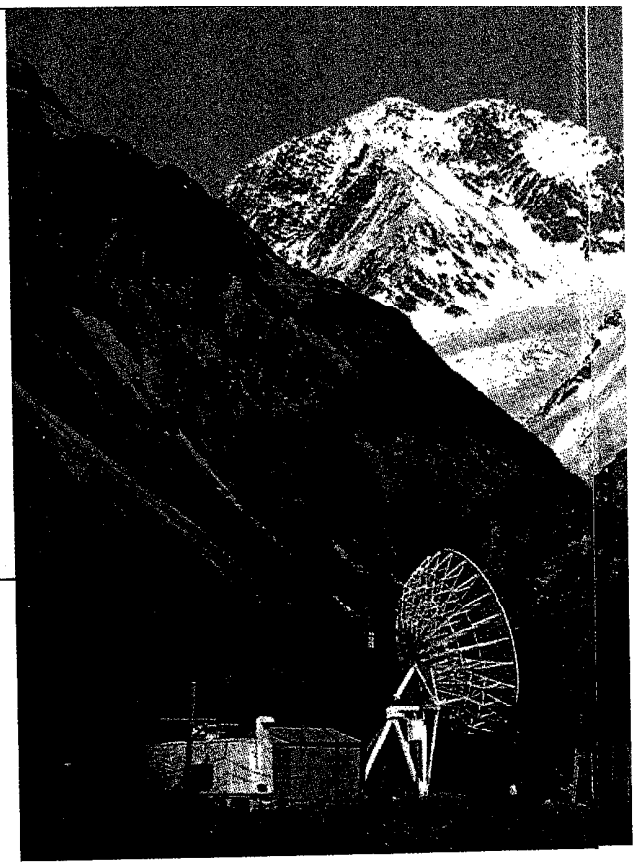
Site Acquisition for Wireless Networks

Turning Obstacles into Opportunities



As with virtually any competitive industry, time is of the essence in today's personal communications services (PCS) and wireless marketplace. Speed to market and immediate deployment of quality networks are the secret to success in this volatile, rapidly peaking business arena, which Economic and Management Consultants International (ECMI) estimates will exceed $5 billion in infrastructure costs in 1996 before declining to $1.5 billion annually from the year 2000 until 2005.

For individuals tasked with the responsibility of engineering, designing and constructing PCS and wireless networks, time-consuming requirements such as site identification, site acquisition, zoning and permit procurement are often viewed as annoying factors that obstruct the construction process. Zoning requirements are different from city to city and may appear to have been determined without rhyme or reason. "Perfect" sites are frequently unavailable. New FCC licensees must go head-to-head with existing cellular operators, relocate incumbent 2 gigahertz microwave users and satisfy the FCC's MTA build-out quotas. So many issues must be dealt with before getting on with the really important business at hand—establishing or enhancing a nationwide reputation while increasing corporate profits—that new licensees are frequently overwhelmed. But they don't have to be.

Effective, profitable implementation of PCS Networks demands a sound site acquisition strategy.

By methodically considering each area of site acquisition as an individual opportunity, then utilizing experienced personnel to implement sound and proven strategies as necessary, site acquisition is cost-effectively and efficiently accomplished with a minimum of headaches and maximum consideration of the company's bottom line.

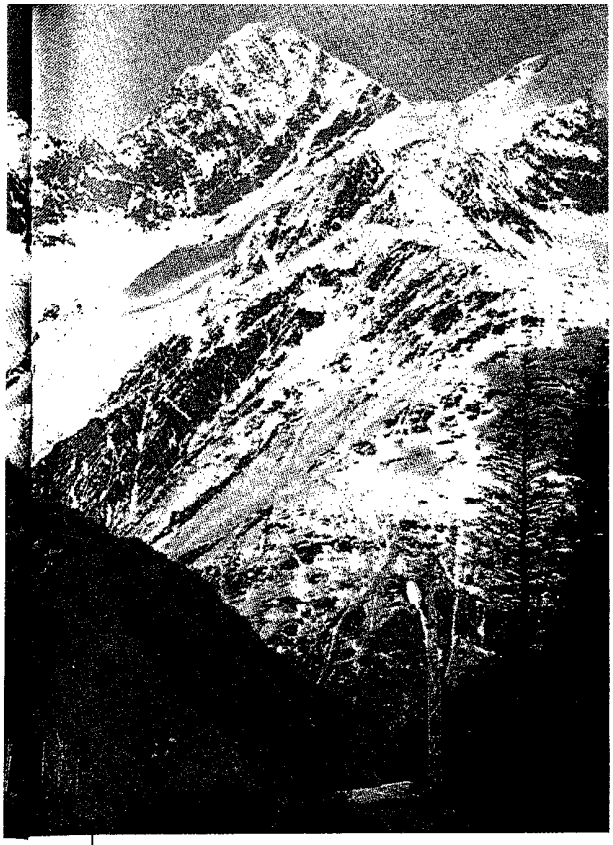
Unlike Cellular Networks, PCS/PCN Networks Should be Engineering Driven.

According to Cellular Telecommunications Industry Association (CTIA) estimates, up to 100,000 net sites will be required to support planned PCS networks. Because of this high site volume, it is necessary to approach PCS projects in a manner unlike that utilized in the development of traditional cellular networks.

Effective, profitable implementation of PCS Networks demands a sound site acquisition strategy. Most wireless projects, including cellular networks, are traditionally engineering driven: the goal is to provide the site acquisition company with search area maps for the identification of potential antenna sites. Admittedly, this is an effective strategy when deploying low density wireless networks or filling gaps in specific coverage areas.

The drawback to the traditional approach is that there is no pre-determined knowledge of land use classifications, nor is there an intelligent understanding of site availability in terms of existing rooftops for antenna placement, tower structures for co-location or green space sites for new tower construction.

Ideally, site information should be proactively made available to the RF engineer when site selection decisions for interconnected networks supporting population densities within a defined geographic area are being made—in other words, prior to network design. Since this data is typically unavailable during engineering, site rollout is frequently hampered by



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onerous zoning classifications and/or physical land characteristics which make reactive site identification and acquisition within that search area difficult at best.

Seasoned PCS/wireless project veterans have learned that the key to successful (and painless) site acquisition is a methodical approach. By tackling site acquisition using the tried-and-true step-by-step style outlined below, project construction may be implemented faster—allowing black ink to flow to the bottom line sooner rather than later.

Step #1: Market Analysis (Pre-Engineering)

Because of the often staggering number of sites required for a typical PCS network, the first critical step is to conduct a zoning and site pre-qualification analysis within a defined area of a specific MTA or BTA (usually the highest popular density areas within a given geographical location). The pre-qualification analysis is conducted in order to determine land use classifications for zoning and to pre-qualify sites in advance of network design.

Ideally, zoning information will be gathered by an experienced site acquisition team, interpreted by zoning specialists and input into map form for the defined area on a city-by-city basis. Existing RF and pre-qualified sites are then overlaid onto the zoning maps for a comprehensive overview of the core area. At this point, specific sites may be electronically identified by simply pointing and clicking onto specific site locations or by cross-referencing hand-copy spreadsheets.

Step #2: RF Engineering and Site Selection

Upon completion of the market analysis/pre-engineering processes, the wireless network may be designed and sites may be selected based on intelligent field information. Depending upon the technology utilized, population densities and projected coverage areas, and armed with the information derived in Step 1, the project's design engineers may determine the necessary spacing configurations and locate the most favorable sites for the accomplishment of network goals.

After the radio frequency grid pattern in defined and overlaid onto the zoning and site pre-qualification maps, preferred sites may be jointly finalized by the engineer and site acquisition specialist.

Step #3: Site Acquisition

Following successful resolution of Steps 1 and 2, the site acquisition team will be directed to lease the preferred sites. Since the sites will be pre-qualified, typical "hold-up" factors such as landlord willingness to lease, space availability, environmental considerations and pricing issues will have already been eliminated, clearing the way for quick and easy site acquisition.

Step #4: Zoning and Permitting

Once the lease is acquired, zoning and permitting processes may commence. Don't be intimidated by unknowns in the zoning and permitting world. Instead, make plans to proactively solve these issues up front, before time becomes a critical factor. In the Step #1 process, all zoning classifications for a particular municipality are identified in one of four ways: By-Right, Special Use Permit, Variance or Not Allowed. Determine beforehand where the roughest zoning issues are in your particular project and sidestep those areas for other sites which may be somewhat less desirable but will still meet your individual needs. Once zoning approvals are acquired, secure the necessary building permits and voila!—construction may begin. Utilizing this approach alleviates many of the time constraints caused by selecting sites in areas where RF applications fall within restrictive zoning classifications.

Opportunities, Not Obstacles

Site acquisition is a necessary step in the PCS/wireless construction and implementation process. When time to market is paramount, rely on the methodology outlined in this document. Doing so will enable today's savvy organizations to turn site acquisition into a conduit for accelerated network deployment—not an obstacle, but rather an opportunity.■

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By Steven J. Schulke