is the scouting mission (usually performed by zoning, site acquisition and/or RF specialists). The scouting mission is a method of reconnaissance that calls for system development personnel to visit the market area before the system is designed. Collection of two types of information is emphasized. *First* is the presence of existing structures upon which space might be leased for antennas and related equipment. *Second* is the treatment that towers and antenna sites receive with respect to obtaining a building permit in each jurisdiction and the boundaries of zoning districts.

Descriptive notes and photographs are taken of all commercial and industrial buildings and other structures over 35 feet. This level of detail increases the scouting mission's usefulness later in the system development process, if a proposed system antenna's centerlines are subject to change. A by-product of scout-

ing existing structures might be a binder that organizes each structure by its latitude and longitude and the appropriate topographical quad map.

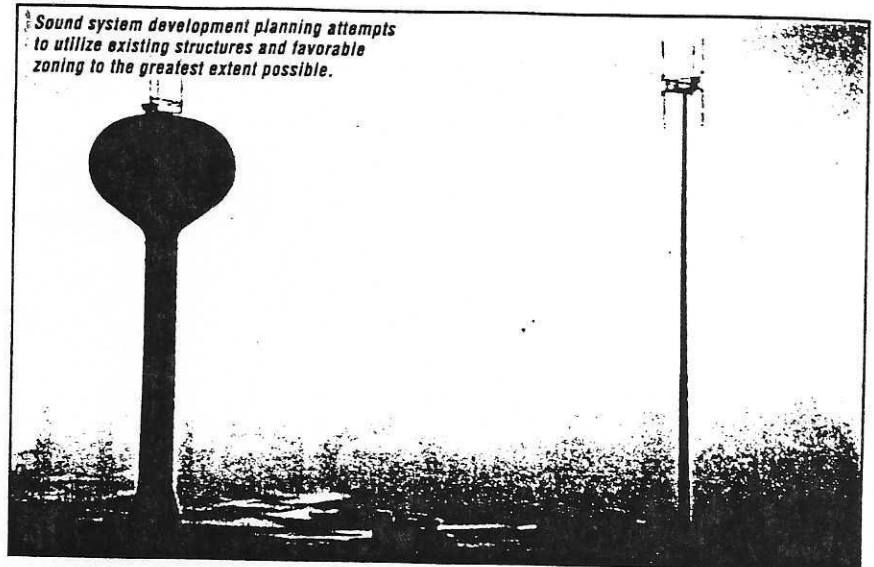
An analysis of favorable areas to develop communications sites complements data accumulated about existing structures. If towers or communications sites are not permitted outright, a zoning permit will be required before building department officials will consider granting a building permit for site construction. To understand the local treatment for antenna sites, visit planning and/or zoning offices in the proper jurisdiction for a review of the official zoning code and the map of zoning districts.

These two zoning documents should be studied to understand all local laws. Meeting with the planning staff provides an opportunity to supplement the code with procedural information. Some larger communities have developed special siting and application guidelines in re-

sponse to the volume of cellular antenna site permit requests made in the past 10 years. The collection of information on zoning districts where towers are permitted or might be approved without opposition is vital for fast tracking.

Local zoning law might categorize wireless antenna sites under one or more of the following use classifications: cellular antenna site, communications tower, telephone relay station, or radio and television broadcast tower. Related uses include essential services, public utility substation, satellite antennas, wind mills, etc. Being a "public utility" for zoning doesn't necessarily require regulation by the state Public Utilities Commission (PUC).

While zoning codes between jurisdictions differ with respect to each particular zoning district, generally tower siting is most favorable in industrial zones. Some codes will treat wireless the same in all zones. Many codes include an exception to the height limits for wireless masts or communications towers. Uses that apply or relate to the wireless site



may be permitted in some districts outright, with or without a height limit, while in another district they may be permitted only after one or more hearings.

The most common permits required for wireless sites are (in order of increasing difficulty to achieve): conditional use permit, special use (or exception) permit, use variance, and site rezone. By con-

trast, the difficulty for a wireless company to obtain some other zoning approvals, such as a planned unit development (PUD), height variance, subdivision and site plan review varies by jurisdiction. The specifics of each jurisdiction for potential wireless sites should be researched and reported to RF engineers.

Maps should be created or marked

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up for RF engineers to review. They should indicate areas where communications towers are permitted, are not permitted and where sites might receive approval, but only after a hearing process. Some geographical information system (GIS) software allows access to the location and height of existing structures, zoning districts and limitations on structure height, as well as terrain elevation for system planning.

Generally, it is useless and time-consuming for RF engineers to try to plan a 150-foot-tall antenna elevation in a zone with a 35-foot height limit, if no 150-foot structures exist. While new federal legislation could allow sites on federal property and rights of way, and could also assist to keep zoning laws fair, the need to evaluate existing structures and find favorable zoning will not change.

#### **Identify Problems Early**

While the RF engineers are creating the initial system design with the bene-

fit of the scouting report, the site acquisition group should take time to learn more about the existing structures in greater detail—to determine the availability of each of these existing structures through research and contact with the property owner or manager. Even before RF engineers know they want to use an existing structure, the owner of the property should be aware of the possible interest. By pulling ownership records early, it is possible to uncover issues about title that may have an effect

on site acquisition.

It is advantageous at this stage to routinely provide potential existing structure lessors with information about the proposed site, such as antenna specifications, floor space, telephone line and electrical requirements, company background, and a copy of the desired form lease. Commonly, advance work will generate site owners interested in existing structures also desired by RF engineers. Early opportunity to get site owners involved with the desired lease

document can easily translate to a shorter acquisition lead time after the completed RF design.

Once the initial RF system design is available, the search rings and/or proposed sites should be reviewed for specific property ownership, zoning district and physical field conditions. RF engineers try to make search areas as large as possible. They often plan search areas in more than one jurisdiction, to give site acquisition agents a greater success rate.

During system development, a high degree of interaction between RF engineers and site acquisition personnel greatly optimizes system design. Site acquisition personnel should have easy access to data concerning siting flexibility and requirements that exist for each search ring. RF engineers can enhance the process immensely by informing site acquisition personnel how a site or search ring fits into the big picture. In turn, site acquisition will provide feed-

back to RF on the next level of detail about each search ring.

Such feedback includes answers to such questions as: Does the search area include a number of choices for site placement or just one or two? Will winter months or other factors limit the window of construction? How long will it take to secure permits? What opposition might develop in the hearing process? Are the property owners mostly institutional or private individuals? Does there appear to be clear title? Do environmental hazards exist on the property? How do projected antenna elevations compare to the zoning restrictions? Is there adequate space, power and telco facilities? Problems need to be identified and resolutions addressed immediately.

Focusing on the apparent trouble areas up-front is the best insurance against getting too far into system development before realizing the scope of difficulties. Now is the time to take the initial system grid to the local planning staff for input. Emphasis should stress that the initial system design is just that—a first cut—and that local input is sought.

Even though the design plan may experience changes due to lack of availability of some existing structures or search areas that offer limited vacant land choices, it is still helpful to get local planning officials involved early in the system development process. In this way, planning staff can gain appreciation for how much time, effort and accommodation go into the system development process. Issues tend to arise that were not clear in the preliminary scouting mission relative to site-specific (or search area) discussions with local planners. In this way, planning departments become an integral part of the final system proposal.

Additional system design modifications could arise from the placement of site search areas desired in the initial system. System developers need to understand that the time and effort taken to make relevant system redesign changes (due to local zoning permit conditions) in the early stages of the planning process are minimal compared to the effort required for redesign after

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the system grid has already been set. Potential sites in areas where zoning is tough will be much easier to justify when modifications have been made early in the design process to adjust for local conditions.

### **Organization**

As much as any other perspective, success in developing wireless sites quickly and without problems means being extremely organized. Local planners need to know how the company used existing structures to the greatest extent possible and how permitted zones were favored in the system design. Planners must be shown documentation of the system design process, including technical restrictions. Benefits of front-end system planning start to pay off when face-to-face meetings with local planners derive consensus about the local community requirements and the system technical siting requirements. Conversely, history shows that proposed site permits for projects that may have

been well-located but did not include an alternate site evaluation were rejected.

Be prepared to provide a report on the alternate sites reviewed during the planning process and the input that the planning staff had in guiding the site search from the perspective of community planning. Also, be prepared to provide a statement concerning the electromagnetic field to be created by the site in accordance with federal guidelines.

Site information should be organized into a database according to its scouting mission photo identification reference, USGS topo map, initial RF site design number, and revised RF site design number. It should also be organized according to county, municipality, zoning district, the type of zoning permit required for the site, street address, zip code, parcel identification number, telco prefix, and the property owner's name. Each of these methods of organizing sites and search rings is crucial for effective fast-track site development.

Developers who spend a lot of time

in the field working the plans for a project get to know the area well. Such knowledge must be well documented or it could be lost in a personnel change. Status and scouting reports are mandatory for the company to reap the benefits of its manpower investment. Detailed reports are also vital for project managers to determine the necessary resources needed to reach project goals. Finally, the early collection and organization of information allows simple transfer of responsibilities from site acquisition to property management upon the conclusion of the project.

### **Contract Negotiation**

Negotiating contract terms can be an extremely troublesome and time-consuming aspect of wireless site development unless the wireless company is well prepared to review lease modifications and lessor-provided leases. Owners of existing structures, big companies and institutional property owners are more likely to insist on their license



agreement or desire major modifications to the lease proposed by the wireless company.

A standoff exists when neither side can agree upon which agreement to use. This situation is like an office space or rental tenant arguing with a prospective landlord over which agreement to use. The landlord has more leverage. Since the fast-track objective resides with the wireless company, it usually behooves the acquisition agent to modify the

landlord's lease to the satisfaction of the wireless company. Regardless, much time is required to review and negotiate language in these situations. The more flexible the wireless company is with language modification issues, the better. This means providing contracts on disk and fall-back clauses to reliable and trusted site acquisition personnel. Having legal counsel specifically to review lease issues is a good idea.

Vacant landowners are less likely to

propose their own license agreement. They may still raise many issues by seeking legal counsel.

### Summary

Sound system development planning, first and foremost, attempts to utilize existing structures and favorable zoning to the greatest extent possible. Off-the-shelf GIS software has advanced to the point where area-wide zoning information as well as discrete location information about existing sites (such as communications towers, office buildings, water towers, grain elevators) can be integrated into an area map, visually providing RF engineers reliable decisionmaking tools about field conditions.

Through a comprehensive and well-documented planning effort, the experienced wireless system development manager reduces the downside risk associated with overlooking the obvious and gives local authorities the support to substantiate each site.

Effective and high-volume wireless site development requires a high degree of interaction between the people responsible for RF design, site acquisition, permitting and construction management. Deadlines are never-ending. Multiple deadlines must be met in order to satisfy permit procurement goals, construction milestones and the system in-service schedule. Only through a high degree of research and information management can the project manager accurately predict the resource requirements needed to meet the in-service schedule. Many zoning hearings may be required and all the resources expected to prepare adequately for these hearings must be clearly understood and defined.

The results of good planning could mean building fewer towers, lowering construction costs and definitely shortening lead time from the start of system planning to the in-service date. **RR**

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