

ABOVE GROUND LEVEL

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SEPTEMBER 2009
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OUR
5th
YEAR

Ninth Circuit Court Ruling: What It Means for Tower Developers



- NEPA 101: Programmatic Agreement
- How to Upgrade Monopoles
- Cost of Occupancy Analysis
- The Promise of DAS
- Mobile Broadband
- 4G and WiMAX

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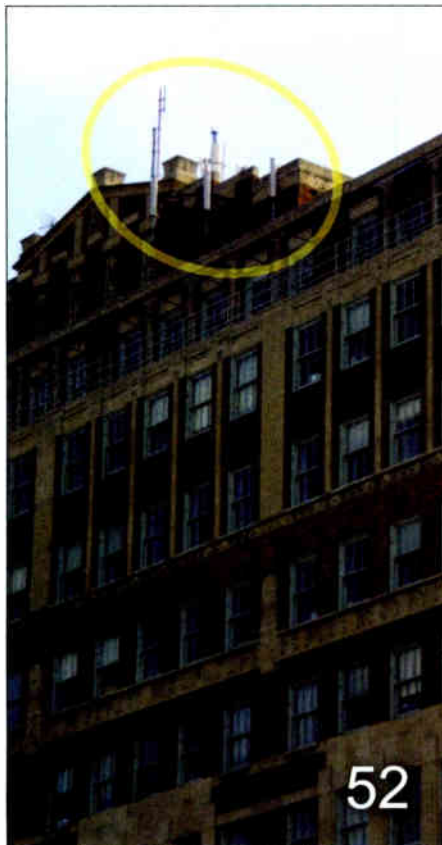
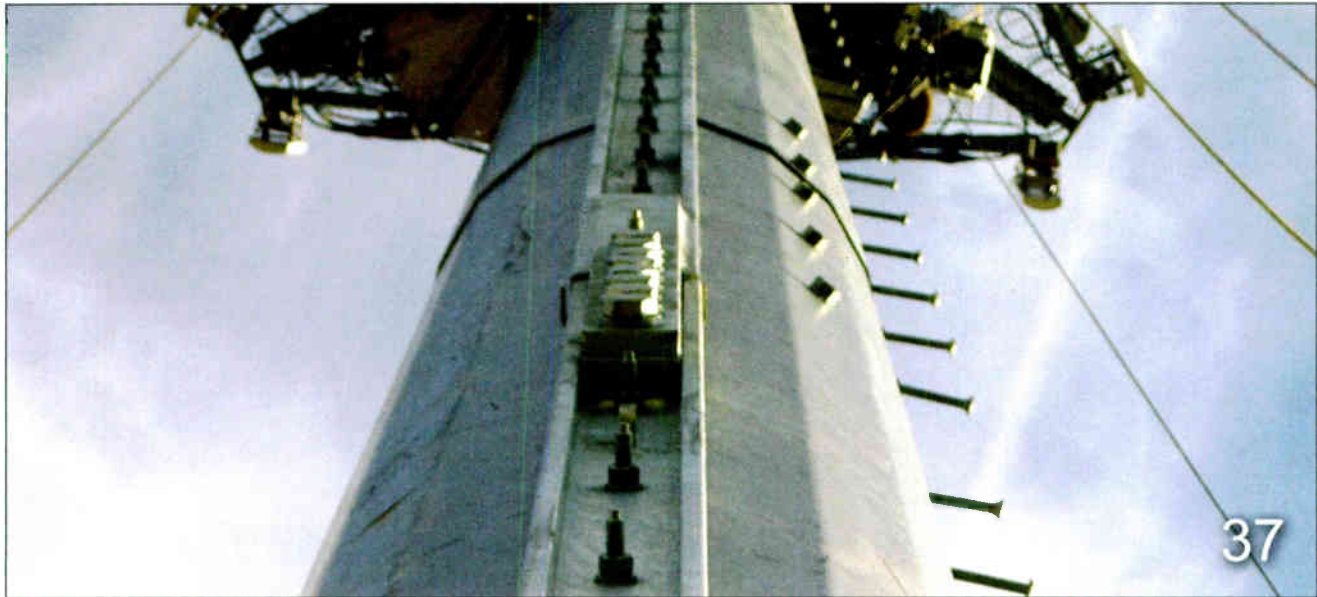
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Located in Riverside, Ia., the self-proclaimed birthplace of fictional character Captain Kirk of *Star Trek* fame, this 300-foot lattice tower from Subcarrier Communications is our featured gal for September.

37 **Upgrade Monopole Towers With Steel Channel**

Brian R. Reese, P.E.

Safely and efficiently maximize both the load-carrying capacity and revenue stream of your monopole structures. Special-purpose, high-strength, galvanized-steel channel offers multiple advantages for monopole upgrade projects.

44 **Court Says Yes to T-Mobile's Anacortes, Washington, Site**

Don Bishop

This case is particularly important in that it is one of the few cases in which it was ruled that a denial constituted effective prohibition of wireless services even though the denial otherwise complied with the law. — *CalWA*

52 **NEPA 101: Understanding the Federal Communications Commission's Nationwide Collocation Programmatic Agreement**

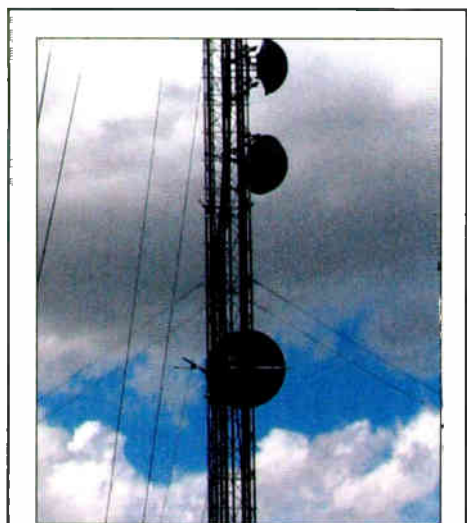
James Duncan, P.E.

The FCC's development of the Nationwide Collocation Programmatic Agreement streamlined, or in some instances, eliminated the need for state historic preservation office review of antenna collocations on telecommunication and radio broadcast facilities while supporting the goals of the National Historic Preservation Act.

58 **How to Prevent Occupancy Costs from Growing Out of Control**

Christos Karmis

The time-tested real estate model of valuing total cost of occupancy helps carriers avoid paying more dollars to rent antenna sites than they should. Instead, they often choose towers based on initial monthly rent.



on the cover

This 330-foot AGL, guyed structure by Nello is located in Logan County, Colo., and achieves a height of over 4,100 feet AMSL. Fully loaded, it holds 16 microwave dishes.

Photography courtesy of Nello.

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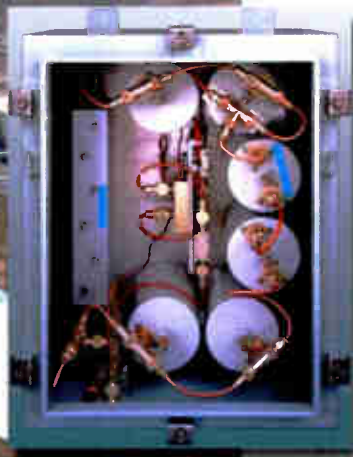
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One Step Forward

When an en banc sitting of the Ninth Circuit Court of Appeals reversed the court's own previous decision in a lawsuit that helped tower developers overcome municipal objections to tower construction permits, the en banc opinion of Sept. 11, 2008 represented two steps back for carriers seeking to fill significant gaps in wireless network coverage.



On July 20, 2009, the Ninth Circuit gave carriers a step forward when it upheld a District Court order that the City of Anacortes, Wash. issue a permit to T-Mobile for a tower that the city had previously denied. The carrier proposed to place the tower on property owned by the Anacortes

By Don Bishop, Exec. Editor
dbishop@agl-mag.com

United Methodist Church amid pine trees that would partially obscure the tower from view.

The Ninth Circuit's opinion places the burden for proving a proposed antenna site is the least intrusive alternative squarely in between carriers and municipalities. Municipalities in the Ninth Circuit's jurisdiction may not deny permits based on suggestions for alternative sites unless those alternatives are as fully backed by RF and site acquisition studies as the carriers' own applications.

Congratulations to Tim Sullivan, T-Mobile's principal attorney for network land use and litigation, and his team, and to Scott Thompson and Linda Atkins of Davis Wright Tremaine, who represented T-Mobile before the District Court and in the Ninth Circuit.

You can read full coverage of the proceedings in "Court Says Yes to T-Mobile's Anacortes, Washington, Site" on page 44. **agl**

Picture of the Month



A member of a tower crew working on a tree pole took this picture of one of the flying squirrels that now call the 148-foot tree home. He was about 110 feet up the tower. It appears that the squirrel has no redundant fall protection and no hard hat. The tower workers left the site because they did not want to be on site with a tower climber that had no climbing certifications and no fall protection.

Tim Dennis
 Invisible Towers
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World Radio History

Don't Worry, Be Happy

In general, I'm happy, cheery and full of optimism. I have not seen as much consulting engineering business coming through the doors at Waterford Consultants in a long time as I have in the past weeks and months. The telecommunications industry seems to be doing very well. Everyone I talk with is pretty darned happy.



I just completed some broadband stimulus consulting activities, and everyone seems to be full speed ahead on

new deployments such as WiMAX, 3G, 4G and just good, old-fashioned network enhancements. It kills me to be working on applications to extend fiber to the home in some of America's most rural areas even as I contend with my own unreliable, quirky and often frustrating wireless connection for my only access to "the net." I often fight that connection to publish this magazine from a county with one of the most attractive demographics in the country. Yet, because broadband access is available, regardless of reliability and quality, this area would not qualify for stimulus. RUS and NTIA definitely have some strange rules.

I really don't want to knock my Internet service provider. They're good people, and I love them, but why can't I use VoIP (lack of QoS), why can't I get speeds in excess of one megabit per second (capacity), and why can't I have reliability in excess of one or two 9s (90 to 99 percent reliability)? It is because my ISP is using noncommercial gear and relying on unlicensed spectrum. Oh well, I guess rather than helping other people apply for broadband stimulus grants, I should have applied for some myself.

Will the stimulus money mean anything or have any impact on our industry?

By Rich Biby, Publisher
rbiby@agi-mag.com

We are likely to see some uptake in lease rates. A few new towers may be built that will offer us the opportunity to acquire one day and add to our portfolios. But in the short term, the release of the stimulus funds is not likely to have much of an impact on our industry.

Having been in the trenches for a while, I really see the broadband stimulus program as being somewhat biased in favor of existing incumbent local exchange carriers, but that shows the advantage ILECs have in having a lot of money, time and lobbyists. A lot of good will come from the money that the program will spend, yet many applications for grants and loans will be for a lot of junk. We can only hope that our public agencies and those who volunteered to sort the ridiculous from the appropriate will do a good job, but time will have to judge it all.

On to brighter things. This magazine is about towers, but many readers have expressed an interest in some of the behind-the-scenes looks that I give, sometimes too often, about the publishing industry. Lately, some competitive publications have popped up. We laid all the numbers into a spreadsheet, and I am perplexed as to why someone would think publishing is a good idea. However, even with the new competition, we continue to do OK. Not as well as we would like, but OK.

If you look at our little magazine in comparison to many others, you'll see that we have reversed a couple of things. Most magazines run about 30 to 40 percent editorial and the balance in advertising. Being the nerd that I am, we turn that around here at Biby Publishing. We

run about 30 to 40 percent advertising to 60 to 70 percent editorial. If you're paying nothing to receive this magazine (yes, it is free to everyone), isn't getting at least twice as much good stuff every month a good value for your money? Do you feel any guilt? Just a little, perhaps?

The one thing you can do to help me out is to tell anyone and everyone who advertises in this magazine that you saw their company advertising in *AGL* and that you appreciate their support. We depend on you to let advertisers know their money is well spent so the advertisers will continue to want to put their investment of ad dollars into *AGL*.

Thank you for reading. Thank you for advertising. And thanks for staying in touch. We always welcome your feedback and input. Let us know what you would like to see us cover in the future. **agi**



On July 27, Sen. Mark R. Warner (D-Va.) hosted a broadband summit for local governments, businesses and nonprofit organizations to discuss opportunities under the 2009 American Recovery and Reinvestment Act.



NTIA Administrator Lawrence E. Strickling (left) looks on as Sen. Mark Warner speaks with a reporter at the broadband summit.

Photography courtesy of Stephanie Gross



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Readers Find Lease-optimization Articles to be Carrier-biased

I am sending you this email on the page 68 article "Why Are Cell Site Leases Changing?" [June/July 2009 *AGL*] by Tom Leddo of Md7, a California carrier broker firm. I feel a stronger point that Md7 represents carriers — not landlords/owners — should have been made. I recently received a presentation of Md7 on behalf of T-Mobile that was very much one-sided, slanted to T-Mobile's benefit. It failed to point out the fact that 10-year cancellation clauses are completely voided by bankruptcy or other court action. "Fox in the henhouse?"

Larry Shaefer
Angleton, Texas

I have to state my disappointment with your magazine for continuing to print articles by companies like Md7 and Wireless Capital Partners that really just serve as advertisements and platforms for them to express their views.

May I ask what the latest article by Tom Leddo, "Why are Cell Site Leases Changing?" [June/July 2009

AGL] has accomplished? How does this article help the reader? Is it written by an unbiased source without an agenda? If the source is biased, is there sufficient merit in this article to justify printing? How does this article differ



substantially from the two previous articles by Md7?

I would also question why this article is not labeled as an opinion piece. I agree that Mr. Leddo has the right to express his opinion, but it

should be labeled clearly as such.

Don't let this complaint suggest that I am not happy every month to receive my *AGL* magazine. Unlike other magazines, I actually keep past versions of yours for future reference. Please keep it coming.

Ken Schmidt
President
Steel in the Air
Fort Myers, Fla.

We like to keep AGL open to points of view from various perspectives, including tower owners, tower construction and maintenance companies and their workers, carriers and their representatives, site acquisition specialists and legal counsel. When we publish an article with a countervailing viewpoint, we hope it at least helps you to know what you're up against. We've known Tom Leddo for a number of years, and we respect his professionalism and his willingness to present his views of the industry in AGI. We know this is like putting out a fire with gasoline, but we welcome a lively forum. —RB

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Virginia Meeting Features 4G, WiMAX Presentations

By Alexa Champion Marks

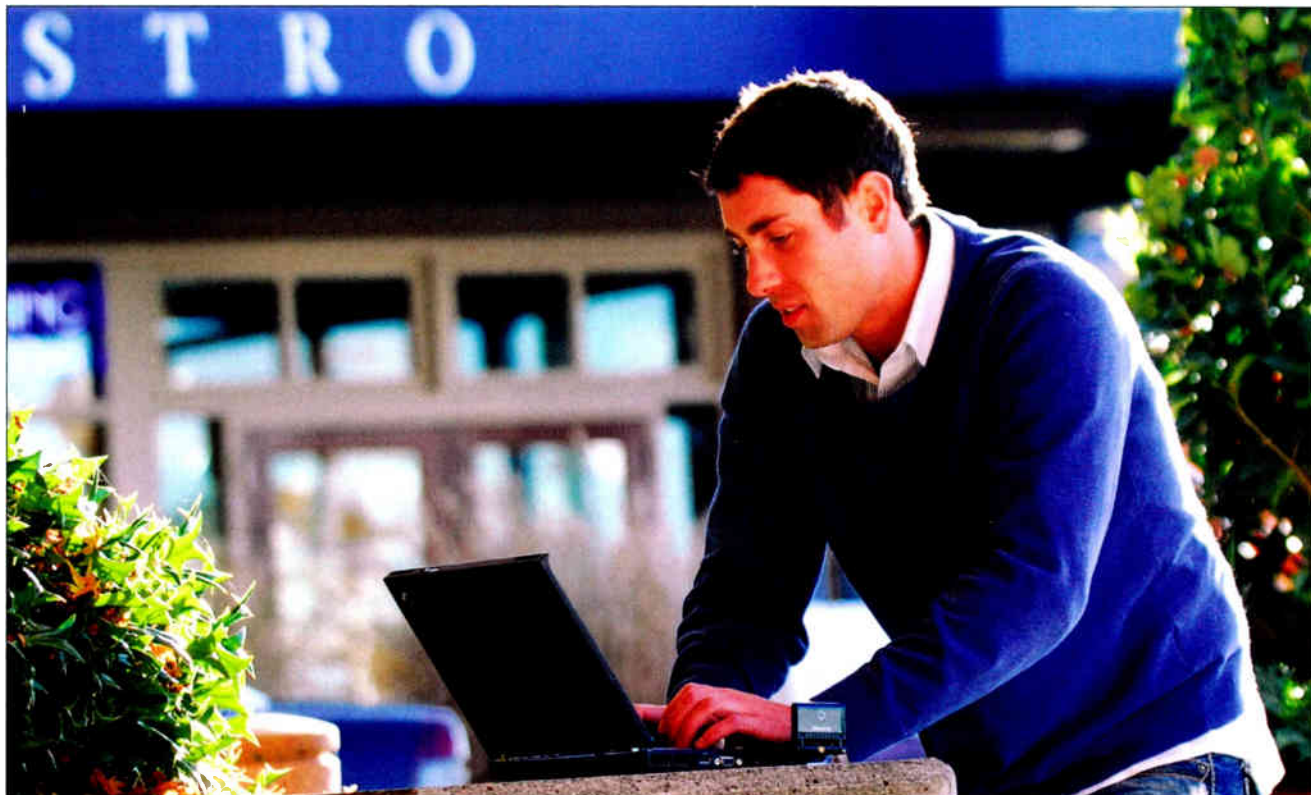


Photo by Cleanwire

Opening the Virginia Wireless Association meeting on Tuesday, June 16, at the National Conference Center in Lansdowne, President Edward Roach gave a message of inspiration, explaining that “innovation and technology are the catalysts to getting through tough times” and that “industry is poised to help the economy recover.”

Roach went on to emphasize that the purpose of the Virginia state association, as it is with the other 25 state associations, is to gather all the stakeholders together on a regular basis so that they may share information and network. He added that after the initial downturn of the early 2000s, the wireless industry has done well.

Roach, who also serves as associate general counsel for SBA Communications, marveled at how far the industry has come: “Now people [wireless customers] are upset if they *don't* have coverage; before, they were happy if they *did* have coverage.”

The group’s president also mentioned new regulatory obstacles. He cited a statistic that previous tower registration fees were \$250, and the current fee has risen to \$1,200. “We can deal with these issues as a group,” he said.

Education and regulatory issues

Liz Hill, chairman of the Education and Regulatory Committee, addressed

the 100 members in attendance regarding working with local legislators and councils.

“The wireless revolution has happened, and you shouldn’t be zoning it out,” Hill said. She explained that the wireless industry must become involved with legislation before it becomes law. “If it is a bad ordinance, life will be hard. You can’t change that until court.”

Hill, who also works as director of state and local government affairs for American Tower, encouraged members to get involved during the drafting process. She emphasized that when an applicant schedules an appearance before the city council, it is important

to consult the planners first. The applicant's relationship with the professional planners can set the tone for the interactions with the city council, she said. Moreover, being active during the drafting process allows association members to learn important details. "The way we know about amendments ... someone heard it at a meeting, from a planner," she said.

Regarding the education part of the education and regulatory committee, Hill asked members to let them know what they wanted to learn and the committee would arrange a session about that topic at future conferences. Roach added later that locations for future conferences would be rotated.

Future events

Eileen Hastings, chairman of the Social Committee, announced that the next event, a golf tournament, would be in Williamsburg on October 8, and she is looking for volunteers. President Roach encouraged members to sign up for committees, stating that volunteers are the strength of the organization.

Speakers and sponsors

Featured speakers included Rob Dawson, vice president of Tessco Technologies, who spoke about wireless convergence and the impact of 4G on the rest of the network. Keynote speaker Mark Holland, director of global standards for Clearwire, spoke about the company's new network, Clear, which scheduled launches this summer in Atlanta; Portland, Ore.; and Baltimore. The third featured speaker was Tessco's product business unit leader, Robert Burke.

President Roach thanked the events' sponsors: BCI Communications, Entrex Communications Service, Tessco Technologies, Donohue & Blue, Waterford Consultants, Radio Frequency Systems and Fidelity.

4G's network impact

Tessco's Dawson explained that the number of wireless subscribers in the United States has risen from 33.8 million in 1995 to 270.3 million



Photo by Rich Bibby

Tessco's Rob Dawson said that although maps show apparent coverage everywhere, some dead spots remain. He attributed network growth to the popularity of end-user applications on wireless communications devices.



Photo by Clearwire

Clearwire's pc card enables portability for customers on the Clearwire wireless broadband network. The pc card is the next stage in the evolution of the company's strategy to deliver a simple-to-use, fast, portable, reliable and affordable broadband experience.



Photo by Rich Bibby

Clearwire's Mark Holland said that as wireline minutes are falling, wireless minutes are rising. That shift, along with lower prices for wireless devices and use, has caused the level of use to rise.

in 2008. With almost as many subscribers as people in the country, part of the growth can be attributed to users with multiple devices, Dawson said.

And while coverage maps show that coverage is everywhere, Dawson joked that there are still dead spots.

"While I'm driving home from the office, I still have to say, 'let me hang up for 15 seconds because I'm going to lose you here in a minute,'" Dawson said.

He joked that no one seems to notice when there are no coverage gaps.

He showed figures indicating that the number of cell sites increased from 104,288 in December 2000 to 242,130 in December 2008. Discussing collocation, he said, "It's staggering to see how much stuff is hanging off these towers."

Dawson said that end-user device applications are driving growth, noting how it was possible to feel that "if you throw a chip in something, someone will need it." Mentioning iPhone, Blackberry, push email services, Oracle for mobile devices, GPS and netbooks,

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Dawson emphasized that user demand is pushing the growth.

According to Dawson, the question now is, "How perfectly does the network have to function to let this work properly?"

As of 2009, networks were using an average of 4 T1 lines per cell site, averaging 6 Mbps of capacity, whereas in 2007, each site had an average

of 2.5 T1s per site, and averaged 3 to 4 Mbps of capacity.

End users think the network is magic, Dawson explained. "When it works, no one has any questions. When it doesn't work, everyone has a theory." He joked that he once told a college group that magic dust and gnomes worked to connect devices to networks.

Companies are advertising high speeds because no company wants to say that its network is slower than everyone else's, he said.

The higher number of users, increased traffic and data transfers, and demand for faster speeds is putting a strain on network equipment and technical and financial resources, Dawson pointed out.

When the user devices are designed for high-speed throughput and the carriers advertise that they can support

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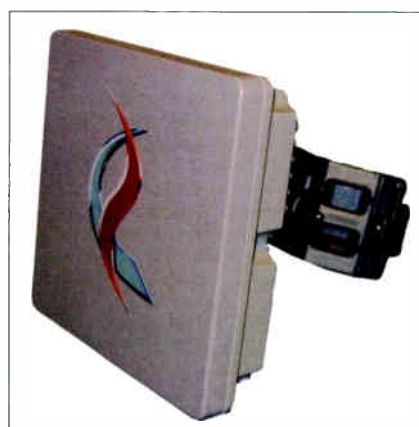
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Mark Holland: The current 3G network can't handle the traffic incurred by current usage.

the devices, then the network has to be configured to make sure the devices work as expected, Dawson said.

No 4G on a 3G network

Mark Holland, director of global standards for Clearwire, presented the company's newest brand, Clear. The 4G network brand developed by the merged company of Clearwire and Sprint Nextel was launching in Atlanta as he spoke. Clear's new network promises up to 6 Mbps



Tessco offers Redline WiMAX products, such as an outdoor subscriber unit certified by the WiMAX Forum.

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"You can't support a 4G world on a 3G network," Holland said, as he pointed out that the current 3G network can't handle the traffic incurred by current usage, which explains the need for the next generation of network.

Holland said two megatrends are driving growth: Wireline minutes have

dropped, and wireless minutes have gone up. Those trends, along with price point changes in devices and usage charges, have driven usage up.

With most households downloading 15 GB per month, there is a 3G network crunch, Holland said. He explained that devices and applications are driving the industry, and there is an extensive selection of devices with low-cost 4G chip-

sets embedded in the device to reduce barriers to entry. He described the iPhone as just the "tip of iceberg."

Primary connection tool

Holland said that the mobile device will be the primary connection tool to the Internet for most people in the world in 2020, so the necessary infrastructure must be put in place.

This market-driven need created fertile ground for Clear to be developed. The consumer now expects consumer electronics to have chips, Holland said. Initially, Clear launched in Atlanta, and then in cities such as Portland, Ore., and Baltimore. In selecting cities for the initial launches, Holland explained that "we want to be able to market and sell to 85 percent of the people in a population."

Clear, he said, has a two-year market lead over the competition. "We want and encourage innovation," Holland added. He predicted that as many as 100 WiMAX devices will be available to consumers by the end of the year. Additionally, he pointed out, "a lot of integrators are finding solutions focused on niches."

Focusing in larger markets, underserved markets and the "last mile," he noted that Clear's mobile WiMAX delivers four times the throughput of other technologies at one-tenth the cost. With

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Photo by Rich Bibby

Liz Hill, chairman of the Education and Regulatory Committee, who also works as director of state and local government affairs for American Tower, encouraged members to get involved with ordinances and legislation during the drafting process.

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other networks, Clear wants to ensure "interoperability ... not dissimilar to a 2G/3G world," he said.

He explained that a significant amount of dollars are going into the network to increase capacity. Emphasizing the strength of WiMAX, Holland said, "If something better comes along, we'll use it."

He emphasized that Clear was not operating in a vacuum. In Silicon Valley, Clear has set up a WiMAX innovation network amounting to an ecosystem involving Google, Intel, Cisco and others. Holland added that Clear is also interested in applications to serve public safety agencies and utilities.

Clear is focused on building the consumer brand on the first pass, Holland said.

WiMAX demonstration

After much build-up throughout the day, Robert Burke, Tescos's director of training, presented a WiMAX demonstration. Set up in various corners of the room were stations including a base station unit, an antenna, subscriber unit and controller, demonstrating various applications of WiMAX.

Burke gave a brief introduction to Tescos's WiMAX network. He emphasized the advantages to WiMAX from a market entry standpoint: "Low entry price, you can start small and grow

**Robert Burke:
WiMAX is extremely
scalable, making
it possible to grow
systems by adding
access points.**









larger as required." Burke pointed out that WiMAX was extremely scalable, saying it is possible to grow systems by adding access points.

Some WiMAX applications include "network backhaul, distribution network, point-to-multipoint, integration of existing utility networks and RoIP backhaul," explained Burke.

Burke said that WiMAX uses the IEEE 802.16 standard for metropolitan area networks — 802.16d for fixed and 802.16e for mobile — with a bandwidth up to 70 Mbps, and the rate can vary 20 to 40 Mbps. He added that network operators can use multiple-input, multiple-output (MIMO) technology to increase throughput.

Attendees explored the interactive demonstration after the formal closing of the meeting. **agl**

Alexa Champion Marks is a freelance writer in Ashburn, Va. Her email address is a.champion.marks@gmail.com.

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Zoning and the Promise of DAS

By Robert Lystad and Jackie McCarthy

The recent decision by the U.S. Supreme Court to deny Sprint's petition for review in *Sprint Telephony PCS, LP v. County of San Diego* sealed what we have known about the Telecommunications Act of 1996 (TCA) for several years. The TCA's limits on local zoning authority can be only marginally successful in facilitating the ubiquitous provision of wireless services. If the TCA is not the cure-all we hoped it would be, it may be time to look elsewhere for solutions. One such solution that

ments, DAS offered wireless carriers a smaller, low-power alternative that relied on existing infrastructure, such as traffic signals and streetlights, as an alternative for filling in coverage gaps and adding capacity to strained networks. Not only was it unobtrusive, but also independent companies such as New-Path Networks, ExteNet Systems and NextG Networks¹ offered a multicarrier, *neutral host* version of DAS that promised to reduce the proliferation of proprietary cell sites. Thus, whether

or not DAS required zoning, wireless carriers assumed that DAS would be an attractive alternative in areas where traditional cell sites were controversial or were not feasible.

Carriers also assumed that permitting a DAS network would be significantly easier and less

time-consuming than traditional cell sites. After all, the features of DAS were an easy sell to planners and local officials who, in some instances, even "suggested" that carriers find a DAS alternative for their new cell sites.

Obtaining permits for DAS, in many instances, did not prove to be so easy. For many regulators, DAS was an anomaly. The antenna nodes and their fiber interconnects were located largely in public rights-of-way, that is, areas that fell outside the traditional scope of zoning and, for that reason, should be handled by public works departments and not planning departments. Yet, local planners often found

themselves trying to enforce wireless zoning ordinances that did not identify DAS specifically and that drew little distinction between cell sites proposed for placement in public rights-of-way and those sites proposed on private property. Moreover, restrictions in those ordinances, such as residential setback requirements, which might permit placement of a single cell site in a mixed-use zone, functioned as an absolute bar to DAS. DAS companies often argued that, as certificated public utilities, they should not be covered by these ordinances and, though occasionally successful, the result was regulatory uncertainty and wildly divergent regulatory requirements.

The regulatory confusion over DAS also existed at the state level. As did their local counterparts, state regulators struggled with treatment of DAS companies. This confusion arose in part because they knew the TCA had preempted much of the states' authority over wireless carriers and that, as with these carriers, DAS companies' antennas received and transmitted wireless communications.² However, unlike wireless carriers, DAS companies were not licensed by the FCC and, moreover, DAS fiber networks looked very much like the fiber networks deployed by the Internet fiber companies that connected DAS networks not only to wireless base stations but also to the public switched telephone network. Nevertheless, DAS companies were almost always able to obtain state certificates unless the state took the position that such certificates were not required under that state's public utility laws.

Surprisingly little progress has been made in identifying the appropriate

For many regulators, DAS was an anomaly. The antenna nodes and their fiber interconnects were located largely in public rights-of-way, that is, areas that fell outside the traditional scope of zoning and, for that reason, should be handled by public works departments and not planning departments.

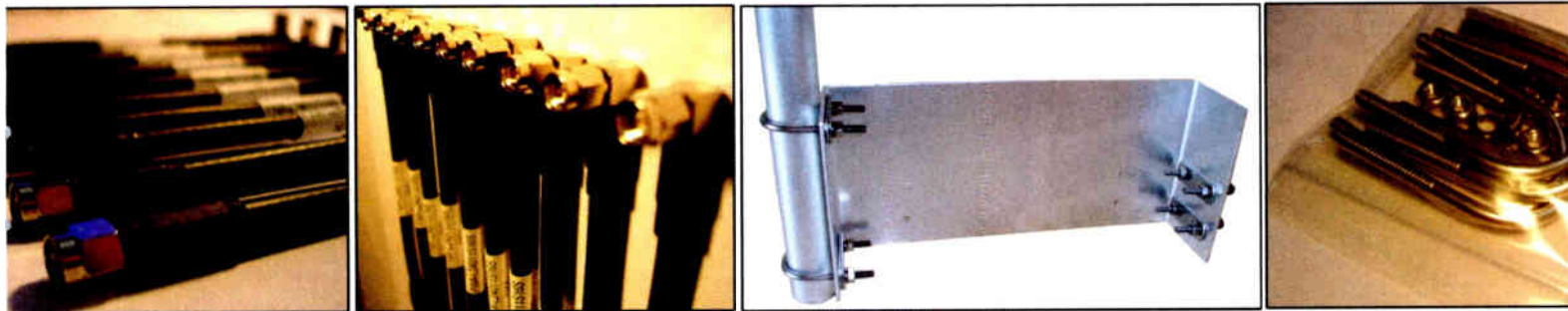
is showing real promise is *distributed antenna systems* (DASs). But DAS is a fledgling technology that needs support, and the same zoning-related impediments that the TCA was intended to quell pose serious problems for the widespread deployment of DAS.

Just a few years back, DAS caught the attention of wireless carriers who were looking for solutions for hard-to-serve areas. Although, in select instances, the phrase "hard-to-serve" meant mountainous terrain and canyon country, it was more often a euphemism for "hard-to-zone." Rather than relying on larger, more visible cell sites, and battling over expensive stealthing require-



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regulatory framework for DAS. The fiber component of the network compelled DAS companies to become certified by state public utility commissions (PUCs) as private line service corporations or competitive local exchange carriers or some other variant of a public utility entity. As certified utilities, DAS companies found themselves the beneficiaries of certain

bundles of rights that often altered their relationship to local jurisdictions and, in varying degrees, limited the amount of discretion normally exercised by those jurisdictions in the zoning context.³ In many instances, for example, a state PUC's decision to certify a DAS company as a public utility was based on a determination that the company's services were both "necessary" and "in

the public convenience." These determinations were precisely the same as the determinations made by a zoning board on an application for a conditional or special use permit. In other words, if a DAS company proposed to build its network using a particular community's rights-of-way, the state PUC's decision to certify the company as a public utility arguably prevented the local jurisdiction from rejecting that proposal absent some alternative grounds such as failure to comply with construction standards.⁴

Local jurisdictions around the country are still trying to determine whether or not DAS needs to be zoned. Some jurisdictions recognize limits on their authority over the placement of utilities in



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As certified utilities, DAS companies found themselves the beneficiaries of certain bundles of rights that often altered their relationship to local jurisdictions and, in varying degrees, limited the amount of discretion normally exercised by those jurisdictions in the zoning context

public rights-of-way and embed zoning exclusions in their ordinances. Other jurisdictions seek to preserve local control over DAS and either generally impose zoning requirements on all antenna facilities regardless of location, or formulate special requirements for antennas proposed for placement in the rights-of-way. One argument that DAS should

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be zoned is based on the assertion that zoning districts do not stop at the curb

mit network proposals to a local zoning authority in a specific instance, regard-

less of whether zoning applies, to gain better community relations and to provide local policy makers with opportunities for input on the proposal. When providers request zoning approval of DAS networks, "batching" of node applications (so individual nodes are reviewed and voted upon concurrently) could provide more efficient review for local governments. In this way, the provider proposes the network as a single, multilocation "site."

As form-based codes encourage walkable, multi-use communities where residents live, work and play in close proximity, there is a significant opportunity for wireless infrastructure, particularly DAS, to be promoted as an appropriate method of providing necessary services consistent with visual standards

but extend to the midline of the right-of-way. According to this argument, unless there is a statutory exception for DAS (or for telephone utilities generally) in either state or local law, DAS can be zoned. Occasionally, DAS providers may sub-

mit network proposals to a local zoning authority in a specific instance, regardless of whether zoning applies, to gain better community relations and to provide local policy makers with opportunities for input on the proposal. When providers request zoning approval of DAS networks, "batching" of node applications (so individual nodes are reviewed and voted upon concurrently) could provide more efficient review for local governments. In this way, the provider proposes the network as a single, multilocation "site."

However, unless a state permits the zoning of public utilities generally, and

Developing strategies

Whether or not the law settles the question of whether or not DAS can be zoned, DAS operators and their site development partners are developing strategies to engage communities in which they locate. Thus, operators are planning to have discussions with

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opinion leaders and community groups in advance of official applications to zoning boards or public utility boards to identify issues, address (or at a minimum, understand) opposition, and plan accordingly. Although these efforts will

DAS presents itself as a real opportunity both for planners and for the industry. But DAS needs regulatory clarity, and it is time to consider how principles of land-use planning and public utilities apply to DAS.

not neutralize all opposition, they can create greater understanding about the network and provide an opportunity for transparency and improved public and government relations.

Industry representatives also should educate themselves about the current paradigm shift that zoning is undergoing. Planners, especially recent graduates, are

increasingly resisting traditional or “Euclidean” zoning assumptions in place of “form-based” zoning concepts. Form-based zoning does not draw rigid distinctions among land uses but rather looks at the form those uses take. Thus, commercial uses that comply with height and setback requirements could be permitted in residential zones. Form-based zoning focuses on streetscapes and viewsheds, and theoretically allows for a combination of traditionally defined “utility” uses such as wireless facilities side by side with residential uses if the visual and operational setting is deemed appropriate and useful for the community. As form-based codes encourage walkable, multi-use communities where residents live, work and play in close proximity, there is a significant opportunity for wireless infrastructure, particularly DAS, to be promoted as an appropriate method of providing necessary services consistent with visual standards.

Despite double-digit growth in demand over the last decade, wireless carriers have struggled to fill gaps in services and to widely deploy advanced services.⁶ In addition, customer migration from landline to wireless-only households, which include about 25 percent of all U.S. households, is rapidly outpacing the industry’s ability to meet its residential deployment goals. Zoning plays a key role in these

difficulties, and DAS presents itself as a real opportunity both for planners and for the industry. But DAS needs regulatory clarity, and it is time to consider how principles of land-use planning and public utilities apply to DAS. These considerations require strategic creativity and solid knowledge of the local political landscape. Whatever role the TCA will continue to play in facilitating network objectives, DAS presents a significant opportunity to achieve favorable regulatory treatment while maintaining good community relations. **agl**

Robert Jystad is managing partner of Channel Law Group, a boutique law firm in Long Beach, Calif., that represents a broad range of wireless and tower companies. He is vice president of the California Wireless Association. His email address is rjystad@channellawgroup.com.

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The DAS Forum, founded in 2006 and supported by PCIA, is a nonprofit organization dedicated to the development of the DAS component of the U.S. wireless network. Visit the organization’s website at www.thedasforum.org.

Footnotes:

1. The list has grown and today includes ATC Outdoor DAS and various Crown DAS subsidiaries.

2. 47 U.S.C. § 332(c)(3)(A). Most PUCs granted certificates without objection, treating DAS providers like any competitive landline telephone company.

3. In most instances, these limitations exceeded the statutory restrictions imposed on that same zoning authority under the TCA. See 47 U.S.C. § 332(c)(7).

4. The preemption of the local jurisdictions’s authority to deny a proposed DAS build does not necessarily mean a project can avoid zoning, even if the authority to zone is limited to the authority to place conditions upon the build pursuant to certain criteria, such as visual impact mitigation, height restrictions, payment of fees, etc. — if the state law permitted such local regulation, and if placing such conditions were consistent with federal law.

5. 47 U.S.C. § 253(c): “State and local government authority. Nothing in this section affects the authority of a State or local government to manage the public rights-of-way or to require fair and reasonable compensation from telecommunications providers, *on a competitively neutral and nondiscriminatory basis*, for use of public rights-of-way on a *nondiscriminatory basis*, if the compensation required is publicly disclosed by such government” (emphasis added). The U.S. Supreme Court’s recent decision to deny *certiorari* (grant of review) in *Sprint Telephony PCS, LP v. County of San Diego* does not change this argument.

6. AT&T and Apple, for instance, downgraded the first iPhone release to EDGE because Cingular had not been able to deploy enough 3G or UMTS sites to meet coverage objectives.

The Phase I ESA: When Do You Need It?

By Ray L. McKim III, CPL/ESA



Usually, whenever someone orders “environmentals” for a new site, we understand that to mean a Phase I environmental site assessment and the NEPA/Section 106 approval process. The NEPA review is needed whenever an action involves a federal license or undertaking. This includes adding antennas that use FCC-licensed frequencies to a tower or building. The Phase I ESA is another component of the environmental discussion, but is it *always* needed?

Many project managers, attorneys and other telecom professionals believe that a Phase I is mandated by the FCC. It is, in fact, *not*. It may be part of a given company’s policy to require a Phase I, or it may part of the company’s financing or lender requirements. But the Phase I is not an “environmental assessment” or “EA” mentioned by the FCC as being the “further environmental impact investigation” stemming from the NEPA review. The main purpose of the Phase I ESA is to identify recognized environmental conditions, and to determine the presence of any hazardous substances or conditions that indicate an existing or previous release of petroleum products into the ground, groundwater or surface water. The most common culprit is the underground petroleum storage tank.

Tenant requirement

To cut costs, some companies now order a Phase I only for urban land, and not rural, never-been-disturbed land. That may be good for the short term

and only if the company expects to be the sole user, as it could be if it owns the tower, holds the FCC license and has no lender-imposed requirements. But usually, because of the high cost of towers, such a company would want to be able to accept future collocation rents — and if so, the company should be prepared for tenants that may require copies of the Phase I report. If there is none, it becomes a matter of who will pay for it, because most tenants require one. As the Fram oil filter slogan used to say, “You can pay me now, or you can pay me later.”

Collocation

That scenario leads into the next common inquiry: Do you need a new Phase I if you desire a collocation on a tower that had a Phase I performed at the time of lease acquisition? Many companies require a new Phase I for every new collocation as a matter of policy, but recently, many companies have begun taking a less cautious approach and are reviewing the original Phase I for age and reporting compliance. If the report was done properly and shows a thorough investigation, then in my professional opinion, a subsequent sublessee (or tenant desiring collocation) need not obtain another Phase I ESA. That said, if upon the site walk, the installers trip over 55-gallon drums of green, glowing ooze, you might want to rethink the need for a Phase I, or maybe rethink the site, period. I strongly suggest that your environmental professional review the original Phase I report for adequacy and thoroughness.

Another important current issue regarding the Phase I is the importance of

being AAI compliant. On Nov. 1, 2005, the EPA released 40 CFR Part 312 that defines the final rules for the All Appropriate Inquiry standards and practices. These rules and regulations were effective Nov. 1, 2006, and must be followed for an AAI-qualified Phase I report for: (1) an innocent landowner’s defense, (2) the contiguous-property owner’s protection, and (3) bona fide prospective purchaser protection. A company can still order something less than an AAI-compliant Phase I and many companies have not revised their scope of services to insist on the AAI-compliant report. It is important that every tower — both rural and urban — built after Nov. 1, 2006, has an AAI-compliant Phase I ESA performed within 180 days of lease acquisition.

Possible overkill

In sum, the liability protection that a timely AAI-compliant Phase I ESA report gives you is definitely worth the cost. However, the need for every sublessee coming on the pole after the fact to have its own report may be overkill. To review the rules and regulations of the AAI-compliant report, please visit my Web page, www.telecom-esa.com. agl

Ray L. McKim III, CPL/ESA, is an EPA-qualified environmental professional doing business as Telecom Site Services in Midland, Texas. He is a certified professional landman and environmental site assessor. He is a member of the American Association of Professional Landmen and the Texas Wireless Association. His email address is mckim3@swbell.net.



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Kidnap, Ransom and Extortion Policy

By David Saul, AAI

As your company expands globally, so do your exposures. Kidnapping, extortion and detention are real dangers for companies operating both overseas and in domestic markets. Management often overlooks them on the grounds that "it won't ever happen to us."



Companies with overseas operations and executives or staff who travel internationally may be targets for kidnapers and extortionists.

While no one can predict where or when a kidnapper or extortionist might strike, there are steps that you can take to protect your executives and their families and prepare for a possible threat. Purchasing a kidnap, ransom and extortion policy should be an integral part of your risk-management program.

Reward in business comes from taking risks, but the most successful businesses are those that analyze their risks carefully and take steps to protect against them

The kidnap, ransom and extortion policy should provide coverage for the following:

- Ransom and extortion payments as a result of a kidnapping or extortion threat
- Loss of the ransom or extortion payment while being delivered
- Expense coverage as a result of a ransom or extortion demand that includes fees and expenses of inde-

pendent negotiators, and travel and accommodation expenses

- Legal liability coverage protection in the event it is alleged the insured was negligent in a hostage retrieval
- Political threat coverage for expenses when a person is wrongfully detained by anyone acting for a government or with the government's approval

The damage this can inflict on a business can be severe, as evidenced by the annual roll call of corporate and individual victims around the world.

Kidnap outcomes

Most kidnappings are carried out in order to obtain a ransom, and in most cases a ransom is paid. Rescues are rare, largely because the authorities in most countries recognize that the safety of the victim is paramount. While the average occurrence of deaths following a kidnapping is 9 percent, this almost always is at the time of abduction rather than during the negotiation.

Kidnap demands

Demands can be huge, with more than 14 countries recording cases of \$25 million or more in recent years. Kidnappers usually settle at between 10 and 20 percent of the demand, except in the old Soviet Union where the Mafia is extremely reluctant to negotiate and uses excessive violence to achieve its aims.

Kidnap payments

While most ransom payments are kept confidential, some substantial sums

have been paid. Latin America features heavily in the list, but many of the largest settlements have been made in Europe. Recent years have seen a noticeable increase in average ransom payments.

Reward in business comes from taking risks, but the most successful businesses are those that analyze their risks carefully and take steps to protect against them. It would be relatively straightforward if companies were exposed only to day-to-day commercial and competitive threats; however, many business hazards today are far more difficult to protect and quantify.

Extortions also are a real threat to companies that produce products in this global economy.

What is extortion? It is the crime of obtaining money or some other thing of value by the abuse of one's office or authority.

How should the policy respond?

The kidnap and ransom policy should provide full coverage for extortion. Extortion is defined as the following types of threats made in conjunction with a ransom demand:

- A threat to kill, injure or abduct
- A threat to damage property, a threat to contaminate products
- A threat to divulge trade secrets
- A threat to introduce a computer virus

Covered losses paid by the insurance policy should include:

- Unlimited fees and expenses of a certified crisis-management company in investigating and handling the extortion threat
- Any ransom paid
- Loss in transit of ransom while being conveyed to extortionists
- Additional expenses including, but not limited to:

- Reward to an informant
- Cost of temporary security measures recommended by certified company
- Fees of a public relations consultant
- Fees of an interpreter
- Salaries of employees assisting in negotiations
- Personal financial loss due to physical inability to manage personal financial matters
- Interest on loans raised to meet insured loss
- Settlements and judgments imposed on insured for damages brought by or on behalf of an insured person or stockholders as direct result of extortion

In November 2008, Express Scripts said it received a letter demanding money from an anonymous company

under the threat of exposing records of millions of patients. The letter included personal information on 75 people

EXTORTIONS ARE A REAL THREAT TO COMPANIES THAT PRODUCE PRODUCTS IN THIS GLOBAL ECONOMY

covered by Express Scripts, including birth dates, Social Security numbers and prescription information. This could happen to you. Someone could hack into your computer and obtain information about your tenants that could include personal information as well as bank account information. Once this

happens you should contact the certified crisis-management team. At that point, they will handle any fact-finding.

The crisis management team is first to handle the safe, timely and secure release of the victim if there is one. Second, they handle the extortion in the best interest of the client. Third, they want to safeguard your continued operations. And last, the crisis-management team is committed to always acting within the law.

Please contact your insurance representative to obtain a kidnapping and ransom policy that includes coverage for extortion. **agl**

David Saul is executive vice president of Atlantic Risk Management, Columbia, Md., and an accredited risk advisor in insurance (AAI). His email address is: dsaul@atlanticrisk.com.

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Mobile Broadband Subs Near Quarter-billion Mark

By Nick Jotischky



There were more than 225 million mobile broadband subscribers (all technologies) at the end of March 2009, representing 93 percent year-over-year growth. Mobile broadband services continue

to be an important source of growth for mobile operators, both as a revenue generator and as a way of retaining

customers in an increasingly competitive marketplace.

Although the popularity of mobile broadband remains at its highest in Asia Pacific (more than 90 million subscribers), growth is most notable in Latin America (385 percent year-over-year growth to more than 10 million subscribers). Typically, in many emerging markets, fixed broadband access remains limited and mobile operators are seeing the opportunity to use recently deployed third-generation networks as a way of diversifying their

revenue streams by connecting millions for whom an Internet connection has until recently been out of reach.

Device market

The evolution of the device market has also contributed to a surge in mobile data traffic. Informa estimates that the increased usage in nonvoice services has resulted in mobile operators recording total data revenues of \$46.5 billion during 1Q09, which is an 8.5 percent year-over-year increase on the cor-

Actual Data Revenues by Geography, 1Q 2008 – 1Q 2009

	Africa	Americas	Asia Pacific	E. Europe	W. Europe	Middle East	US/Canada	Total
1 Quarter 2008 (\$ million)	838	2,555	15,943	2,820	11,724	549	8,471	42,900
1 Quarter 2009 (\$ million)	844	25,912	17,947	2,404	11,066	670	11,036	46,560
Year-Over-Year Change	0.8%	1.5%	12.6%	-14.7%	-5.6%	21.9%	30.3%	8.5%

Regional Data as Percentage of Revenues, 1Q 2009

	Africa	Americas	Asia Pacific	E. Europe	W. Europe	Middle East	US/Canada	Total
Data as a percentage of revenues	7.7%	15.8%	27.3%	18.9%	27.1%	11.3%	22.9%	23.2%
Actual data revenues (\$ million)	844	25,912	17,947	2,404	11,066	670	11,036	46,560
Data ARPU (\$)	0.75	1.73	3.42	1.79	5.93	1.62	13.00	3.90

Mobile Broadband Subscriptions by Region 1Q 2008 – 1Q 2009

	Africa	Americas	Asia Pacific	E. Europe	W. Europe	Middle East	US/Canada	Total
Mobile broadband subs 1 Quarter 2008	1,089,006	2,117,591	53,758,192	2,705,433	12,798,360	2,860,149	41,375,330	116,704,061
Mobile broadband subs 1 Quarter 2009	2,477,300	10,175,412	90,369,350	8,989,036	30,783,444	3,388,635	78,897,700	225,080,877
Year-Over-Year Change	127.5%	380.5%	68.1%	232.3%	140.5%	18.5%	90.7%	92.9%

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responding period in 2008. The value of the nonvoice market for the whole of 2008 was more than \$180 billion, accounting for more than 20 percent of total service revenue.

The spread of the iPhone continues to boost data usage for those operators that distribute the model. Once the preserve of the corporate segment, the consumer market is now driving the evolution of the mobile data market. And yet, the value of the global data market has decreased by 1.8 percent in the last quarter. The main cause of this fall in the value of the data market is global currency exchange volatility.

Mobile operators cannot afford to overlook the effects of the economic downturn on consumer spending and especially the discretionary spend of data services. Moreover, intense competition and the introduction of bundled offers in order to limit churn has resulted in decreasing short message service revenues for many operators despite an actual rise in traffic. Although all data services, be they messaging, entertainment, Internet or mobile banking services are becoming more central to mobile operator strategies, they are often more successful as retention tools and differentiators than actual revenue generators. **agl**

Nick Jotischky is a principal analyst with Informa Telecoms & Media. The company's latest World Cellular Data Metrics report assesses the extent of nonvoice mobile revenues and usage. Jotischky's email address is nicholas.jotischky@informa.com.

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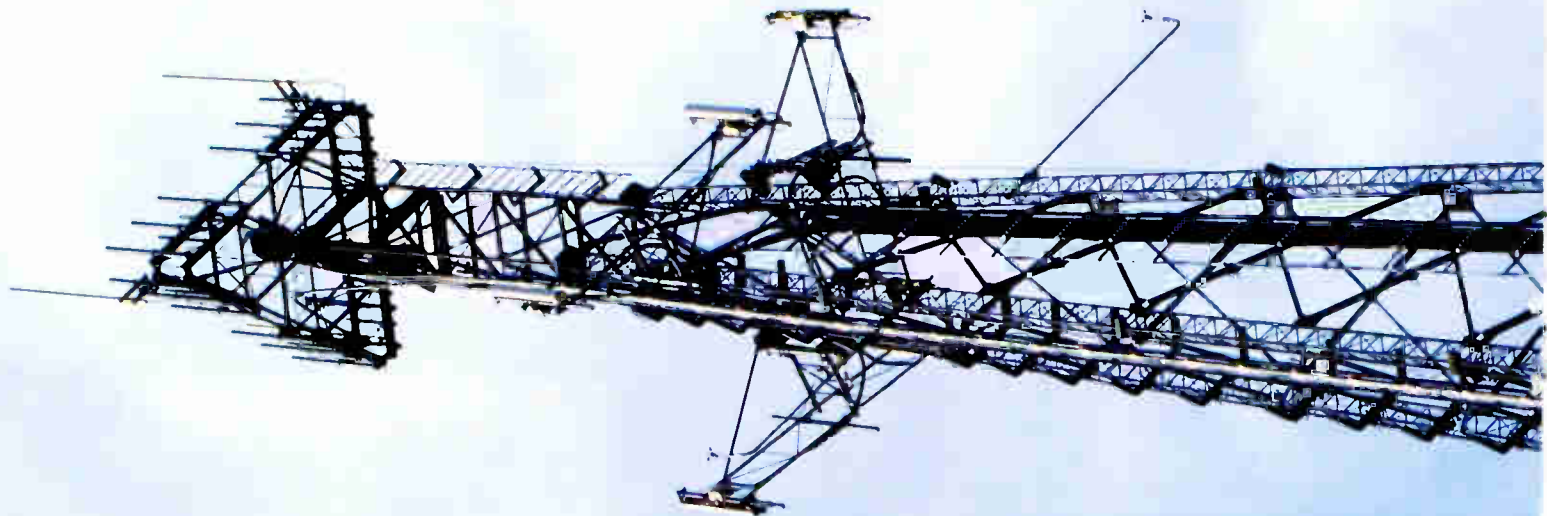


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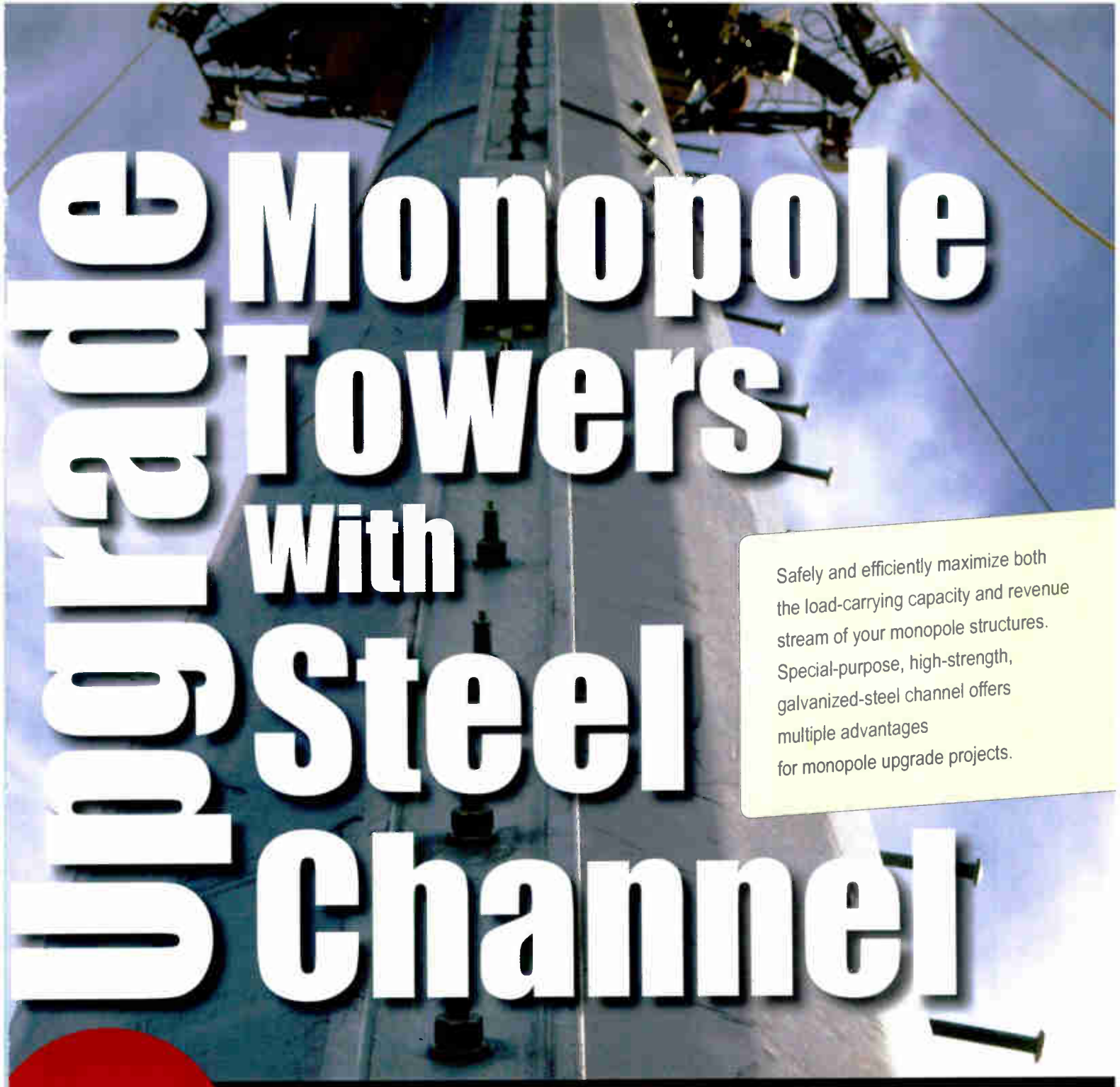
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Upgrade Monopole Towers with High-Strength Steel Channel

Safely and efficiently maximize both the load-carrying capacity and revenue stream of your monopole structures. Special-purpose, high-strength, galvanized-steel channel offers multiple advantages for monopole upgrade projects.

By Brian R. Reese, P.E.

MONOPOLES remain a popular form of antenna support. In recent years, reinforcing existing monopole structures has allowed telecommunications tower owners and users to reduce structure proliferation and increase load-carrying capacity to obtain more revenue per structure by adding more wireless carriers' antennas. Reinforcing a monopole can involve strengthening its shaft, base plate, anchor bolts or foundation as required by engineering analysis. Acceptable methods for upgrading monopole struc-

tures involve various means of attaching structural reinforcement members. The following information focuses on the use of special-purpose, high-strength, galvanized steel channel.

Monopoles

Cellular telephone service began in the United States in the early 1980s, and wireless carriers began using monopoles for high percentages of their antenna sites as cellular networks saw rapid growth in the



Wireless carriers began using monopoles for a high percentage of their antenna sites as cellular networks saw rapid growth in the late 1980s.

late 1980s. Fueled by demand for communications services, monopole use by both carriers and noncarrier tower owners exploded in the late 1990s. During the

same period in which the wireless industry experienced radical growth, public opposition to the placement of new sites also increased significantly.

In response, wireless infrastructure owners and users have sought ways to optimize the load-carrying capacity of existing structures. Monopole reinforcement has become a common alternative to constructing a raw-land site. In the last few years, monopole upgrade methods have included bolt-on structural members, clamp-on sleeve or structural members, welded reinforcement, carbon-fiber reinforcement and the use of adhered structural members. Increasing the structural capacity and use of existing antenna support infrastructure has slowed the proliferation of raw-land sites and the deployment of new structures. More importantly, individual site revenues have increased.

Unlike self-supporting and guyed towers typically manufactured from standard sections and readily available structural materials, monopoles have customized geometry and use high-strength steel plate not readily available for aftermarket modifications. Field-strengthening a monopole structure is challenging from

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design, fabrication, material-availability and field-constructability standpoints.

Design — Monopole upgrade structural design challenges include accounting for upgrade member strength (buckling), developing the load in member end connections and accounting for proper force transfer between upgrade members. Correct connector design for bolt-on systems and proper connection design around the inevitable field obstruction are crucial to the upgrade system. Without them, the upgrade system will not perform as intended by the designer.

Fabrication — For system integrity, the monopole upgrade system must be fabricated with materials of appropriate strength and quality. Most press-braked polygonal monopoles are fabricated with ASTM A572 Grade 65 high-strength steel. Upgrade members should be of equivalent strength, otherwise the entire monopole and its upgrade system would not work together in optimal fashion.

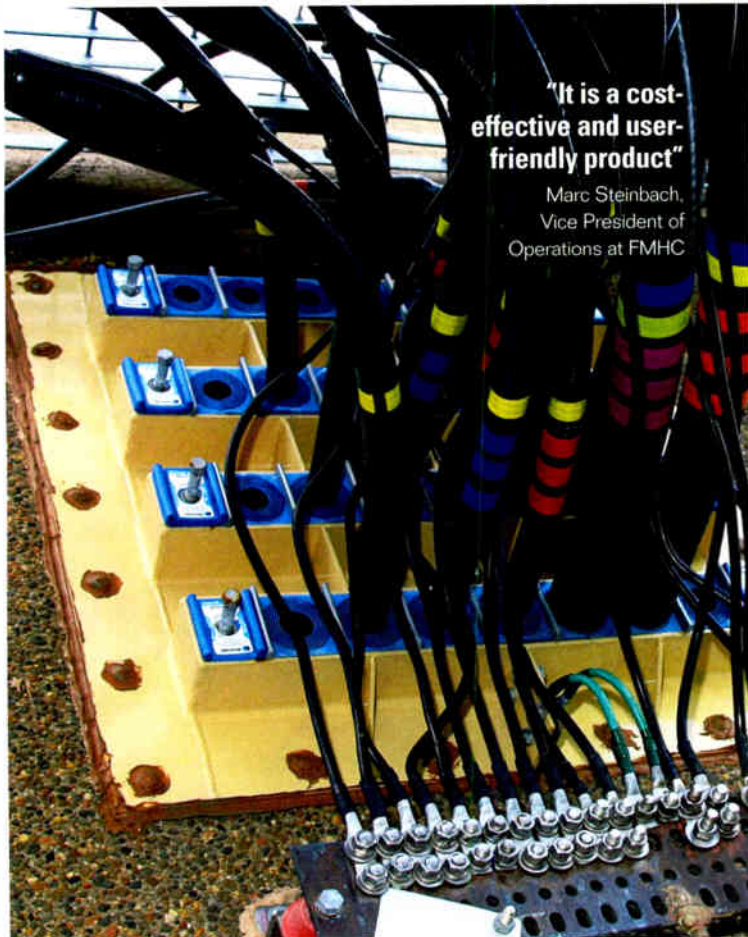
Field constructability — Designing



Developed and introduced in response to the field problems associated with welding and clamping structural upgrade members onto existing monopole structures, a monopole upgrade system uses special-purpose, high-strength galvanized-steel channel.

a monopole upgrade system that can be constructed in the field is essential. Bolt-ing is difficult with restricted access to the monopole interior. In addition, clamping

upgrade devices are difficult and costly to fabricate. Field welding at elevation raises safety and quality-control concerns. Welding may damage galvanizing on interior



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SHAPE	WIDTH (in.)	AREA (in ²)
MP3-03	4.06	2.92
MP3-04	4.78	4.13
MP3-05	5.33	5.65
MP3-06	6.89	8.47
MP3-08	7.93	10.32

Table 1. Available high-strength galvanized steel MP3 channel shapes

surfaces in a way that is challenging to access and repair, accelerating future corrosion.

Monopole upgrade system

The monopole upgrade system using special-purpose, high-strength galvanized-steel channel was developed and introduced in response to the field problems associated with welding and clamping structural upgrade members onto existing monopole structures. When developed, the goals of the system were as follows:

- Improved supply chain and speed

to market — fast deployment of upgrade kits

- Repeatable parts — standardized, stocked components
- Structure optimization — flexibility in load carrying capability
- Safe, nonwelded shaft upgrade — blind-bolt attachment of upgrade members with no shaft welding

Advantages of using special-purpose, high-strength galvanized-steel channel include speed to market through the use of standardized, repeatable parts. All of the main components are stocked and readily available. With five available upgrade members, the system covers a wide range of overstress conditions and is highly efficient. Table 1 details the available high-strength galvanized steel MP3 channel shapes.

The monopole upgrade system consists of channel shapes with higher structural efficiency than flat-plate upgrade members. The MP3 channels consist of

Grade 65 material and have minimum Charpy impact values of 15 foot-pounds at -20 degrees Fahrenheit. They comply with TIA-222 Rev. G.

The size of the MP3 channel is as specified by engineering analysis and can be varied depending on the overstress condition. (See Figure 1) With standard lengths of 10, 20 and 30 feet, the system can be assembled to optimize the upgrade design solution. Member-to-member connections and end connections are standardized throughout the system. Applications include both polygonal monopoles and pipe poles. The system has also been used to reinforce tree poles as well as other stealth structures. The low-profile nature of the special-purpose, high-strength galvanized-steel-channel monopole upgrade system results in a nearly transparent structural upgrade to an existing monopole structure.

Blind-bolt connections

The special-purpose, high-strength



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galvanized-steel MP3 channels are non-welded and blind-bolted to the monopole shaft wall with shear-transferring blind-bolts. The high-strength bolting solution transfers shear loading through the upgrade system and develops the full load-carrying capability of the MP3 members at the reinforcing ends. The blind-bolt system is easy to install with small equipment. The monopole interior side of the bolting solution is smooth and eliminates the risk of damaging the carriers' coax cables.

The intermediate connection bolts are spaced at 18 or 24 inches, depending on the MP3 section utilized. As a result of the structural efficiency of the special-purpose, high-strength galvanized-steel-channel monopole reinforcement system design, the bolt spacing is much greater than that required for the equivalent design using flat-plate steel. The MP3 channel shape has more efficient buckling capacity than a flat plate, which allows for increased bolt spacing compared with a flat-plate

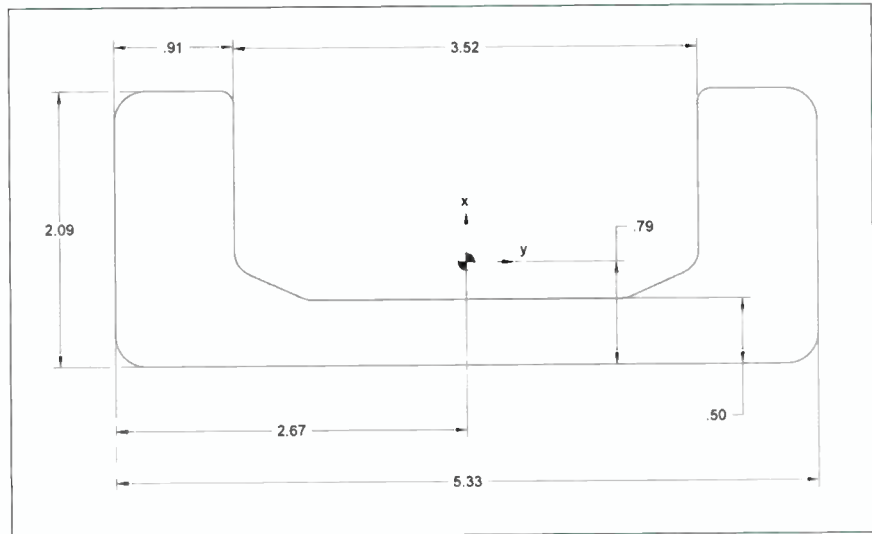


Figure 1. The size of the MP3 channel is as specified by engineering analysis and can be varied depending on the overstress condition. This diagram shows the shape of a model MP3-05 special-purpose, high-strength, galvanized-steel galvanized-steel channel. Units shown are inches.

design of equivalent weight. In addition, the MP3 channel is more efficient from an engineering design and fabrication

point of view because holes drilled in the channel web remove far less material than that removed from a flat plate of constant

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Intermediate-connection blind-bolts are spaced at 18 to 24 inches, depending on the MP3 section used. Bolt spacing is much greater than that required for the equivalent design using flat-plate steel.

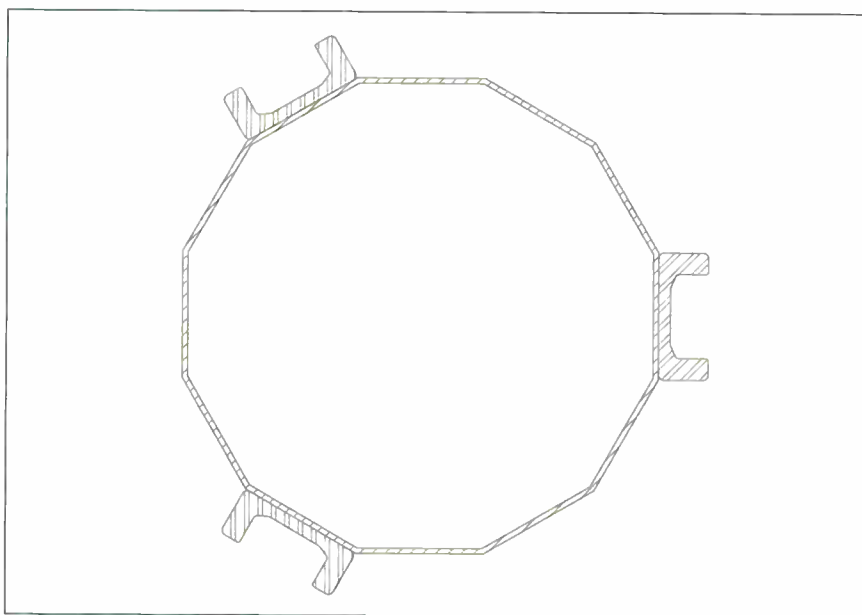


Figure 2. Upgrade layouts with special-purpose, high-strength, galvanized-steel channel typically involve three or four MP3 members placed around the monopole circumference to reduce the occurrence of interferences with existing handholes and climbing-step bolts.

thickness. With the larger bolt spacing, less drilling of the monopole shaft is required. The minimal drilling and lack of welding to the monopole shaft reduces labor and material costs, speeds installation and manages corrosion better.

Layout and installation

Upgrade layouts with special-purpose, high-strength galvanized-steel chan-

42 above ground level

nel typically involve three or four MP3 members placed around the monopole circumference to reduce the occurrence of interferences with existing handholes and climbing-step bolts. In addition, these configurations require less labor to install.

A technician visits the site to map the structure in detail and produce a site-specific assembly drawing and bill of materials (BOM) for the site. Structure mapping

allows standard upgrade materials to be customized, a step that is critical to the success of the upgrade installation.

Based on original monopole drawings — if available — and the field mapping, a three-dimensional model and assembly drawings of the special-purpose, high-strength galvanized-steel-channel upgrade system are generated in a parametric software program. Field obstructions such as handholes, climbing pegs, antenna mounts and other obstructions are accounted for in the preparation of the assembly drawings and final BOM for the site. The model and assembly drawings also show the detailed flat locations for the installation of the MP3 upgrade members.

Base upgrade

As specified by structural evaluation, a monopole upgrade may also require modification of the structure base plate, anchor bolts, foundation or a combination of them. Base-plate stiffeners are used to account for member load transfer at the base or to upgrade the monopole base plate. This involves welding high-strength steel base-plate stiffeners to the monopole shaft wall, the base plate or both. Note that this is the only welding that the special-purpose, high-strength galvanized-steel-channel monopole upgrade system requires. Stiffeners are field welded according to stringent quality-control procedures and fire-prevention requirements. Limiting the welding to ground level helps control welding QA/QC and manage safety and fire prevention.

Additional anchor rods are required when existing monopole anchors fail the structural analysis. Anchor-rod brackets are also field welded according to stringent quality-control procedures and fire-prevention requirements. Employed when the existing foundation fails the engineering analysis, foundation modifications can include mat augmentation, a caisson collar, micropiles or rock-bolts.

Dedicated production capabilities

In servicing the requirements of the wireless industry, speed of design and delivery is important. The special-purpose, high-strength galvanized-steel-channel MP3 shapes and each



As specified by structural evaluation, a monopole upgrade may require modification of the structure base plate, anchor bolts, foundation or a combination of them.

accessory structural component are inventoried to a level that can accomplish quick turnaround times from the factory to the field. Dedicated fabrication is maintained to place priority on quick, accurate delivery. The quality of the MP3 channel's drilled holes and their locations is maintained on a dedicated beam-line. For ease of handling and identification, special-purpose, high-strength, galvanized-steel channel members include lifting lugs and are stamped for identification. Shipments come with MP3 channels, splice plates, base-plate accessories as required, and all hardware including blind-bolts. Special-purpose, high-strength galvanized-steel-channel monopole upgrade kits are typically available within 10 days after receipt of site-mapping information and drawing completion.

Conclusion

The special-purpose, high-strength galvanized-steel-channel monopole upgrade system is being successfully installed nationwide on hundreds of monopole structures annually, and it has a proven track record. The system has proven to be highly cost competitive as a result of its structural and processing efficiencies.

September 2009

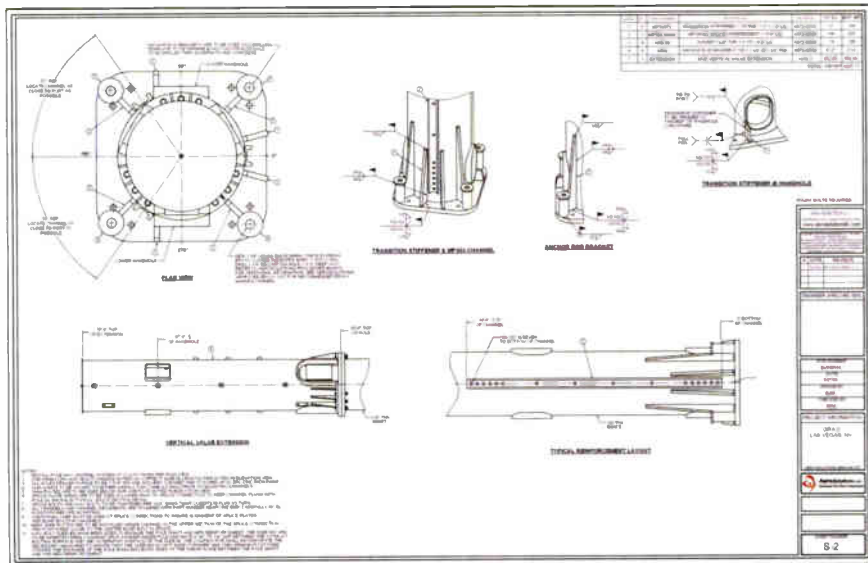


Figure 3. Assembly drawings of the special-purpose, high-strength galvanized-steel-channel upgrade system are generated in a three-dimensional parametric software program.



Dedicated fabrication is maintained to place priority on quick, accurate delivery of special-purpose, high-strength, galvanized-steel-channel monopole upgrade kits.

The system offers a safe, nonwelded monopole upgrade. With a system using fewer drilled holes and minimal welding, the tower owner can take advantage of cost economies and safety. With standardized shapes and accessory components, the system deploys to the field quickly and installs quickly. With lower design-to-install cycle times, the tower owner maximizes revenue.

agl

About the Author

Brian R. Reese, P.E., is vice president of operations at AeroSolutions in the company's Hazleton, Penn., office. He is chairman of the TIA TR-14.7 Structural Committee. His email is breeser@aerosolutionsllc.com. AeroSolutions manufactures special-purpose, high-strength, galvanized-steel-channel monopole upgrade kits under the name PoleMax and provides turnkey construction services for tower upgrades.

Court Says Yes to T-Mobile's

By Don Bishop



Photo by Steve Berntson, courtesy of Anacortes Chamber of Commerce

A view of Anacortes, Wash., from the summit of Cap Sante, looking west toward the San Juan Islands. The city is in northwest Washington on the northern point of Fidalgo Island in Puget Sound. It is bounded on three sides by the saltwater shorelines of Burrows Bay, Rosario Strait, Guemes Channel and Fidalgo Bay. Half of the city's territory is city park or forest recreational areas. The population is about 16,000.

This case is particularly important in that it is one of the few cases in which it was ruled that a denial constituted effective prohibition of wireless services even though the denial otherwise complied with the law. — *Ca!WA*

On July 20, 2009, the U.S. Court of Appeals for the Ninth Circuit issued an opinion in favor of T-Mobile USA and affirmed a District Court's order that the City of Anacortes, Wash., violated § 332(c) of the Telecommunications Act of 1996 when it denied a permit. In 2006, the wireless telecommunications carrier applied for a permit to erect a 116-foot monopole at the Anacortes United Methodist Church.

In denying the application, the city said that the proposed wireless communications facility would have a commercial appearance and would detract from the residential character and appearance of the surrounding neighborhood. It said that the proposed wireless communications facility would not be compatible with the character and appearance of the existing development in the vicinity, which is predominantly single-family

residences. The city concluded that the proposed wireless communications facility would negatively impact the views from single-family residences in the vicinity of the proposed site.

Alternative sites

The city also concluded that T-Mobile did not establish that its proposed facility was the least intrusive on the values that the denial of the application sought to serve. For

Anacortes, Washington, Site

Northwest Wireless Association: Decision Provides an Excellent Outline

The Ninth Circuit provided the wireless communications industry, local land use officials and trial courts with an excellent outline of what is expected under Section 332(c)(7)(B). To preserve their rights under the Telecommunications Act, carriers will need to introduce detailed evidence about the proposed site — and all of the potential alternate sites. Site acquisition consultants should compile ownership, terrain, view shed,

availability and other information about potential alternate sites, especially if they know the application will face significant opposition. Radio frequency engineers will be asked to provide propagation maps for many of the alternate site candidates.

At the land use hearings, carriers should be prepared to prove why the alternate sites mentioned by local residents and land use staff aren't available or feasible, or are

more intrusive than the proposed site. This might require additional effort and expense, but the cost of presenting all of this evidence at the hearing is usually less than the cost of pursuing two sites if the first is denied due to insufficient evidence.

Richard J. Busch
President
Northwest Wireless Association
Busch Law Firm, Kirkland, Wash.

example, the city determined that at least four alternative single sites were potentially acceptable to provide coverage as required by T-Mobile, and at least two two-site alternatives would work from an RF coverage perspective. These alternative sites were either on commercially or industrially zoned property, or would provide a site for a proposed wireless communications facility that would not be in such close proximity to residences.

In-home service technology

In elaborating on its conclusion that the proposed tower was not the least-intrusive choice, the city pointed out that T-Mobile also offers an in-home service technology that provides another alternative for in-structure cellular telephone service. Moreover, the city said that if T-Mobile constructed a wireless communications facility at one or more of the alternate single sites or two-site alternatives, a significant gap in T-Mobile's service coverage would no longer exist, even though that coverage would not be identical to that provided by a tower at the church.

After the city denied the applica-

tion, T-Mobile filed a complaint for declaratory and injunctive relief in the District Court for the Western District of Washington, alleging violations of sections 253 and 332 of the Telecommunications Act, 47 U.S.C. §§ 253 and 332(c)(7)(B). The parties filed cross-motions for summary judgment, and at a hearing held on April 25, 2008, agreed that no material facts were in dispute that might prevent the court from ruling on the respective motions.

On May 6, 2008, the District Court granted T-Mobile summary judgment on its claim that the city's municipal code, as it related to T-Mobile's proposed tower, was preempted by 47 U.S.C. § 253. The District Court based its ruling on the Ninth Circuit's opinion in *Sprint Telephony PCS, L.P. v. County of San Diego*, 490 F.3d 700 (9th Cir. 2007) ("*Sprint I*"). The District Court ordered the city to issue a permit allowing T-Mobile to construct the monopole. It also noted that

The Ninth Circuit opinion clarifies the following:

- The burden shifted to municipalities to substantiate claims of less-intrusive alternatives.
- Unlicensed alternative technologies are not relevant to analysis of least-intrusive means of closing significant gaps.
- The least-intrusive means analysis must consider the cost to the provider.
- Federal law may require that a site be permitted even if there is substantial evidence to support denial under the local code.

—Scott Thompson

in light of its resolution of the § 253 preemption issue, it did not need to address the parties' arguments concerning § 332(c)(7).

The Anacortes Chamber of Commerce favored the idea that the city should appeal the District Court's ruling. "The [Chamber] wishes to affirm our support of the City of Anacortes in

this matter. We believe it is important that local jurisdictions maintain appropriate control over local development. We recognize that there is a balance between the needs of telecommunications providers and city planners. In this case, however, the city did make accommodation. We encourage the city in their judicial review effort," the orga-

nization said in a written statement.

On May 14, 2008, the Ninth Circuit agreed to rehear *Sprint I en banc*. En banc courts, in which 11 judges consider an appeal rather than the normal three, are granted only rarely and are used to resolve intra-circuit conflicts or other legal questions of exceptional importance.

California Wireless Association: Court Found Anacortes' Suggestions to be Unsupported, Too Speculative and Irrelevant

On July 20, 2009, the U.S. Court of Appeals for the Ninth Circuit issued a decision in the case *T-Mobile USA Inc. v. City of Anacortes*, App. Case No. 08-35493, Slip Op. (July 20, 2009). The case, *Anacortes*, is the court's first decision on the application of federal laws to local permitting of wireless facilities since the court's en banc reversal in *Sprint Telephony PCS, LP v. County of San Diego*, 543 F.3d 571 (9th Cir. 2008), which the U.S. Supreme Court recently decided not to review.

The *Sprint* decision was disappointing to the wireless industry, which had been fighting especially hard in the Ninth Circuit Courts to contain abuses of local zoning authority resulting from open-ended wireless ordinances. *Anacortes*, which upheld a District Court order to issue permits to T-Mobile for a 116-foot monopole located on church property, demonstrates that the *Sprint* decision was not as broad a grant of authority to local governments as some jurisdictions have claimed, but rather was more narrowly concerned with ensuring evidentiary support for a specific type of legal claim: "effective" prohibition of wireless services.

Anacortes holds that a zoning board's decision to deny permits for a wireless facility may nevertheless

have the effect of prohibiting wireless services in violation of the federal telecommunications act even if the decision to deny the permits is consistent with the evidentiary requirements of a local zoning ordinance. The case also stands for the proposition that an order to issue permits is an appropriate remedy for such a violation.

The case is particularly important in that it is one of the few cases to rule that a denial constituted effective prohibition of wireless services even though the denial otherwise complied with the law. In so holding, the court provided significant guidance as to how the courts are to treat claims of effective prohibition. The case establishes that a provider must first make "a prima facie showing of effective prohibition by submitting a compre-

hensive application, which includes consideration of alternatives, showing the proposed [wireless communication facility] is the least intrusive means of filling a significant gap." The burden then shifts to the local jurisdiction to "show that there are some potentially available and technologically feasible alternatives," a showing that the provider may still dispute. The Court also recognized that the "construction and operational costs that [the provider] would have to bear" is an appropriate consideration regarding the feasibility of a proposed alternative.

It is important to note that Anacortes in fact tried to rebut T-Mobile's review of alternatives by offering several of its own alternatives, but the Court was not convinced and found the city's suggestions to be unsupported, too speculative, or, with regard to the city's effort to cast T-Mobile's branded in-home service technology (T-Mobile @Home) as a feasible alternative, irrelevant. In other words, the locality's burden to show viable unexplored alternatives is not satisfied by merely proposing new locations. It must also provide credible and informed analysis demonstrating the alternative is both available and technically feasible.



T-Mobile @Home

—California Wireless Association

Rosemary A. Larson, an attorney with the law firm that represented the city before the District Court, told the city council in a May 19, 2008, memo that the city would have an uphill battle in an appeal of the District Court ruling. But Larson's opinion was based in part on *Sprint I*. "The District Court based its primary conclusions on *Sprint*," she told the council.

The city asked the District Court to reconsider its order and grant a stay of enforcement pending the rehearing. On July 18, 2008, the District Court denied the city's request and also ruled in favor of T-Mobile on its request for relief under § 332. The District Court said, "T-Mobile has shown that its proposal was the 'least intrusive' means to close the significant gap, based on its good-faith effort to identify less-intrusive alternatives. The city's conclusion to the contrary was not supported by substantial evidence. Because the city prevented T-Mobile from closing a significant service gap through the 'least intrusive' means available, the city's decision has the effect of prohibiting wireless service in violation of Section 332(c)(7)."

Actual or effective prohibition

On Sept. 11, 2008, the Ninth Circuit issued its en banc opinion in *Sprint II*. The en banc panel disagreed with *Sprint I* and held that a plaintiff suing a municipality under § 253(a) must show actual or effective prohibition, rather than the mere possibility of prohibition. The City of Anacortes and T-Mobile then stipulated that *Sprint II* was controlling as to T-Mobile's claim under § 253. The Ninth Circuit accepted the stipulation, and as a result, only the District Court's grant of relief to T-Mobile pursuant to § 332 remained pending with the Appeals Court.

Backed by the District Court's orders of May 19 and July 18, T-Mobile filed an application for a building permit to construct the tower. In response, the city asked the Ninth Circuit to stay the District Court's orders. On Oct. 15, 2008, the Ninth Circuit granted the

stay. The matter then rested with the Ninth Circuit to rule on the appeal.

In the ruling in the Anacortes case that the Ninth Circuit issued on July 20, 2009, the court commented on the purposes behind the Telecommunications Act of 1996, Pub. L. No 104-104, 110 Stat. 56, (codified as amend in scattered sections of U.S.C., Tabs 15, 18, 47), and its own efforts to discern and effectuate those purposes.

The Ninth Circuit said that when enacting the Telecommunications Act, Congress expressed two sometimes-contradictory purposes. "First, it expressed its intent 'to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.' In *Sprint I*, we

What They Said

"Ninety-three homeowners who live in the immediate vicinity of the Property submitted a petition opposing T-Mobile's application, on the grounds that the 116-foot monopole was an inappropriate commercial use in the residential area, and would have a negative impact on their views and property values."

—City of Anacortes

"[I]t is my finding that T-Mobile has chosen the best possible location at 2201 H Avenue to construct a wireless communications facility that is required to improve the radio coverage of their PCS GSM network and that few, if any, viable alternative locations exist for T-Mobile in the vicinity of their proposed location."

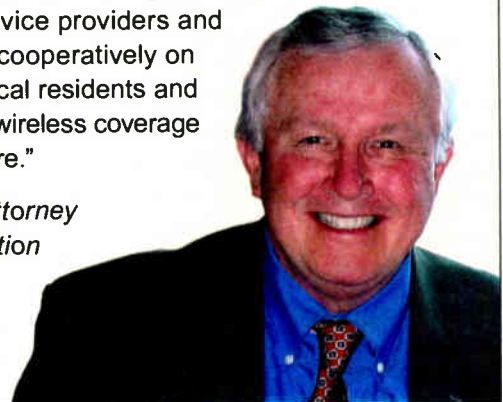
—Steve Webster, RF Consultant

"The City was required to show the existence of some potentially available and technologically feasible alternative to the proposed location. Because the City has failed to do so, the District Court's grant of summary judgment in favor of T-Mobile is affirmed."

—Ninth Circuit Court of Appeals

"This decision preserves traditional zoning authority while requiring wireless service providers and local governments to work cooperatively on wireless siting solutions. Local residents and businesses will enjoy better wireless coverage and are the real winners here."

—Tim Sullivan, Principal Attorney
Network Land Use & Litigation
T-Mobile USA



noted that Congress chose to ‘end the States’ longstanding practice of granting and maintaining local exchange monopolies’ and that it did so by enacting 47 U.S.C. § 253.3 543 F.3d at 576,” the court said.

Preserve state and local authority

Continuing its explanation, the Ninth Circuit said, “Second, Congress was determined ‘to preserve the authority of State and local governments over zoning and land use matters except in the limited circumstances set forth in the conference agreement.’ *Sprint II*, 543 F.3D at 576. This legislative purpose was reflected in the enactment of 47 U.S.C. § 332(c)(7).”

Section 332(c)(7)(A) preserves the authority of local governments over zoning decisions regarding the placement and construction of wireless service facilities, subject to enumerated limitations in § 332(c)(7)(B). One such limitation is that local regulations “shall not prohibit or have the effect of prohibiting the provision of personal wireless services.”

Substantial evidence

The Ninth Circuit noted that § 332(c) requires that a local zoning decision be “supported by substantial evidence,” although the term is not defined in the law. The court said that in reviewing a decision to deny a permit, which would involve an inquiry as to whether a state or local jurisdiction had considered substantial evidence, it would make its determination in the context of applicable state and local law.

“In other words, we must take applicable state and local regulations as we find them and evaluate the city decision’s evidentiary support (or lack thereof) relative to those regulations,” the Ninth Circuit said. “If the decision fails that test it, of course, is invalid even before the application of the Telecommunications Act’s federal standards.”

The court said that this approach enabled it to avoid unnecessarily reaching the federal questions of whether a

zoning decision violates the substantive provisions of the Telecommunications Act and noted that in most cases, only when a locality applies the regulation to a particular permit application and reaches

a decision — which it supports with substantial evidence — can a court determine whether the Telecommunications Act has been violated.

“A certain level of discretion is



Aerial View of Proposed T-Mobile Site. An aerial photograph shows the proposed tower location (blue dot in the trees) and locations from which photographs were taken to show a view of the tower site for simulations of the tower perspective. Small, blue arrowheads denote the photo vantage points and viewing directions.



Photosim — View From H Avenue. To the left is the current view, looking toward the tower site from a vantage point on H Avenue, shown in the lower left of the aerial photograph. To the right is the same view with a simulation of how the 116-foot monopole with flush-mounted antennas would appear.

involved in evaluating any application for a zoning permit. It is certainly true that a zoning board could exercise its discretion to effectively prohibit the provision of wireless services, but it

is equally true (and more likely) that a zoning board would exercise its discretion only to balance the competing goals of an ordinance — the provision of wireless services and other

valid public goals such as safety and aesthetics,” the Ninth Circuit said.

Denial as prohibition

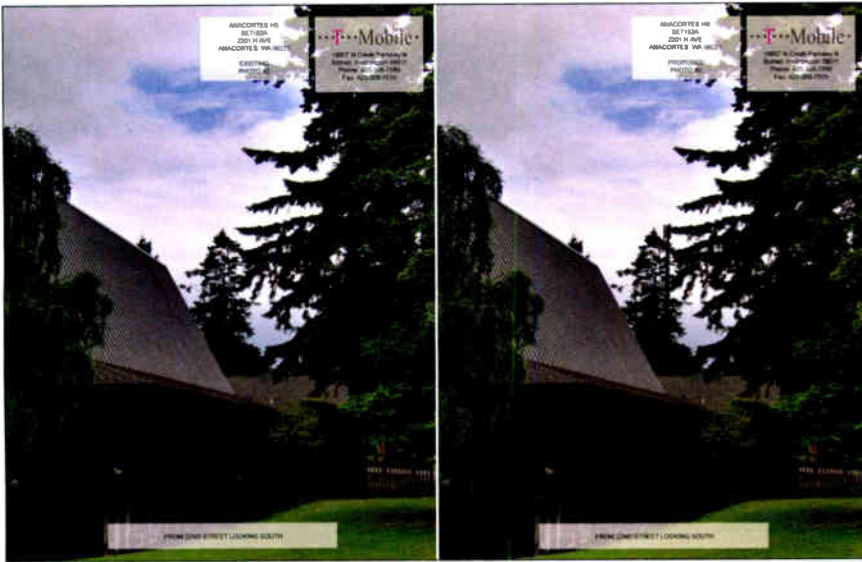
With the Anacortes application, the court found that the city’s denial of the application was not supported by substantial evidence. The Ninth Circuit said that because the city failed to adequately rebut T-Mobile’s prima facie showing that no other location was available and feasible, the District Court properly found that the denial of the permit constituted an effective prohibition of coverage.

The Ninth Circuit cited language it used in a prior decision involving a tower permit application in which it adopted a “least-intrusive means” standard: “Under the least-intrusive means standard, the provider has the burden of showing the lack of available and technologically feasible alternatives.” The court said that the least-intrusive means standard allows for a meaningful comparison of alternative sites before the siting application process is needlessly repeated. It also gives providers an incentive to choose the least-intrusive site in their first siting applications, and it promises to ultimately identify the best solution for the community, not merely the last one remaining after a series of application denials.

For its Anacortes application, T-Mobile submitted a detailed permit application that included an analysis of 18 alternative sites. The city nonetheless denied the permit, concluding that the church site was not the least-intrusive means of closing the gap.

Potentially acceptable coverage

The city said that at least four alternative single sites were potentially acceptable to provide coverage as required by T-Mobile, and at least two two-site alternatives would work from an RF coverage perspective. These alternative sites are either on commercially or industrially zoned property, or would provide a site for proposed wireless communica-



Photosim — View From 22nd Street. To the left is the current view looking toward the Anacortes United Methodist Church from a vantage point on 22nd St. To the right is the same view with a simulation of the 166-foot monopole as it would be seen near a tall pine tree in the background on church property.



Photosim — View From J Avenue. From J Avenue and a vantage point marked by a blue arrowhead in the rightmost area of the aerial photograph, the picture above-left shows the current view toward the proposed tower site. To the right is a simulation of the view with the tower, which rises just above the house’s chimney.

tions facility that is not in such close proximity to residences. If T-Mobile constructed a wireless communications facility at one or more of the alternate single sites or two-site alternatives, the city said, a significant gap in T-Mobile's service coverage would no longer exist, even though that coverage would not be identical to that provided by a tower at the church.

T-Mobile presented the city with evidence that most, if not all, of the possible alternative sites were not available. T-Mobile cited the police chief's testimony to the planning commission that an antenna adjacent to the police headquarters would never be approved. T-Mobile said that its first choice for an antenna site, the Anacortes High School, was unavailable because the school district had multiple reasons for declining its offer

to lease a site there. The school district decided not to pursue the project "primarily because the potential financial benefits did not outweigh the possible negative aspects," according to the city's legal brief.

Site outside the city

Both alternative two-site combinations included a site outside the city's jurisdiction and for which the city failed to submit evidence as to its availability. The city's RF consultant cast doubt on the ability of the two-site combinations to serve as satisfactory alternatives.

The Ninth Circuit concluded that T-Mobile made a prima facie showing that placing its tower at the church was the least-intrusive means of closing its significant gap in service coverage and that the city's denial of the applica-

tion without showing the existence of some potentially available and technically feasible alternative constituted an effective prohibition of service.

Close the gap

"Because we conclude that the city failed to show that there were any available alternative sites, we need not determine whether the proposed alternative sites would have provided sufficient coverage to close the gap in T-Mobile's coverage," the Ninth Circuit said. "We would address this issue in the same manner as we addressed the availability of alternative sites. The provider's application would have to show how the proposed site would close the gap, supported by data showing the coverage afforded by other sites. The locality could then investigate and determine whether the

Ninth Circuit Affirms T-Mobile Tower Siting, Claims



Scott Thompson

The July 20, 2009, decision of the U.S. Court of Appeals for the Ninth Circuit in *T-Mobile USA, Inc. v. City of Anacortes*, 2009 WL 2138980 (9th Cr. 2009), affirming that the City of Anacortes, Wash., violated Section 332(c)(7) of the

federal Communications Act when it denied T-Mobile's application to install a wireless facility in the city, is first and foremost a testament to the work done by T-Mobile's local team during the application process. On a broader level, the decision provides important guidance on a number of points.

The burden is shifted to municipalities to substantiate claims of less-

intrusive alternatives. First, the court clarifies that local governments have an affirmative burden of proof if they seek to deny a wireless permit application where the provider has made a prima facie showing that the proposed site is the "least-intrusive means" to close a significant gap in coverage. The court holds that "[w]hen a locality rejects a prima facie showing, it must show that there are some potentially available and technologically feasible alternatives." The court further explained that the provider then has the right to introduce evidence rebutting the availability and technological feasibility of the alternative sites identified by the municipality.

Applying its analytical framework, the court made clear that municipalities must introduce real evidence and not simply rely on speculation. For example, the court rejected several of the city's "alternatives," which were located on school district properties, on the grounds

that the city's arguments about the availability of the school properties were too speculative. Likewise, the court rejected other two-site combinations proffered by the city on the grounds the city did not provide any evidence that the sites not owned by the city were actually available to T-Mobile.

In other words, it was not enough for the city to point to the other locations as possible alternatives. The city was required to present evidence demonstrating those sites are actually available to T-Mobile and that using the alternative sites would enable T-Mobile to fill its significant gap in wireless coverage.

Unlicensed alternative technologies are not relevant to analysis of least-intrusive means or closing significant gaps. The Ninth Circuit also affirmed that T-Mobile's Wi-Fi-based T-Mobile @Home was not relevant

provider's representations were sound and persuasive. The provider would then have an opportunity to reply to the locality's challenges."

Data questioned

The court said that this was how T-Mobile and the city proceeded in this case. T-Mobile supported its application with considerable data showing the coverage of the church site and the other alternatives. The city responded by questioning some of T-Mobile's data and arguing that T-Mobile's propagation maps did not delineate the coverages offered by the alternatives when combined with T-Mobile's existing wireless communications facilities. The court said that the resolution of the disagreement over the adequacy of the propagation maps and the potential coverage of alternative sites was unnecessary because it

found that the city failed to show that any alternative sites were available.

"Applying our statement in *Sprint I* that a plaintiff must establish 'an effective prohibition on the provision of telecommunications services,' we conclude that T-Mobile's application made a prima facie showing of effective prohibition, and that the city in denying the application failed to show that there were any potentially available and feasible alternatives to the church site. Accordingly, the city's denial of T-Mobile's application violates 47 U.S.C. § 332(c)(7)(B)(i)(II)," the Ninth Circuit said.

City's failure

"T-Mobile made a prima facie showing that its proposed location was the least intrusive means to close the admitted significant gap in coverage by including in its application an anal-

ysis of 18 alternative sites. Although the city was not required to accept the provider's representations, in order to avoid violating § 332(c)(7)(B), the city was required to show the existence of some potentially available and technologically feasible alternative to the proposed location. Because the city has failed to do so, the District Court's grant of summary judgment in favor of T-Mobile is affirmed," the court said.

Scott Thompson and Linda Atkins of Davis Wright Tremaine represented T-Mobile before the District Court and in the Ninth Circuit. Davis Wright Tremaine has national experience in representing wireless and telecommunications providers in their deployment of networks and facilities. Dan S. Lossing of Inslee, Best, Doezie & Ryder, Bellevue, Wash., represented the City of Anacortes. **agl**

Clarifies Wireless Siting Burden on Municipalities

to the least-intrusive means analysis because it is not part of T-Mobile's licensed GSM network, must be separately purchased by subscribers, requires a separate broadband connection, and only works within homes of subscribing customers.

The least-intrusive means analysis must consider the cost to the provider.

The T-Mobile decision is also important because it made clear that costs to the provider are relevant. Specifically, the court held that because the city failed to consider the additional cost of constructing a two-site alternative, combined with other issues, the city did not overcome T-Mobile's showing that its site was the least-intrusive means of closing its significant gap.

Federal law may require that a site be permitted even if there is substantial evidence to support denial under

the local code. Finally, the decision makes clear that sites can be deployed even if they are inconsistent with local land use codes. Even though the court held that there was substantial evidence to support the city's denial under its own code, the court held that because the denial would have the effect of prohibiting T-Mobile's ability to provide reliable wireless service in Anacortes, the city's denial was preempted and the District Court's order requiring the city to issue a permit was affirmed. This conclusion reveals the important point that Section 332(c)(7) was intended precisely to promote wireless deployment, even where local codes have been written to allow denials on the most subjective of bases.

Conclusion

With the recent focus on wireless technologies as an important part of broadband deployment policy goals,

construction of new wireless facilities, particularly deeper into residential areas, will be critical, and this decision provides significant guidance by clarifying the burden on municipalities when considering an application from a wireless service provider that has a significant gap in wireless coverage. This decision underscores the need for local governments to cooperate with wireless service providers in achieving siting solutions that work for both the local community and the wireless provider. By placing a burden on both parties, instead of solely on the wireless provider, the court decision makes it more likely that local governments and wireless providers will achieve better siting solutions.

Scott Thompson

Davis Wright Tremaine

(Thompson, together with Linda Atkins, represented T-Mobile before the District Court and the Ninth Circuit.)

NEPA 101: Understanding the Federal Co Nationwide Collocation Prog

By James Duncan, P.E.

The FCC's development of the Nationwide Collocation Programmatic Agreement streamlined, or in some instances, eliminated the need for state historic preservation office review of antenna collocations on telecommunication and radio broadcast facilities while supporting the goals of the National Historic Preservation Act.

This is the fourth of six articles in a series outlining the federal National Environmental Policy Act (NEPA) regulations and their effect on the telecommunications and radio broadcast industries. In the April 2009 issue, we explained the eight areas of concern under NEPA that must be properly evaluated as part of the FCC's licensing and registration process for telecommunications and radio broadcast antenna facilities.

These areas of concern include assessing the impact of the proposed facility on the following:

1. Officially designated wilderness areas
2. Officially designated wildlife preserves
3. Threatened and endangered species and critical habitats
4. Buildings, districts, sites or objects significant in American history, architecture or archaeology
5. Indian religious sites
6. Flood plains
7. Wetlands and deforestation
8. The use of high-intensity white lights in residential neighborhoods

The following information explains the FCC's Nationwide Collocation Programmatic Agreement (NCPA) and how this agreement changed the way collocations and rooftop antenna installations are approved and processed by state historic preservation offices (SHPOs) and tribal historic preservation offices (THPOs) under Areas 4 and 5 of the FCC's guidelines for implementing NEPA regulations.

Prior to 2001, the FCC received numerous comments from carriers, consultants and tower owners regarding the somewhat arduous task of complying with Section 106 of the National Historic Preservation Act (NHPA — Federal Regulations 36CFR Part 800, Section 106). Complying with this federal regulation and the associated FCC guidelines for its implementation was often a confusing and lengthy process. The FCC developed this programmatic agreement to make the SHPO approval process easier. Understand that any "undertaking" that requires federal approval must go through the Section 106 review process. That includes telecommunication towers, radio broadcast towers, construction of highways and other projects.

Review requests

The SHPO and THPO offices were inundated with Section 106 review requests, not just from the telecommunications industry when tower facility construction accelerated during the late 1990s, but also from other federal agencies such as the Department of Transportation and National Park Service. That burden, combined with the urgent need of the carriers and builders to construct facilities for market reasons and to meet FCC-required construction deadlines, caused the FCC to look for ways to improve the Section 106 review process.

Because collocation on a telecommunications or radio broadcast facility requires the same procedure and approval, regardless of the builder or

Communications Commission's Programmatic Agreement

telecommunications carrier, the FCC believed that normalizing the Section 106 review process would be advantageous and beneficial for all parties involved, including the SHPO and THPO offices. In its NCPA document, the FCC states that "... [T]he parties hereto agree that the effects on historic properties of collocations of antennas on towers, buildings and structures are likely to be minimal and not adverse" The document continues, stating "... [T]he execution of this Nationwide Collocation Programmatic Agreement will streamline the Section 106 review of collocation proposals and thereby reduce the need for the construction of new towers, thereby reducing potential effects on historic properties that would otherwise result from the construction of those unnecessary new towers...."

Development of a suitable programmatic agreement by the FCC was necessary and agreeable to all parties involved. A Telecommunications Working Group, comprised of the FCC, the Advisory Council on Historic Preservation, industry representatives, and SHPOs and THPOs, was formed to suggest procedures to streamline the Section 106 review process as it related to the collocation of wireless antennas on existing structures. The NCPA resulted from this group's efforts.

NCPA

The Nationwide Collocation Programmatic Agreement — by federal standards, a skinny document at seven

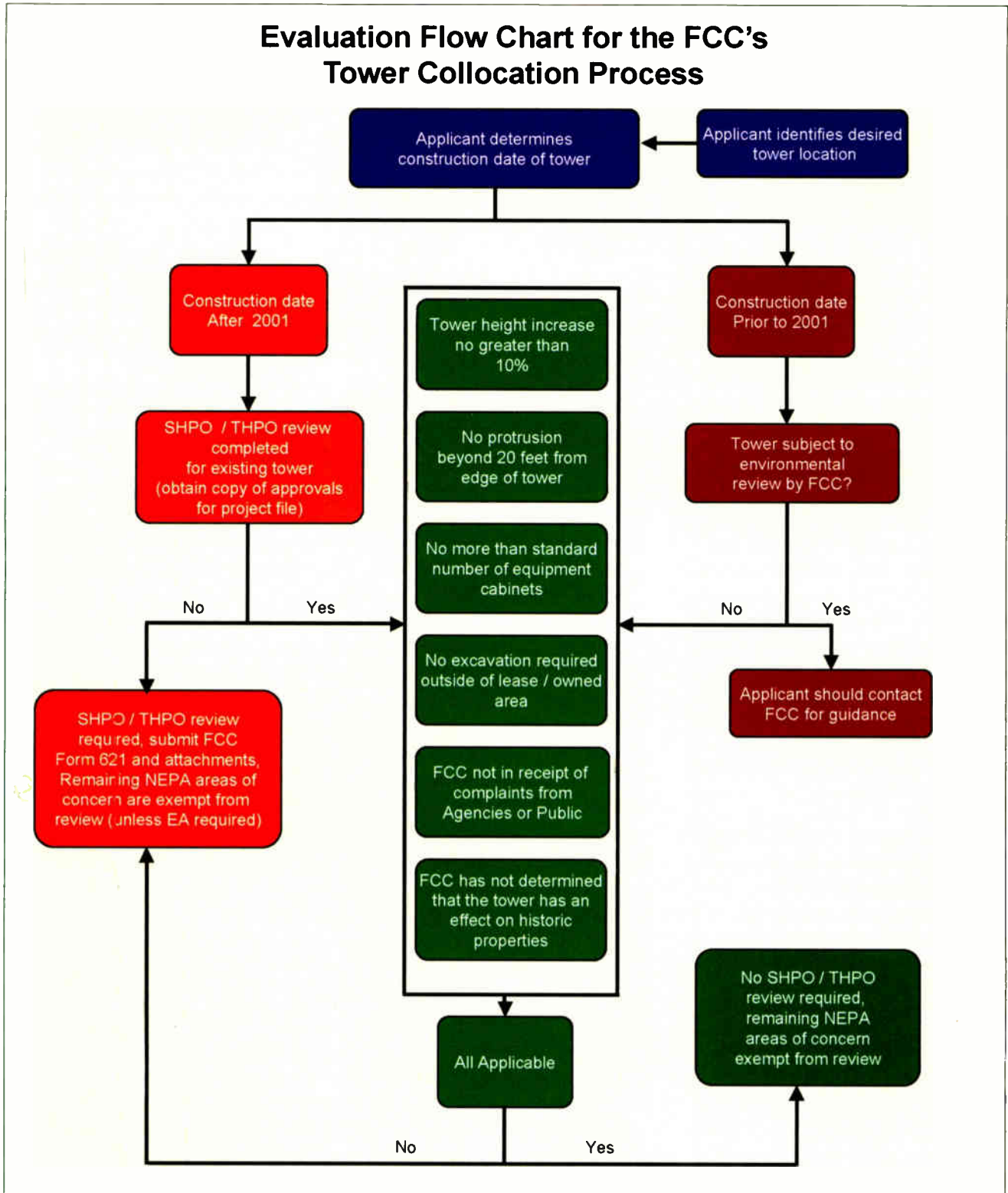
September 2009



Photo by Don Bishop

The Nationwide Collocation Programmatic Agreement eases the process for placing additional antennas on existing towers. If a tower meets five requirements and the answer to two evaluation questions is 'no,' the SHPO/THPO review might be eliminated.

Evaluation Flow Chart for the FCC's Tower Collocation Process



pages — was developed in 2001 and addresses the issues of SHPO review for antenna collocations on towers and antenna collocations on buildings and non-tower structures, such as water tanks.

The agreement outlines requirements that antenna collocations must meet to eliminate the need for SHPO review.

If NCPA requirements are met, then no review under Section 106 of the

NHPA, including review by the SHPO or THPO, is needed. In addition, if the Section 106 review exclusions in NCPA apply for a particular antenna collocation, then the remaining seven areas of

concern under the FCC's guidelines for implementing NEPA are also exempt from review (see regulation 47 CFR 1.1306, Note 1), and no further action is required by the collocation licensee under the federal NEPA regulations.

Antenna collocations on towers — To eliminate the need for SHPO/THPO review, and to meet the requirements of the NCPA, the planned antenna collocation on a tower must *not*:

- increase the overall height of the tower by more than 10 percent.
- require more than the standard number of equipment cabinets.
- require adding an appurtenance to the tower that protrudes more than 20 feet from the edge of the tower.
- require excavation outside the current boundaries of the leased or owned property surrounding the tower.

With one additional requirement, that:

- The tower owner or collocation licensee has not received written notification that the FCC has received a complaint from various agencies or the public that the collocation would have an adverse effect on historic properties.

These requirements are further differentiated by the date the tower was constructed.

For towers constructed prior to March 16, 2001, the collocation licensee must evaluate whether:

- the FCC has determined that the tower has an effect on historic properties.
- the tower is subject to a pending FCC environmental review involving Section 106 compliance.

For towers constructed after March 16, 2001, the collocation licensee must evaluate whether:

- the Section 106 review process has not been completed for the underlying tower.
- the FCC has determined that the tower has an effect on historic properties.

If the answer to each of these questions and each of the five requirements described earlier is "no," then

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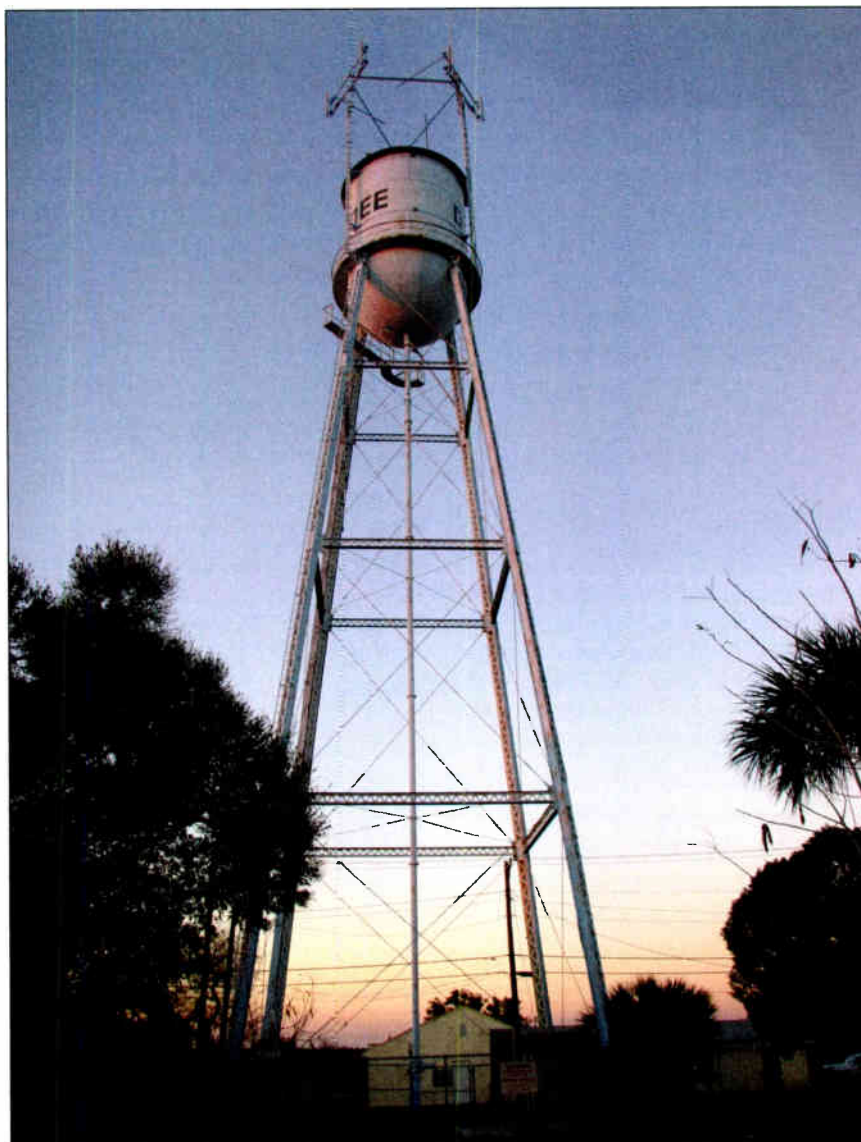


Photo by Don Bishop

Collocating an antenna on a non-tower structure such as this water tank may eliminate the need for SHPO/THPO review if the structure is no more than 45 years old. Also, the structure must not be inside the boundary of, or within 250 feet of, a historic district, or the antenna must not be visible from the ground level of the historic district.

the planned antenna collocation meets the NCPA criteria and the collocation is not required to go through the Section 106 review process by the SHPO or THPO. Answering "yes" to any of these questions or any of the five requirements means the planned collocation does not meet the NCPA requirements and a Section 106 review must be completed.

Antenna collocations on buildings and nontower structures — To eliminate the need for SHPO/THPO review,

and to meet the requirements of the NCPA for a planned building or non-tower structure collocation, the following must apply:

- The building or structure must not be 45 years old or older.
- The building or structure must not be inside the boundary of, or within 250 feet of, a historic district, or the antenna must not be visible from the ground level of the historic district.
- The building or structure is not a designated National Historic Landmark



Photo by Don Bishop

Buildings more than 45 years old or that are listed or are eligible to be listed in the National Register of Historic Places do not meet NCPA requirements, nor do buildings designated as National Historic Landmarks.

or listed in or eligible for listing in the National Register of Historic Places.

- The tower owner or collocation licensee has not received written notification that the FCC has received a complaint from various agencies or the public that the collocation would have an adverse effect on historic properties.

If all four of these conditions apply, then the planned building/nontower antenna collocation does not require review by the SHPO/THPO under Section 106, and the remaining seven areas of concern under the FCC's guidelines for implementing NEPA are also exempt from review. The project may proceed.

When the NCPA is not a factor

If the NCPA does not apply to the planned antenna collocation because it fails to meet one or more of these outlined criteria, then the applicant must

submit the planned collocation information to the SHPO. This information should be submitted on FCC Form 621 with appropriate documentation and data of the findings. If the SHPO replies stating that the collocation will have "no effect" or "no adverse effect" on historic properties in the area of potential effect, then the remaining seven areas of concern under the FCC's guidelines for implementing NEPA are also exempt from review. The project may proceed.

If the SHPO replies stating that the collocation will have an "adverse effect" on historic properties, then mitigation would be necessary and completion of an environmental assessment would be required. At that point, the remaining seven areas of concern for implementing NEPA would need to be addressed in their entirety, similar to the requirements for a raw land site.

One thing to note, if the NCPA does not apply to your planned collocation,

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you must also consult with interested Native American Indian Tribes and Native Hawaiian Organizations through the FCC's Tower Construction Notification System (TCNS) — similar to the process for raw land tower facilities. The TCNS process was discussed in detail in the May 2009 issue. As a result of submittal of the tower onto TCNS, the tribes may request additional information, including a copy of the FCC Form 621 document and all of its attachments. Be sure to allow the tribes the proper timeframe for their review and comment.

Sticking point

The NCPA has made a lot of our lives easier and has certainly made the SHPO approval process quicker; however, a few quirks of the programmatic agreement pop up from time to time. One, for example, occurs when an antenna attachment to a building does

not meet the NCPA criteria — a SHPO review must be conducted. That usually is no problem, and it usually can be handled in a timely manner. However, in this case, the tribes also must be contacted, via TCNS — similar to a raw land facility. This could trigger a longer review process and additional fees for tribal consultation. This seems a little excessive for a planned rooftop collocation where ground disturbance is unlikely to be required. This kind of delay should be anticipated and worked into the build schedule when a rooftop antenna attachment is planned in urban areas or in areas near historic districts.

Closing

Regardless of its quirks, the FCC's NCPA document has certainly made significant strides in streamlining the SHPO and THPO review process. Remember, proper evaluation of your planned collocation on a tower or non-

tower structure will often allow you the ability to eliminate your project's review by the SHPO and THPO and give you the ability to move to installation quicker.

The next installment in this article series will explain the FCC's Nationwide Programmatic Agreement (NPA), how it has changed the way SHPO consultation is conducted and how it has changed the way tower owners assess and choose tower locations for raw land facilities. **agl**

James Duncan, P.E., is the environmental department manager and a principal in Terracon's Nashville, Tenn., office. He has 18 years of experience in dealing with NEPA issues in the telecom industry and 22 years of experience in the engineering and environmental fields. He is a member of the Tennessee Wireless Association. His email address is jaduncan@terracon.com.

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How to Prevent Occupancy Costs from Growing Out of Control

The time-tested real estate model of valuing total cost of occupancy helps carriers avoid paying more dollars to rent antenna sites than they should. Instead, they often choose towers based on initial monthly rent.

By Christos Karmis

Wireless carriers have seen their infrastructure costs escalating out of control for more than a decade. The major carriers have individually spent billions of dollars to build out their national networks, and will continue to need more towers and broadcast locations as they expand their coverage and upgrade to next-generation wireless technologies. Their need to free up precious capital to fund network expansions and upgrades, coupled with being convinced by tower companies that their towers and backhaul are noncore assets, have led to their decisions to sell many of their towers and lease them back. However, rapidly escalating lease rates and incremental fees are revealing that the restrictive lease conditions imposed by tower companies are more costly than the carriers estimated.

So what should carriers do? Rather than making these important network decisions based on a shortsighted approach of only looking at initial

monthly rents, carriers should evaluate their decisions using a more comprehensive analysis, such as the time-tested real estate model of valuing the *total cost of occupancy* (TCO).

(2) backhaul networks consisting of copper, fiber or microwave solutions; (3) communication towers; and (4) base station electronics and antennas.

With increasing competition, the evolution of new technologies, and the relentless demand from subscribers for more reliable service and enhanced functionality, carriers continuously build more infrastructure in order to expand and enhance the network.

The result is billions of dollars spent on network capital investments, and ongoing occupancy costs that can easily approach half of the carrier's total corporate operating expenses. In an attempt to mitigate these huge expenses, carriers started to

lease capacity on their infrastructure to their competitors. This allowed other carriers to utilize tower locations owned by another carrier in exchange for monthly rent or some other type of reciprocal benefit. This only reduced ongoing costs slightly and did little to free up valuable capital

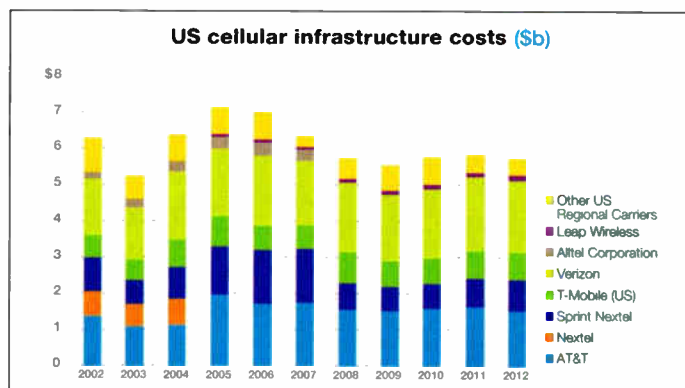


Figure 1. The act of carriers leasing their cell site antenna infrastructure capacity to their competitors reduced ongoing costs only slightly and did little to free up capital for continued expansion and growth.

Huge investment

Since the launch of the industry, wireless carriers have committed most of their investment dollars to build out local and nationwide wireless systems, including huge and expensive infrastructure networks of (1) mobile switching centers (MSCs);

for continued expansion and growth. (See Figure 1.)

Today, all-you-can-eat family plans, bundled plans, unlimited-data plans, free intra-carrier calls, roll-over minutes, and so on, have put this once mainstream revenue generator into the commodity class, shrinking average revenue per user (ARPU). This downward pressure in ARPU, combined with growing operating expenses, is resulting in margin compression for the carriers.

New technology

Carriers understand that future revenue will be generated through high-speed data services, providing new applications and content such as VoIP, mobile TV, on-the-move video calls, Internet browsing and Web-based applications. New technology implementations such as WiMAX and LTE will be the enablers for this new generation, but will require additional massive capital investment.

In the belief that their future depends on content, not on infrastructure, carriers have chosen to sell their tower portfolios, use third-party build-to-suit arrangements for new tower builds, or both, to avoid investing more internal capital on infrastructure.

Industry growth

In the 1990s, tower companies such as American Tower, Crown Castle, SBA Communications and a host of others sprang up as a result of this infrastructure divestment. At the end of 2008, some 70,000 towers in North America were owned and operated by tower companies, and the number continues to increase. As recently as July 2008, Sprint Nextel sold 3,300 towers, virtually all of its remaining tower portfolio, to a tower company.

The tower company business model is relatively simple. They buy or build towers and lease space to the carriers to install and operate a

limited amount of equipment (i.e., antennas, microwave dishes, amplifiers, etc.). The tower companies generate about 80 percent of their revenue from this type of site-leasing activity. The remaining 20 percent of revenue typically is derived from design, planning, installation and other consulting services.

Rental payments vary considerably depending upon:

- Tower location
- Quantity, size and weight of the antennas and transmission lines
- Amount of ground space necessary for the base station equipment
- Amount of capacity available on the tower
- Elevation leased on the tower structure (higher elevations are typically more desirable)
- Financial standing and credit of the carrier

The key drivers behind the tower company business model are:

- Long-term tenant leases with contractual escalators. In general, a lease

- Operating expenses are largely fixed. Incremental operating costs associated with adding wireless tenants to a communications site are minimal. Therefore, as additional tenants are added to a site, the substantial majority of incremental revenue flows through to operating profit.
- Low maintenance capital expenditures. On average, a communications site requires relatively low annual capital investment to maintain.
- High lease-renewal rates. Wireless carriers tend to renew leases because suitable alternative sites may not exist, and repositioning a site in a network is expensive and may adversely affect network quality.

Between the high cost of relocating a site, and the importance of that site location to the network, the carrier is left with virtually no negotiating leverage. These enhancement activities often result in the need to add equipment beyond what is permitted under the current lease agreement. In such cases, the carrier is at the mercy of what the tower company wants to charge. The high relocation cost and the critical nature of the site as part of the network leave the carrier with virtually no negotiating leverage. The tower companies rely on these types of MAC charges (moves, adds and changes) as a method to drive incremental revenue and reach quarterly financial metrics.

In order to continue growing their tower portfolios, tower companies offer attractive initial lease rates to carriers for new site builds. However, such offers typically carry with them restrictive equipment entitlements.

The tower companies know that they will be able to demand a significant rate increase in the near future from MAC charges. Recent trends show that these types of rent increases can easily run

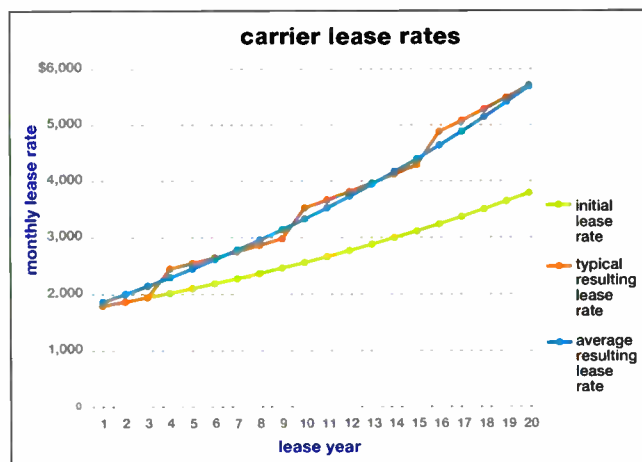


Figure 2. The expected lease rates a carrier anticipates paying when it initially signs a lease may differ from what it may end up paying. Because of charges for moves, adds and changes, the actual results could be much more than the expected 3 to 4 percent annual escalations.

with a wireless carrier has an initial term of five to 10 years with multiple five-year renewal terms thereafter, and an annual rent escalator of 3 to 5 percent.

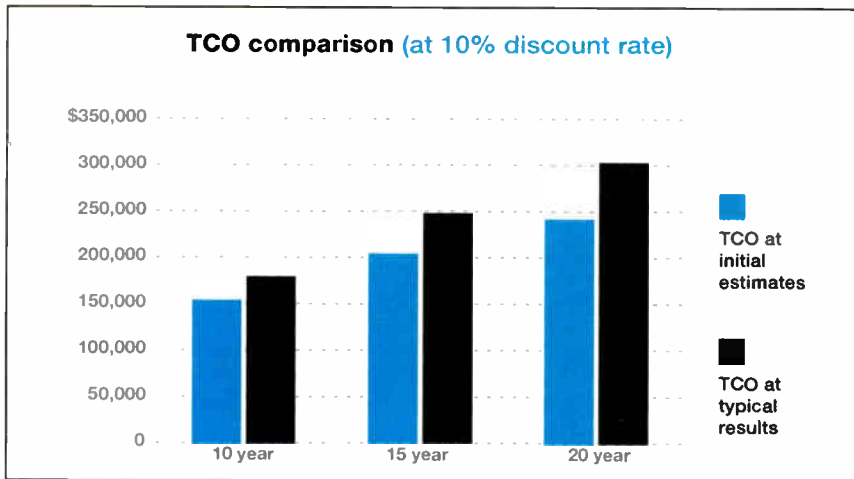


Figure 3. The difference in the total cost of occupancy over time becomes material as measured on a net present value basis. As the time horizon of the analysis increases, so does the difference in NPV, which is primarily driven by the compounding and escalating MAC (moves, adds and changes) charges.

\$400 to \$500 per month, and can occur on about 15 percent of a carrier's portfolio every year. In addition, carri-

ers are often required to pay significant application, structural, inspection and other fees.

Difference in results

Figure 2 illustrates the difference between the expected lease rates a carrier anticipates paying when it initially signs a lease, and what it can actually end up paying. The actual results are typically much more than the expected 3 or 4 percent annual escalations due to MAC charges.

Let's consider these monthly rent trends and evaluate the total cost of occupancy. Figure 3 shows the difference over time becomes material as measured on a net present value (NPV) basis. As the time horizon of the analysis increases, so does the difference in NPV, which is primarily driven by the compounding and escalating MAC charges.

Only a few carriers have strong, nationally directed corporate programs to make tower-leasing decisions based on the best long-term financial solution for the enterprise. As a result, tower leases are often awarded at a local level and to the tower

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company that only offers the lowest initial monthly rent, rather than the lowest TCO over the expected life of the lease.

Better business model

What originally seemed to be a cost-effective solution to the carrier, turns out to cost more than expected. Carriers need to take a fresh look at their contractual relationships with the tower companies and find a way forward that makes more business sense. In order to prevent a precarious situation from getting any worse, it's imperative that carriers find this new way forward fast.

The foundation for making better business decisions is for carriers to evaluate the total cost of occupancy. This type of thorough and comprehensive analysis should include the following considerations:

Capital savings: How much capital relief does the carrier realize or benefit from?

Operating expenses: Does the carrier stay in control of operating expenses and cash flow, or will it be subject to unpredictable, additional fees and rent escalations?

Operating flexibility: Will the carrier be able to modify or add equipment quickly and efficiently, without submitting applications and amending agreements?

Scalable model: How will this business model be applied throughout the carrier's entire operation to maximize its benefits, and not be limited to a particular market or only to the most attractive tower sites?

Carriers do not routinely perform these types of long-term analyses. If they did, carriers would clearly see that additional fees and rent increases cause a significant difference between their expected costs and their actual costs. This situation is

real — it is routinely happening and will continue to grow as carriers expand and enhance their networks to support new content and service offerings. It represents an opportunity for carriers to save significant cash by partnering with organizations that offer better lease contract terms. By doing so, carriers can put their additional cash to work doing what they do best — providing a better, more reliable product to their customers.

Using this approach, and conducting a thorough NPV-based analysis of TCO, carriers will find they have a more accurate methodology for making decisions that are truly in their long-term best interests. **agl**

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Brad Murray, 1948–2009

By R. Clayton Funk

Brad Murray was one of a kind.

I know that term is overused by many people when they talk about someone. And it's true. We are all one of a kind. We may be *similar* to someone we know or perhaps we *remind* someone of another person in our lives. But when someone wants to convey to others how truly out of the ordinary and distinctive someone is, they say, "one of a kind."

But Murray was really and truly one of a kind. Sadly, I use the past tense when talking about Murray because he passed away on April 24, 2009, and the tower industry lost not only one of its most colorful and memorable individuals, but also one of the industry's biggest advocates and success stories.

Sale of towers

Murray, the founder of Wichita Towers, M&P Rentals and Brad Murray Rentals, sold more than 50 towers last summer and exited his tower rental business after nearly 20 years. If you believe the rumored sales price and look at the timing, he sold at an optimum time, given how the economy turned south just a couple of months later. He made enough money to consider his sale a success. But, as with many things in life, the end of the story doesn't give you a full sense of all the chapters leading up to the climax.

His bio is not unlike those of many early entrepreneurs in the tower industry. Murray didn't wake up one day with a goal of being a tower owner. He owned a construction company in Wichita, Kan., and started pouring foundations for broadcasters, long-distance telephone companies' microwave sites and municipalities that were erecting towers for their own use. As the cellular industry grew, Murray saw the opportunity to own towers and lease them to the users of those towers. And Murray conducted business

in the area he knew best: his backyard. Murray was from a small town outside of Wichita, and he never lost sight of his small-town roots. He wisely used his local knowledge and connections to get towers approved. He knew that the trend for wireless use was in a growth phase, and that he could be a tower owner that not only helped the carriers with their coverage needs but also one that helped to bring wireless service to the smaller towns where residents might want coverage. This local knowledge served him well throughout the years.

Deal maker

Murray was a deal maker. Oh, to hear the stories of people who sat across the table from him when negotiating a deal. He loved the art of a deal. He loved the back and forth, the give and take. Murray always had in mind what he wanted and what was best for him, but he always had the end objective in mind: He wanted the deal and he knew the person he was negotiating with wanted resolution as well. In the end, both sides had the same goal in mind, and it was a matter of figuring out the best path to reach the end. This passion for deal making served him well over the years.

Murray was also incredibly bighearted and kind. For those that knew him and really spent the time getting past his initial gruff exterior found a man who was compassionate, who cared about the well-being of others and who wanted to make sure he treated others as he wanted to be treated. This trait served him well and shaped his business.

Local knowledge, a passion for deal making and treating others as you want to be treated: It was Murray's recipe for success, and it's something every tower entrepreneur can learn from.

The tower business, like many other businesses with real estate as a compo-

nent, is local. Murray was successful because he focused on what he knew best: his local market and surrounding area. He built and owned towers within driving distance from his home. He dominated all tower activity in Wichita. He knew the local zoning and permitting ordinances and authorities. Even outside of the Wichita city limits and Sedgwick County, he knew the officials both appointed and elected to oversee those activities in nearly every small town and county surrounding Wichita. In short, he knew and established relationships with those in a position of influence and authority. Could Murray have been just as successful living in Wichita and trying to build towers in Nashville, Tulsa, Denver or Boise? Maybe. He worked incredibly hard and was shrewd enough to never rule out his potential for success but what *did* make him successful was his focus on being local: his home city and county, surrounding towns and their respective counties and elsewhere in Kansas where opportunities arose.

Local relationships

And Murray also established the carrier contacts needed to be successful in the tower business. But the relationships were local. Again, the local focus served him well. When working with a national or regional carrier, the decisions on which tower to collocate on or who will build a tower in a needed spot might have to be approved by someone at the corporate level, but the decision or strong recommendation is made by people at the local level with knowledge about the market. Murray cultivated relationships with these local decision makers.

But Murray didn't just accept whatever deals were presented. He was always looking for creative ways to make it better for him, and many times

the carrier or the local zoning authority bought into his vision or proposal. His deal making on the local level truly ended up being a win-win for everyone. He got to own the tower or got the customer to lease space on his site. The local jurisdiction approved the tower being built or the tenant collocating on the site. The carrier filled a gap in its network, and the wireless customers were the ultimate winners by getting improved coverage. Creatively seeking ways to negotiate and find solutions for everyone involved was one of Murray's keys to success in being able to develop and own more than 50 towers. Not bad for someone who accidentally stumbled into the business long before there ever was a tower industry.

Compassionate

And finally, Murray always had others in mind, and he was incredibly compassionate. In short, he treated others in the context of the Golden Rule. At his funeral, many who were touched by his influence said the same: Murray constantly thought of others. This mindset undoubtedly manifested itself in his business dealings and helped to make him successful.

Brad Murray was one of a kind in many ways, and yet I know many other tower owners who exhibit many of the same traits. They are likely nodding in acknowledgment as they reflect on their own time in the tower business and what it takes to be successful. But it never hurts to reflect back on those characteristics and remind ourselves that the tower industry, while becoming increasingly complicated, corporate and challenging, is actually very simple. Focus on what you know, enjoy what you are doing and treat others as you want to be treated.

And it never hurts to reflect upon the life of someone who was one of a kind and who will be missed by many. **agl**

R. Clayton Funk is managing director, Media Venture Partners. His office is in Kansas City, Mo. His email address is cfunk@mediaventurepartners.com

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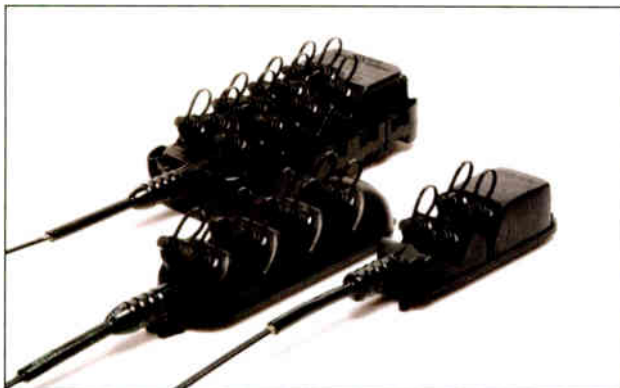
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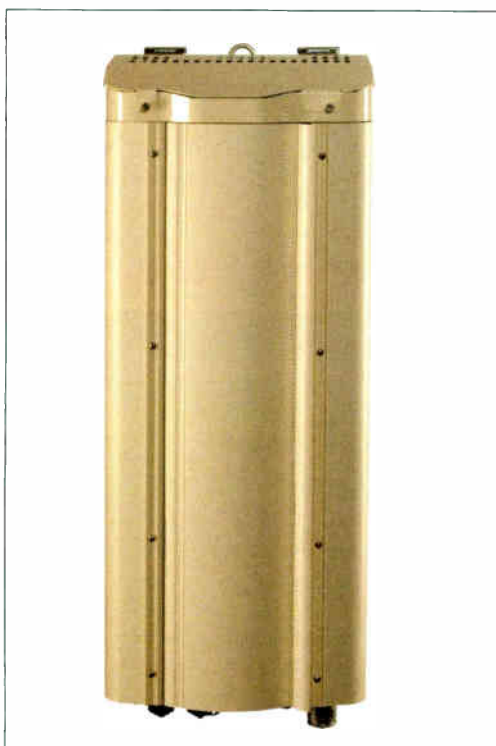
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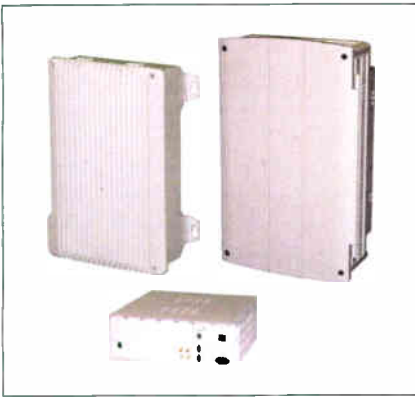
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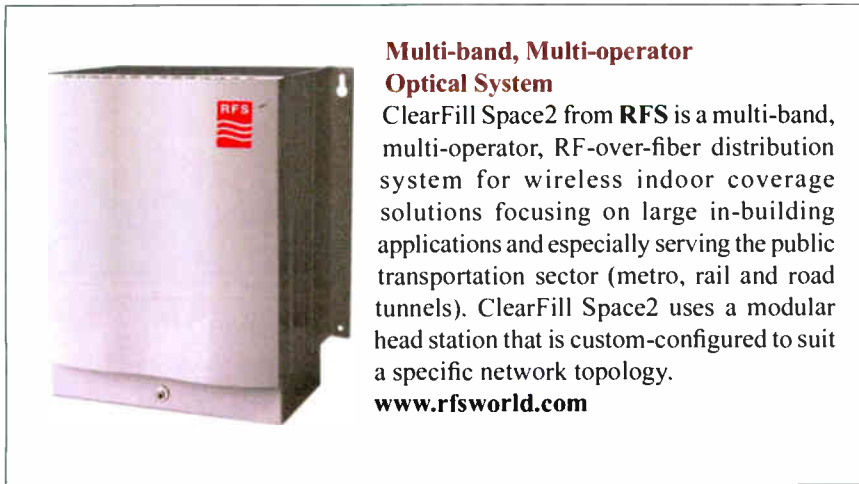
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