7 Ways to Siting Approval

- Lease buyout market
- Wireless backhaul prospects
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Pleasant Surprises

So, what is next? With the state of the economy as it is, it seems like there should be some news in our industry. Good or bad, it seems like there should be some news. If there is, I really can’t find it. Because this magazine is a small business, it is interesting to watch our own accounts receivable and to compare it with the rest of the publishing industry. Strangely enough, our customers (the folks actually out there providing tower-related services) continue to advertise and are continuing to pay (pretty much) promptly for their advertising. This seems to be a bit of an anomaly, but I’m happy.

I don’t hear much heartache from smaller service providers — tower riggers, site acquisition and zoning, etc. — all seem to be doing relatively well. Things are getting a little more competitive, and some of the folks who don’t have a driving passion for the industry are moving back into some other things. So far, it just seems like a little bit of belt-tightening.

Trivia Question: Without a doubt, an “air terminal” is a lightning rod. I was going to publish the name of the person or persons who got it, however, there isn’t enough space on this page. I am surprised at the number of responses. Many folks were pretty nice about it “Dear Rich … an air terminal is a ….” A few asked, “What is wrong with you? Everyone knows what an air terminal is!” Sorry I can’t print everyone’s name.

Sometimes just a ‘thud’

Responses to what I write in this column often are unpredictable and surprising. Sometimes I just hear a “thud” (or nothing at all), and other times I am overwhelmed by the responses. Last month, I rather negatively discussed an interaction I was trying to have with two tower companies. The interaction did not go the way anyone would like - because no one called me back. I am honestly surprised at the number and timeliness of the helpful gestures extended to me as a result of my remarks. From the corner office to lots of folks in the field, thanks for the response! And no, sorry, I’m not ratting anyone out. Instead, a big thanks to everyone.

Zoning meetings

At least a little more often at zoning meetings I’ve been attending lately, I’ve been pleasantly surprised to hear straightforward, reasonable objections regarding towers, such as, “I just don’t want to look at it.” A factual statement such as that is better than vague and misguided questions about RF safety, property values and noise. It is well within everyone’s right to say, “No, thanks,” and I’m glad to hear more fact-based discussion. What has your experience been lately?

Show time! February began the show season, and we just came back from NATE. Because safety remains a key concern of everyone in the industry and of those watching from the outside, the work of NATE remains on center stage. This month, the IWCE show is upon us. IWCE is a convention that deals more with land mobile radio and public safety systems than with towers, but with the current level of innovation in these areas, the need for antenna sitting to serve those systems should increase.

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Invisibility: the Ultimate Camouflage

One of my favorite apocryphal magazine articles published many years ago was about invisible paint used to hide towers. Applied to a tower, the paint made the tower invisible, but it still cast a shadow. The tower needed to be placed where the shadow might not cause curiosity, and where someone might not bump into the unseen tower.

As fantasy becomes real, so has the idea of invisibility, sort of. A study published in the journal *Science* describes metamaterial that can bend electromagnetic waves, such as light, around an object, making it appear invisible. An early application might involve applying the material to base station antennas, not to make them invisible to the eye, but to make them invisible at telecommunications wavelengths. That would eliminate interaction among multiple antennas on a tower and improve antenna collocation.

Reuters quoted David Smith of Duke University in North Carolina, who worked on the study, as saying, “You might have two or more antennas trying to ‘see’ or receive signals, one being blocked by the other. You could imagine adding cloaks that would make one antenna invisible to the next, so that they no longer interfered.”

The day that application becomes real is a long way off, if it ever comes. But current-day antenna and tower disguise, camouflage and concealment remain an important part of the wireless infrastructure industry. AGL will be covering the subject once again this year, and we invite the submission of articles on the subject for inclusion in future issues.

For now, invisibility belongs to a fictional character, the Shadow, whose shadow is invisible, too.

By Don Bishop, Exec. Editor
d bishop@agl-mag.com
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Wireless Infrastructure Case Law: Current and Future Area of Inquiry

– by Jackie McCarthy and Mike Saperstein –

Recent case law interpreting the relationship between local government regulation of wireless facilities and the Telecommunications Act of 1996 provides some clarification for providers and municipalities, but additional guidance is needed, especially as coverage objectives evolve. Also, local government regulation of site development through municipal consultants raises pressing issues as to when consultant practices amount to an actual or effective prohibition of wireless services pursuant to the Telecommunications Act.

In mid-November 2008, the U.S. Court of Appeals for the 10th Circuit released its decision in T-Mobile v. Unified Government of Wyandotte County, Kansas City, Kansas. The appeal stemmed from a U.S. District Court ruling that was very positive for the wireless infrastructure industry. The District Court in Kansas overturned the Unified Government’s denial, agreeing with T-Mobile that the Unified Government’s denial of a site proposal to fill a “significant gap in coverage” violated the Telecommunications Act. Significantly, the District Court held that T-Mobile showed a “significant gap in coverage” through evidence of a lack of available in-building coverage.

In PCIA’s supporting brief, we argued that in-building coverage is the emerging standard by which coverage gaps are defined by network operators, and that case law should adapt to this standard, especially because nearly 20 percent of Americans use their mobile devices as their home phones. This reflects a shift in the infrastructure industry’s objectives, which are now often based on improving residential coverage and adding capacity to the network.

The 10th Circuit declined to address the in-building coverage issue, but concluded that the Unified Government’s denial of T-Mobile’s application was based on factors not found in its ordinance, which it is not permitted to do. Because the court found that the Unified Government lacked substantial evidence for its denial, it did not need to perform an analysis on the other aspects of the District Court decision, such as whether in-building coverage constituted a “significant gap in coverage” pursuant to the Telecommunications Act.

Though this decision did not have the sweeping effects for which the industry had hoped, the victory remains important for the wireless infrastructure industry. Wireless infrastructure providers are monitoring zoning issues in jurisdictions that use municipal consultants to review facilities applications with an eye toward how consultant review squares with Telecommunications Act limitations on local government regulation.

In some situations, courts have stepped in on consultant practices. For example, in 2003, the U.S. District Court for the Southern District of New York forced consultants to engage independent licensed professional engineers to review applications in the City of Mt. Vernon upon a finding that the consultants themselves did not hold such licenses. Despite occasional judicial forays into consultant practices, case law is sorely lacking with respect to analyzing whether these practices (such as network design “verification” or delays) constitute a violation of the Telecommunications Act. With our members and through our support of the State Wireless Association Program, PCIA coordinates information sharing and responses to these practices across the country. Please keep us posted on your experiences in this regard.

Jackie McCarthy is director of government affairs at PCIA – The Wireless Infrastructure Association. Her email address is jacqueline.mccarthy@pcia.com. Mike Saperstein is a public policy analyst with PCIA. His email address is michael.saperstein@pcia.com.

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Kentucky Wireless Association

By Steve Parker

The Kentucky Wireless Association is comprised of individuals and companies who are involved in the maintenance and growth of wireless networks in the state of Kentucky. The group is organized so the wireless industry in Kentucky can have a unified voice when addressing issues or opportunities. The association can be a source of reference for members who need assistance in specific situations.

KWA was launched in November 2006 at a kickoff social at Churchill Downs in Louisville with about 75 attendees. Since that time, our general membership has grown to roughly 200. Membership is open to anyone in the wireless industry. We also encourage government officials involved in wireless networks or planning and zoning to participate in the organization.

Our annual golf outings have also become incredibly beneficial to our members as well as local charities. We have raised $10,000 for each of the past two years, with the latest donation benefiting the Kosair Children’s Hospital Foundation to support its “Just for Kids” campaign. Kosair Children’s Hospital is Kentucky’s only freestanding, full-service facility dedicated exclusively to caring for children.

In 2009, we look to expand our membership and carrier involvement as we continue to provide beneficial informational content to all areas of wireless in the state of Kentucky via both Web-based and lunch discussions. We also look to grow the philanthropic aspect of our organization.

Kentucky Wireless Association

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General Dynamics Wireless Services
12906 Shelbyville Road
Suite 230
Louisville, KY 40243
steve.parker@gdit.com
Website: www.kentuckywireless.org

2009 Tentative Calendar of Events:
1Q Luncheon - 3/19 (Social evening before)
2Q Luncheon - 6/11 (Social evening before)
3rd Annual Golf Outing - 8/20 (Social evening before)
3Q Luncheon - 9/10 (Social evening before)
4Q Holiday Social 12/10

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Employment-related Lawsuits May Surge With Ledbetter Act

By David Saul, AAI

Employment-related lawsuits are a growing concern for employers of all sizes. On Jan. 29, President Barack Obama signed the Lilly Ledbetter Fair Play Act, which could cause an alarming surge in employee lawsuits. The Ledbetter Act essentially negates a 2007 Supreme Court decision that allowed employees only 180 days to file wage-discrimination claims. Under the new law, employees can file suit for alleged wage discrimination going back as far as 10 or 20 years, because each paycheck can be considered an act of discrimination.

Even in 2007, the U.S. Equal Employment Opportunity Commission reported 82,792 charges filed for harassment, and harassment-charge receipts filed and resolved were valued at $251.7 million. The new law gives employees far more latitude in bringing lawsuits and simultaneously makes it quite difficult for employers to defend against wage discrimination based on age, sex, national origin and disability.

As costs for litigation and damage awards climb, experts predict that employment liability will only become more complex. As a result, it is critical for employers to understand their exposures and options to manage the risk.

Strategies to reduce exposure
Two effective risk-management strategies include solid human-resources practices and employment practices liability (EPL) insurance coverage, a policy used to cover your risk due to the ever-changing legal and employment environment.

The three most common employment-related lawsuits today are:
- Wrongful termination — the discharge of an employee for invalid reasons
- Discrimination — the denial of equal treatment of workers who are members of a protected class
- Sexual harassment — when a worker is subject to unwelcome sexual advances, obscene or offensive remarks, or the failure to stop such behavior

Employment practices liability (EPL) insurance works hand-in-hand with your internal employment practices to provide the necessary resources to defend your company against a suit or to pay a claim. To best understand how to cover your EPL risk, it’s important to know the potential sources:
- Recruitment practices
- Employment applications
- Employment offers
- Employee orientation
- Annual conduct reviews
- Enforcing performance policies
- Termination
- Improper documentation of these items

To limit your exposure, engaging in solid human resources practices is an important strategy in reducing your company’s liability.

To verify your HR policies and best practices, conduct a thorough HR audit:
- Verify that the employee handbook outlines all policies and terms of employment in clear and concise language.
- Require employees to sign an acknowledgement form for receipt of the handbook.
- Develop training for supervisors including interview skills, performance reviews, any zero-tolerance policies and any other policies.

Employment law is often complex and varies depending on the jurisdiction. Well-organized and credible documents can demonstrate fair treatment, deter
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litigation, ensure employee honesty and, should litigation occur, demonstrate the employer’s actions.

In addition to having the appropriate employment policies and HR best practices in place, EPL insurance coverage is another useful risk-management tool used to defend against a suit or pay a claim. In fact, evidence of desirable practices and policies will be required to obtain EPL coverage. Typically, the insurance underwriter will require a copy of your employee handbook, which should cover these policies:

- Sexual harassment
- Discrimination
- Equal opportunity
- Disabled employees and accommodations
- Grievances

Employee discipline
- Termination
- Performance evaluations
- Internet usage/employee privacy
- Pregnancy leave
- Internal job posting
- Hiring and interviewing
- Alternative dispute resolution/arbitration
- Employment at will
- Employment application form

In addition, you are usually required to provide the most recent annual report or SEC 10-K, the list of entities proposed for the coverage, and most recent EEO-1 reports.

EPL insurance works hand-in-hand with your internal employment practices to provide the necessary resources to defend your company against a suit or to pay a claim. The concern in the business sector due to this new law is that employers will be facing a barrage of new lawsuits claiming pay discrimination going back years and years. The cost of defending these suits could be devastating, especially at a time when revenue and profits are significantly down. Judgments and settlements could be even more damaging. Worse still, employee lawsuits are currently surging from the widespread layoffs due to the recession.

As with all of your risk-management needs, your insurance agent is committed to assisting you in assessing your employment-related policies and helping you to develop best-practice solutions. Call your agent to learn more about this effective risk-management service.

Employee lawsuits are currently surging from the widespread layoffs due to the recession.
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The Economy’s Impact on the Cell Tower Lease Buyout Market

Companies active in the lease buyout market see increased leverage in persuading landowners to accept lesser payouts as a result of current limitations in credit availability and reduced competition among the buyout companies.

By Neil Levinbook and Ken Schmidt

Over the last few months, the lease buyout industry has seen dramatic change. Because of the free fall in the stock market, the increased cost of borrowing capital and a change in the appetite for risk on Wall Street, the lease buyout market has substantially declined.

The first signs of this came in September when one of the three major players in the lease buyout market, Wireless Capital Partners, backed out of pending deals and stopped funding new lease buyouts. During the fall of 2008 and the uncertainty of the Wall Street bailout during that period, our clients saw existing deals with the two remaining players, Unison Site Management (Unison) and Communications Capital Group (CCG), unilaterally re-priced at 15 to 30 percent less than what was previously offered. The reason given by both companies was that the cost of borrowing had increased and, therefore, the minimum return on investment needed to be greater.

In addition to reducing purchase prices, Unison and CCG have become much more selective in the cell site leases they are purchasing. For example, they are focusing primarily on “investment grade” carrier leases (i.e., Verizon, AT&T and T-Mobile), and offering deep discounts or shying away completely from cell site leases of distressed Sprint Nextel or regional/local companies such as Cricket and Clearwire. Understandably, these companies are viewed as higher risk given the instability in the capital markets.

Second, Unison and CCG have increased their due diligence requirements in evaluating a potential lease buyout. For example, they are more closely scrutinizing the creditworthiness of potential sellers and the loan-to-value ratio on the property involved in the transaction. Moreover, they are requiring subordination nondisturbance agreements from the seller’s lender that state that the lender agrees to the lease buyout and will honor the agreement in the event of a foreclosure on the property.

Third, Unison has placed the burden of some of the closing costs on the landowner. Previously, it took on that...
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burden of title work and transfer fees. Even the tower companies have started to pull back from previous offers. In October 2008, Crown Castle stopped offering lump-sum lease buyouts and, in many cases, withdrew most if not all of the existing offers of lump-sum lease buyouts. Some landowners who had signed letters of intent were told that Crown could not close on their deals until September 2009 — if Crown chose to close at all. This is in part because Crown’s stock price plummeted from a 52-week high of $43 to a price below $19. (at $20/share at press time). One specific reason for this is that Crown had some large credit facilities that needed to be extended or paid off. Cell Tower Attorney does not believe that Crown or its landowners are in any jeopardy, but the credit environment does put Crown in a situation in which it needs to retain its capital for more immediate needs than purchasing long-term easements under their existing leases. Crown’s representatives have stated that they will still continue to pursue extensions of existing leases but won’t be making lease buyout offers until they can resolve their credit facility issues.

All of these developments have had the effect of making it much more difficult for landowners or tower owners interested in monetizing their cell site leases. Most recently, Unison and CCG have much more leverage in the lease buyout negotiation with respect to the amount of the lease buyout and the terms and conditions in the actual lease buyout agreement. Without increased competition in the lease buyout market, we suspect that this trend will continue.

Sprint Nextel, Cricketel and Clearwire are viewed as higher risk given the instability in the capital markets

Neil Levinbook is the principal attorney with Cell Tower Attorney, a law firm with offices in New York and Fort Myers, Fla., that provides legal services to landowners and their attorneys regarding cell tower leases. His email address is neil@celltowerattorney.com. Ken Schmidt, also an attorney, is the owner of Fort Myers-based Steel in the Air, a company that provides consulting services to public and private landowners regarding cell tower lease issues. His email address is ken@steelintheair.com.
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Seven Ways to Achieve Tower Siting Approval

An attorney with experience in helping carriers to gain approval for telecommunications tower land-use permits, speaking at the 2008 PCIA convention, supported industry education efforts and offered specific suggestions to improve a developer’s chances for project approval.

Remarks by George Asimos

One of the topics raised during our discussion session has been the value of a general public education campaign by carriers, focused on the need for antenna sites, including towers. The value cannot be underestimated. As a zoning lawyer, I look at a general education campaign involving wireless telecommunications towers from two perspectives. First is the overall effort at persuasion. As someone who is paid to persuade, it has occurred to me that someone who is predisposed to agree with your position is more easily persuaded. That is an overly obvious statement, but it is about how people think. If they understand you, if they are predisposed to believe you are telling the truth and if there is merit to your position, then they are more likely to be persuadable on the...
details that you need them to accept.

The idea of the wireless infrastructure industry having a serious campaign to educate the public on the value of this highly regulated system can be helpful in an indirect way in persuasion.

Second is the specific impact directed at a specific zoning battle. I was involved in an unpopular, very large, very valuable zoning project in northeastern Pennsylvania. We were taking a beating in the press. Every news report that came out was negative. It occurred to us that the elected officials read the paper, too. In Pennsylvania, where most of our elected boards have three members, we say you have to be able to count to two. To win the vote, you have to have two. The point is, they are reading the paper, too, and if the news is constantly bad and the opponents are keeping the news focus on their side of the story, it can’t help.

Public relations

We brought in a public relations expert to develop our story and sent press releases to make sure the site developer got a great story out after every meeting, and it made a huge difference. Something else I’d like to point out is that small newspapers actually don’t like to “dis” their advertisers. It doesn’t hurt for you to advertise what you’re doing in the local paper.

What we see happening now is that wireless carriers are serving relatively mature markets in terms of coverage. The low-hanging fruit in many markets has been picked, but there is continued pressure for market penetration and more services, and that requires more coverage.

Outdated laws

In some states, the laws that apply were written a generation before the technology for which we advocate was even developed. This can make the process of new site approval a challenge as we navigate a maze of unfavorable and sometimes archaic procedures. There is a lot of public activism and parochialism in some small municipalities (such as where I live), and the global interest pales in comparison with local interests. In general, there is a reluctance on the part of the courts to overturn the decisions of local sovereign jurisdictions.

As a result, there are some areas that seem never to get served by wireless carriers.

There are ways to handle these siting issues, and I’ve come up with seven points drawn from my experiences, including one case from just a year ago: Ogden Fire Company No. 1 versus Upper Chichester Township in Pennsylvania. I prepared and presented the case before the Zoning Hearing Board, and my then-partner Rudy Garcia obtained a summary judgment and defended it successfully to the Third Circuit of the U.S. Court of Appeals.

Here are those points.

1. **Take the long view when you are defining success.** My mentor practiced zoning law for 30 years. She told a story of going to the steps...
of the municipal building with the client who had a hearing scheduled and looking into the room from outside the building to see a crowd of people. She turned to her client and said, “You lose.” He said, “What?” She said, “You lose. There is no way the board will approve this application tonight.” And you have all been there.

Defining “lose”: What she really meant was that her client would lose at this level but they were going to go to the next level — appeal — for success. We are preparing our cases for the long view, which is, for appeal. There are various advantages to that, one of which is improving the probability of successful appeal and another is persuading the other side that there is a good reason to settle. Either way, taking a long view of success is essential. Sometimes that even means filing applications that have a minimal chance of success legally, knowing you will “lose” simply to promote a dialogue. Sometimes when you are ignored by a municipality and no one really wants to talk about a solution, the hard problem can still be, essentially, promoting a dialogue.

2. Use teamwork. I had an estate-planning professor who said we, as planning lawyers, sometimes get to make the facts. In other words, by the time the IRS looks at a will, the advisor and legal counsel should have already written the will and established all the relationships, planning for a successful case in the future. So, in our industry, you need legal counsel and site acquisition working together to see what sites are available in the area, what the ordinance allows and doesn’t allow and where the weak spots are, and then try to match your site to the legal argument with the highest probability of success.

3. Look for a wedge issue. In the Ogden Fire Company case, which I presented to the Zoning Hearing Board, a carrier proposed that there be a new tower built on fire department property, at the expense of the carrier, and that the carrier then collocate on that structure. When we started our analysis of the site, it looked like a typical use variance application — very hard to win in Pennsylvania. The firehouse was not in a district that allowed towers. But the zoning ordinance made it possible because of the longstanding use of the property by the fire company (a legal nonconforming use) and that because the fire company was going to put antennas on the tower, the tower would be permitted as an accessory use. Then, the collocation was just a matter of a by-right hearing process. That was one of the wedges we were looking for. If you try to split a log with a hammer it takes a long time, but with a wedge, it splits easily.

4. Define and develop your story. Using that same case, Ogden Fire Company, when I interviewed a fire company officer, Bill Robinson, I learned that they had a compelling need for better radio service for the fire company. It turned out that while the lease may not have been signed with these legal niceties in mind, the more we talked it out, the more apparent it became that there was a compelling need for improved radio service. There have been plenty of proposed towers on fire department sites that have succeeded and plenty that have failed. This one had to be something different. The record that Robinson was able to create in his professional experience and the stories he had to tell of specific instances of being unable to communicate due to inferior radio coverage were far more compelling than being able to simply say that the telecommunications carrier wouldn’t have service, although we were able to do that, too. That was very persuasive to the Court and was quoted in the Court’s decision.

5. Do your homework. Again referring to Ogden Fire Company, as we were looking at all the other zoning cases that this township had decided, we found that there were two other sites that came before the same Zoning Hearing Board. One was on another fire department property, and they had decided it in exactly the same way that we were asking them to decide this case. We did not know that when we started, but when we found out, we knew that if our application was denied, we had a discrimination case under the 1996 Telecom Act. It so happens that the District Court and the Third Circuit Court of Appeals agreed. In the Third Circuit, that is extremely important because of the ruling they have on prohibition cases, which are very restrictive. We had a definite discrimination case. We would not have known that if we hadn’t gone far afield looking at Township zoning history far beyond our site.

6. Objectify your RF testimony. The RF testimony has to be part data, part definitive standards, part repeatable testing, and part independent verification. We must do more to explain, document and justify our RF needs. That means that the science has to be good. We need independent witnesses when necessary. In another case that was appealed to federal court and later settled, we had two independent drive tests done and presented to the Zoning Hearing Board by two witnesses to thoroughly rebut the testimony of an opposition RF engineer whose testimony was inferior to the quality of science that we had. That clearly influenced the municipality as to the strength of our case and positioned us for settlement.

I know that RF prediction is not an exact science. There are many factors that affect the signal, and there is even variability in the signal in any given location while you’re standing there. But it is real, and it is sufficiently reliable to be compelling if done right. But you must endeavor to objectify, by this I mean present
If you are building a new tower you must comply with the National Environmental Policy Act (NEPA) and the FCC National Programmatic Agreement (NPA) for Impacts to Historic Resources. In many cases, modifications to existing towers must also comply with the NPA.

We have been working with the tower and wireless industries since 1993. Our track record speaks for itself.

In zoning litigation preparation, a loose cannon is something substantial in the testimony of the opposition that is not addressed by better testimony on behalf of the applicant. Cannons lying around on the deck — tie everything down.

I would add that the power of the federal courts and their mediation program has been undeniable in our area. It has been much more difficult since the APT and Easttown Township cases in which we are under an unusual interpretation of the prohibitory effect provision of the 1996 Telecommunications Act. These cases require that all the carriers must have a gap in coverage to be “under a prohibition.” That would appear to be an anticompetitive concept, as a dissenting judge observed. But that’s what we live under. However, the Odgen case reveals there are still opportunities to redress bad local decisions with well-prepared cases in federal court.

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AGL TOWER OF THE MONTH
SITE NAME
American Legion

OWNER
i wireless

MANUFACTURER
Valmont

YEAR BUILT
1998

HEIGHT
190 feet

CARRIER
i wireless

APPLICATION
PCS

LOCATION
Marion, Iowa.
Quick-Guide to Tower Manufacturers

As a supplement to January’s 2009 Buyers Guide, here is a listing of tower manufacturers with additional information on the types of towers they produce.

**AGL Staff**

**AeroSolutions**
5500 Flatiron Parkway, Suite 100
Boulder, CO 80301
Sales Contact: Brian Reese
Email: breese@aerosolutionsllc.com
Phone: (720) 304-6882
Fax: (720) 304-6883
www.aerosolutionsllc.com

AeroSolutions provides specialized tower reinforcing products that enable our customers to optimize the revenue potential of their tower infrastructure. Since 2003, our focus on tower and monopole upgrades has been built upon unparalleled technical experience, manufacturing experience, nationwide certified installers, and a highly qualified national network of fabricators.

**Allstate Tower**
PO Box 25
Henderson, KY 42419
Email: kroth@allstatetower.com
Phone: (270) 830-8512
Fax: (270) 830-8475
www.allstatetower.com

**Tower Types**
- Guyed
- Self-Supporting
- Monopoles

Other: Complete line of tower accessories including waveguide ladders, climbing ladders, sector mounts, dish mounts, ice bridges and platforms.

**Aluma Tower**
1639 Old Dixie Highway
Vero Beach, FL 32960
Email: atc@alumatower.com
Phone: (772) 567-3423
Fax: (772) 567-3432
www.alumatower.com

**Tower Types**
- Guyed
- Self-Supporting
- Transportable

Other: Unguyed tower combined with the S812 shelter trailer to produce a mobile command center. Lightweight aluminum 100-foot crank-up tower combined with trailer for emergency-temporary communications.

**CDMI**
969 Griffin Pond Road
Clarks Summit, PA 18411
Sales Contact: Ralph Ryan
Email: ryan@cdmiwireless.com
Phone: (570) 587-3077
Fax: (570) 587-3075
www.cdmwireless.com

**Tower Types**
- Monopoles
- Transportable
- Disguised

CDMI fabricates the patented Lite-Site family of Quick Deploy Cell Sites. The Lite-Site ballasted frame and monopole does not require ground penetration. It can be installed on blacktop or gravel in less than a day and is PE certified as permanent or temporary.

**Cell Trees**
5401 S. Canada Place
Tucson, AZ 85706
Sales Contact: David Weekley
Email: david.celltrees@verizon.net
Phone: (805) 934-4535
Fax: (805) 980-4703
www.celltreesinc.com

**Tower Types**
- Monopoles
- Disguised
CommStructures
101 E. Roberts Road
Pensacola, FL 32534
Sales Contact: Jim Hobbs
Email: jhobbs@commstructures.com
Phone: (850) 968-9293 ext. 14
Fax: (850) 968-9283
www.CommStructures.com

Tower Types
- Self-Supporting
- Monopoles
- Transportable
- Disguised

CommStructures is an experienced and innovative provider of communications towers, tower reinforcements, tower components and related services. We have provided thousands of tower structures throughout the United States, the Caribbean, and Central and South America.

Emerson Endeavors
7610 Jenther Drive
Mentor, OH 44060
Sales Contact: Jeff Syslo
Email: jeffrey.syslo@emerson.com
Phone: (440) 918-1101
Fax: (440) 918-1108
www.engend.com

Towers Manufactured
- Monopoles
- Disguised
- Roof Top
- Other: Concealment

FWT
5750 East I-20
Fort Worth, TX 76119
Sales Contact: Jeremy Moore
Email: info@fwtinc.com
Phone: (817) 255-3060
Fax: (817) 255-2957
www.fwtinc.com

Tower Types
- Guyed
- Self-Supporting
- Monopoles
- Transportable
- Disguised
- Rooftop

See our advertisement on page 35.

GlenMartin
13620 Old Hwy. 40
Boonville, MO 65025
Sales Contact: Tom Ferguson
Email: Tom.Ferguson@glenmartin.com
Phone: (800) 486-1223
Fax: (775) 490-1300
www.glenmartin.com

Tower Types
- Guyed
- Self-Supporting
- Monopoles
- Transportable
- Disguised
- Rooftop

See our advertisement on page 17.
H.C. Jeffries Tower Company
24900 Ford Road
Porter, TX 77365-5452
Jason Samford
Email: info@hcjeffries.com
Phone: (281) 577-8000
Fax: (281) 577-8001
www.hcjeffries.com
Tower Types
• Guyed
• Self-Supporting

The Holbek Group
18 Chase Court
Orange, MA 01364
Sales Contact: Thor Holbek
Email: taholbek@holbekgroup.com
Phone: (978) 544-1900
Fax: (978) 544-1157
www.environmentalintegration.com
Tower Types
• Monopoles
• Disguised
• Rooftop
• Other: MET Towers

Larson Camouflage
1624 S. Euclid Ave.
Tucson, AZ 85713
Sales Contact: Ryan McCarthy
Email: mccarthy@larsoncamo.com
Phone: (520) 294-3900
Fax: (520) 741-3488
www.larsoncamo.com
Tower Types
• Monopoles
• Disguised
• Rooftop
• Other: Architectural concealment, monoelm, monopine, monopalm

Larson Camouflage constructed the first monopine in 1992, pioneering the wireless concealment industry. Since then, we have manufactured thousands of concealed sites around the world. Our standard product line includes monotrees, slinlimes and architectural sites. Always on the cutting edge, we welcome custom projects. You dream it, we’ll build it.

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211 W. Washington St., #2000
South Bend, IN 46601
Email: sales@nelloinc.com
Phone: (800) 80-NELLO
Fax: (574) 288-5860
www.nelloinc.com
Tower Types
• Guyed
• Self-Supporting
• Monopoles
• Transportable
• Disguised
• Rooftop
• Other: MET Towers

Nello Corporation designs and manufactures all tower types and 1,300+ tower components for communications customers worldwide. We pride ourselves on in-house engineering, dedication to customer service and a highly experienced management team. Manufacturing and distribution facilities are located in northern Indiana and Texas. See our advertisement on page 39.

Peabody RF Transparent Concealment
13435 Estelle St.
Corona, CA 92879
Sales Contact: Robert Hunt
Email: Robert@etanks.com
Phone: (951) 734-7711
Fax: (951) 734-4111
www.peabodyconcealment.com
Tower Types
• Guyed
• Self-Supporting
• Monopoles
• Transportable
• Disguised
• Rooftop
• Other: RF transparent concealment for cell sites

Peabody RF Transparent Concealments (RFC) are custom-made to your cell site requirements. RF tested to offer great performance in spectrums up to 28 GHz. We provide site walks, design and engineering. Our RFC is then shipped to the site fully built, textured and painted. Call for help anytime (800) 4-Peabody.

Peak Industries
1408 E. Stutler Road
Spangle, WA. 99031
Sales Contact: D. Stout
Email: dstout@peakindustriesinc.com
Office: (509) 443-0479
Cell: (509) 979-6148
Fax: (509) 443-6192
www.peakindustriesinc.com
Tower Types
• Transportable
• Disguised
• Other: Stealth towers on wheels/cellular on wheels, guyed and unguyed

Rohn Products International
1051 Winderley Place, Suite 205
Malta, IL 60538
Phone: (407) 998-9200
Fax: (407) 998-9230
Email: info@rohnproducts.com
www.rohnproducts.com
Tower Types
• Guyed
• Self-Supporting
• Monopoles
• Other: Steel tubing and masts, platforms, antenna mounts, ladders, lighting accessories, ice shields and safety climbing devices.

Sabre Towers and Poles
2101 Murray St.
Sioux City, IA 51111
Sales Contact: Mike Coghlan
Email: sales@sabrettowers.com
Phone: (800) 369-6690
Fax: (712) 279-0814
www.SaabTowersandPoles.com
Tower Types
• Guyed
• Self-Supporting
• Monopoles
• Transportable
• Disguised
• Rooftop
• Other: Pre-engineered lightweight towers

Sabre Towers and Poles is the leading manufacturer of guyed towers, self-supporting towers and monopoles. Our experienced, in-house engineering staff has the ability to design any type of tower, no
Solar Communications International
8885 Rio San Diego Drive, Suite 207
San Diego, CA 92108
Phone: (619) 243-2750
Fax: (619) 243-2749
www.rftransparent.com

Tower Types
• Self-supporting
• Monopoles
• Disguised
• Rooftop

Stainless
1140 Welsh Road, Suite 250
North Wales, PA 19454
Sales Contact: Ed Deetscreek
Email: ed.deetscreek@stainlessllc.com
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Fax: (215) 631-1425
www.stainlessllc.com

Tower Types
• Guyed
• Self-Supporting

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Pryor, OK 74361
Sales Contact: Chris Ready
Email: sales@towerworx.net
Phone: (866) 677-5959
Fax: (918) 512-4606
www.towerworx.net

Tower Types
• Self-Supporting
• Transportable

TowerWorx is a leading manufacturer of mobile telescoping towers for the wireless service provider, military and first responder markets. We specialize in custom manufacturing and the integration of communications products into our mobile communications platform. Supporting heights up to 150 feet.

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• Built-in spare capacity for future changes
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• 50% cost savings compared to cutting a new hole!

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Elmira, Ontario N3B 2Z6 Canada
Sales Contact: Mike Kay
Email: mike.kay@trylontsf.com
Phone: (519) 669-5421 ext. 271
Fax: 519-669-8912
www.trylon.com

Tower Types
• Guyed
• Self-Supporting
• Monopoles
• Rooftop

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Woodlake, CA 93286
Email: Sales@ustower.com
Phone: (559) 564-6000
Fax: (559) 564-6011
www.ustower.com

Tower Types
• Transportable

Valmont Structures
1545 Pidco Drive
Plymouth, IN 46563
Sales Contact: Sean Gallagher
Email: sean.gallagher@valmont.com
Phone: (503) 589-6616
Fax: (503) 363-4613
www.valmont.com

Tower Types
• Guyed
• Self-Supporting
• Monopoles
• Transportable
• Disguised
• Concrete/Silo
• Rooftop

Valmont Structures is a leading supplier of structures and components for the wireless marketplace. The combination of the highest-quality products built in our two tower plants and three monopole plants, rigorous engineering, outstanding customer service, all at a competitive price, makes Valmont Structures the right choice for your tower needs. See our advertisement on page 20.

Western Towers
320 W. 26th St.
San Angelo, TX 76903
Sales Contact: James Bird
Email: james.bird@westerntowers.com
Phone: (325) 658-6539
Fax: (325) 655-1185
www.westerntowers.com

Tower Types
• Guyed
• Self-Supporting
• Monopoles
• Other: Tilt-down towers, rapid-deployment Towers
Building-code Category Could Trip Wireless Builds

Florida legislation stopped what otherwise could have led to a building-code reclassification of wireless telecommunications towers and alternative sites that would have substantially raised construction costs. The consequences of such reclassifications could have spread nationwide.

By Christopher J. “C.J.” Maier

During the past two years in Florida, the wireless industry ran into issues with the building code and the way local jurisdictions were interpreting some new revisions of the standards for towers and collocations of antennas on towers and on buildings. The two main standards that had been used by building departments throughout the state of Florida were the EIA-TIA and ASCE. Within the last 18 to 24 months, Rev. G brought new revisions to these standards. Some of these revisions were not earth shattering — they just involved some upgrades. However, some ambiguous language involving categories, data and tables resulted in a few gray areas regarding tower and antenna design for a few of the jurisdictions.

Two of those jurisdictions were the City of Jacksonville and Leon County, in which Tallahassee is located. These two jurisdictions were interpreting the new code revisions to mean that wireless towers and antennas were classified into a higher category than they had been before. It involved something called the importance factor. Since the beginning of wireless, commercial towers were mostly treated as a 1.0 importance factor, and with this new gray area local officials were able to interpret in their own jurisdictions a higher importance factor of 1.15. An analogy would be that if a wireless carrier or tower company were building to a 1.0 importance factor, the tower foundation and the steel would have to be built to 100 percent of the code standards, but at an importance factor of 1.15, that requirement would increase by 15 percent. If you look at the towers that some carriers and some tower owners are building, the result could be exponential cost increases not only for new structures, but also for collocations. There were even some gray areas of interpretation regarding rooftops.

The City of Jacksonville went so far as to say that if the wireless industry placed antennas on a rooftop of a building, we would be required to bring the entire building up to 1.15. They took it too far, and the wireless industry had to take a legislative approach to clear it up. Verizon Wireless, with the support of the rest of the wireless industry, spearheaded a corrective measure that was passed during a legislative session in 2008. It is now a statewide policy that it no longer is within the jurisdiction of Florida cities and counties to interpret these gray areas and hold the wireless industry to a higher standard for commercial wireless service.

The research that Verizon Wireless conducted regarding this matter of the importance factor for antenna sites had the potential to spread to a national level because the building standards of EIA-TIA and ASCE are applied across the country. The wireless industry had to nip it in the bud as soon as we could, and the state legislation seems to have taken care of it. We haven’t seen it pop up anymore.

When these local jurisdictions were interpreting what category the wireless providers fell into, whether it was 1.0 or 1.15, they reclassified us to a higher level by classifying commercial wireless as an essential emergency service.

Maier: ‘They were classifying commercial wireless service as an essential emergency service.’
site development

A recommendation to carriers and tower companies is to make sure your contract does not imply a guarantee of service, because if a government entity executes a contract with such a guarantee, the result could be a potential can of worms.

services and were not obligated to provide our customers with emergency services, we were in essence nonetheless becoming 9-1-1 public safety emergency telecommunications service providers and the higher level of service was expected.

That’s something that everyone who is placing towers should be careful of because I know a lot of people representing wireless interests who, when talking to officials representing public jurisdictions, will say that a new cell site will improve 9-1-1 telephone service access and public safety. While that’s true, there is a very fine line.

For example, Verizon Wireless had a contract with the City of Jacksonville to provide service to the fire department. The city government went as far as to reference the contract and say that because we had a contract with the city to provide wireless service to the fire department, we were implying that we were guaranteeing 9-1-1 telephone service; therefore, they could classify Verizon Wireless cell sites at the higher importance factor of 1.15.

Verizon Wireless pointed out that the contract in question was a standard commercial contract used for businesses and that there was nothing additional in the contract guaranteeing 9-1-1 telephone service. A recommendation to carriers and tower companies is to make sure your contract does not imply a guarantee of service, because if a government entity executes a contract with such a guarantee, the result could be a potential can of worms.

The 1.15 importance-factor requirement would have been retroactive, not in requiring that an existing tower be brought up to code or to the standard absent any changes to the tower, but in requiring that it would have to be brought into conformance with the building standard with an importance factor of 1.15 if and when one or more additional antennas were collocated on the tower. Keep in mind that the effect of a site’s reclassification with an importance factor of 1.15 is not as small of a change as the effect of Rev G, which updates and upgrades the building.
code when it is referenced in the code. A reclassification to an importance factor of 1.15 would upgrade the tower steel and foundation requirements even more than Rev. G does, where Rev. G makes a difference. Your cost of antenna site construction would go up quite a bit. Moreover, this issue of the importance factor affects not only the wireless carriers if they build a tower with the intention of retaining ownership, but also the tower companies that lease space to the carriers.

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The market for fixed wireless backhaul, also known as microwave links, shows some competitive muscle versus fiber-optic cable and wireline telephone circuits. Capacities less than 1 gigabit-per-second and rural areas offer some of the best potential.

AGL report

New Paradigm Resources Group released its “Wireless Backhaul Market Study 2008” in December, offering foundational analysis, market projections through 2013 and information about key players.

Cell sites built and operated by many AGL readers have to be connected with wireless carriers’ mobile telephone switching offices, and that connection is called backhaul. Carriers use three technologies for backhaul, copper telephone line connections, fiber-optic cable connections and microwave links. “We hear copper, copper, copper,” said Joe Kestel, the principal analyst for the study. Kestel is NPRG’s director of consulting and industry analysis. “Yet, there is a range of wireline carriers looking at getting fiber to sites. An executive at one of the carriers told us, ‘It’s a race. If you get there first [to the cell site with fiber], you lock up all the business.’”
Some wireline carriers also own substantial wireless assets, such as Verizon and AT&T. The NPRG study found that among wireline carriers, there is a sense of urgency to define what fiber service is economical and, therefore, in what geographic areas it makes sense to extend the service to cell sites. "There is a lot more fiber than one might expect," Kestel said.

Meanwhile, the part of backhaul that offers money-making opportunities for tower owners and possible cost-cutting opportunities for wireless carriers is what NPRG calls fixed wireless, and what often is called microwave. Kestel explained, "I don't know whether microwave ever stopped getting a look for backhaul, but with improvements in technology, including reliability and capacity improvements the vendors have made, some of the previous technical concerns that existed about widespread deployments have abated."

The NPRG analyst found that the leased-access model, which includes backhaul capacity that is owned by neither the carriers nor the tower owners, and which would include the wireline circuits such as T1 and the fiber-optic cable, is meeting stiff competition from microwave. Kestel said the challenge made by microwave stems from the forecasted demand for backhaul.

"In a lot of cases, carriers are starting to wonder, does it makes sense to share access with other service providers?" Kestel said. "If site owners or tower owners have one major carrier that they're serving, do they need to rely on the ILEC (independent local exchange carrier), particularly the RBOCs (regional Bell operating companies) for that access? What we're hearing is that if a cell carrier has a particular base station that is forecast to carry more than 50 megabits-per-second of traffic in a few years — and with the data services coming on line, that is conceivable — then self-provisioning fixed wireless for that base station is attractive from an economic standpoint."

Kestel said that the study found that, compared with a few years ago, fixed wireless stepped up, and people saw how much sense it made for disaster recovery," Kestel said. "The hurricanes in the Gulf states and Southeast were additional examples. One manager said everyone thought landlines were the safest and were also bulletproof, yet people saw it doesn’t matter how good the technology is if your line is cut and if your central office is under water. It made many people realize that fixed wireless has its own advantages and can deliver the same quality of service as wireline connections."

Kestel said that improved performance in a variety of weather conditions has added to the popularity of microwave links. With the use of adaptive modulation, it is possible to dial down the service capacity in adverse conditions such as fog and precipitation. "If the equipment is able to keep a connection but with less throughput during fog, it dials down the bandwidth and you still maintain the connection," he said.

An NPRG fixed wireless study found that the services made a difference when disasters occurred during the past decade. "When the financial district in New York was hit [in the terrorist attack of 2001], self-provisioning always has been a part of the backhaul market, and the NPRG study found that self-provisioning
Backhaul is continuing to grow. Along with self-provisioning, the study found a hybrid model or a nonincumbent leased-access model. “The poster child for that is FiberTower, but they’re not the only ones,” Kestel said. “Several companies have entered the market with that strategy. Some investors are active in the market — though they are not yet as visible as the providers that have raised hundreds of millions of dollars — and are looking at rolling up towers and blending study is that everything is growing, including mid-range sites. Kestel defined mid-range sites as sites experiencing solid but less spectacular traffic growth. “There is not much opportunity to do much with fiber-optic connections at very rural sites,” Kestel said. “In contrast, nearer to urban areas, at sites with high traffic, whether it’s the ILECs with their own facilities or a competitive carrier that can get fiber to the site economically because it’s near a business district, it’s possible to make a business case to build out to the site because it’s a short lateral from a business location they’re building to anyway.”

The question with fixed wireless always is, does the carrier want to invest its own capital in setting up the gear on these sites? With fixed wireless, they have to engineer the installation and manage the use of the connection or network on an ongoing basis. Alternatively, perhaps a carrier can aggregate some microwave links together to serve more than one or two carriers on a site and possibly make money serving the other carriers. The NPRG study found that such sites are borderline for fiber, with the threshold for installing fiber a substantial fraction of 1 gigabit per second of future throughput.

“It doesn’t make as much sense for a fiber operator to build to a site if it is going to be less than a fast Ethernet port, if it is going to be 50 or 60 megabits per second’” Kestel said. “But if they forecast that it will make a significant portion of a 1-gig circuit, then that’s where it becomes attractive.”

The NPRG report gives insight into the backhaul market size and how and when growth is expected to occur. “A lot of new people are getting into backhaul and trying to figure out the potential and how to make a business case,“
Kestel said. “Our study looked at who is providing backhaul now and who will make the best case in the future — who the strongest competitors are and who they will be.”

The study projects market growth and takes a specific look at 20 backhaul providers and their top 10 carrier prospects. NPRG found that, in the United States, where there were five large carriers, with Verizon acquiring Alltel, another carrier will be placed under an RBOC umbrella. Yet, Kestel said that the smaller carriers, such as Leap Wireless and others, have a place. “Even though there is consolidation, there is someone waiting in the wings,” he said.

Kestel said that the brightest days are ahead for backhaul. “In the near term, we see fiber probably growing faster than fixed wireless,” he said. “But I wouldn’t overstate that case because it’s tied to the ILECs’ own fiber initiatives — perhaps Verizon more than AT&T, because Verizon is making it a priority to go deep into neighborhoods.” Kestel said that a secondary aspect of backhaul is that ILECs are building out fiber to cell sites as they extend fiber service to residential areas. For example, he said that although Embarq is building to a lesser extent than Verizon, “they have factored cell backhaul into their residential fiber buildouts.”

Cable TV companies also have made initial forays with fiber buildouts to residential areas. “They have learned some lessons, and each year, they make a concerted push,” Kestel said.

Because fiber is used for the highest-traffic sites, they are the sites with the most revenue potential. Kestel said those sites are the ones being built first. “For the next three or four years, we’re forecasting about a five-to-four ratio of fiber to fixed wireless as far as new sites are concerned. That’s taking into account fiber buildouts by the LECs,” Kestel said.

The demand for microwave starts accelerating among cell sites at the edges of urban areas and in suburban areas that Kestel called Tier 2 areas. He said that in these areas, more fixed wireless would be built out incrementally, as needed, because the payback on building out microwave is achieved far faster than trenching fiber.

As to whether the use of microwave is a stopgap or temporary measure, Kestel said that the answer depends on what is meant by temporary. “In the very long run, people say everything will be fiber,” he said. “Does that mean 20 years or 50 years? It will be a while. If carriers forecast that there is going to be a need for fiber at a site in 24 to 36 months, they will consider fiber now. When the demand at a site approaches the copper capacity, that may be when you look at fixed wireless. It’s the forecasts for 100-, 200- and 300-meg sites where people are looking at fixed wireless.”

The “Wireless Backhaul Market Study” and “Fixed Wireless Sector Analysis” are available from NPRG; email info@nprg.com.
speaking in Hollywood, Fla., on Oct. 15, 2008, executives of several large tower companies answered questions at a session named “Titans of Towers.” The occasion was PCIA’s Wireless Infrastructure Show, and the executives were Marc Ganzi, CEO of Global Tower Partners; W. Benjamin Moreland, president and CEO of Crown Castle International; Jeffrey A. Stoops, president and CEO of SBA Communications; and James “Jim” Taiclet, chairman, president and CEO of American Tower. The session was conducted at the Wireless Infrastructure Show owned by PCIA – The Wireless Infrastructure Association. The first question was asked by Bud E. Baab Jr., CEO of SiteMaster, the sponsor of the session, followed by questions from PCIA’s president and CEO, Michael T. N. Fitch. The following are highlights from the session, edited for length and style.

Baab: Looking at the tumultuous times we’re in, are there any other business strategies that you’re considering to weather these times, as well as to continue on?

Moreland: There is a disconnect between the investors and the business reality, which is very much business as usual, as we provide infrastructure to the wireless carriers. We’re confident in that role we play and that the wireless infrastructure industry plays.

Some forget the wireless infrastructure companies have a stable and secure cash flow. All of us have about half the debt we had in 2002. There is quite a different circumstance in reality from what is being reflected in the market. Nonetheless, we will deal with that and work through adjustments we need to make to remove risk premium in the stock.

Stoops: We see the world quite a bit the same way as Ben. For SBA, it has always been about maximizing shareholder value. Prior to Labor Day, we had a capital structure, growth path, a vision and a progress that was maximizing shareholder value. After Labor Day, and in a quick fashion, the world changed. The world, now, in our case, is focused not so much on growth but on leverage and the balance sheet. It is a simple choice as to how we address this. We want to deal with the current issue that is artificially pressuring our stock, which is a concern about credit and refinancing.

Rather than a path of heavy growth, which we have been on for three or four years now — and we’ve actually doubled the size of our company in the last three years — we will focus on deleveraging the business because we believe that’s what our shareholders need and want. We can turn one dial and move it in a different direction. That’s the right path to put SBA back in its rightful place in terms of maximizing shareholder value.

Taiclet: The economic business prospects of this sector and of the wireless industry remain strong and will continue to do so into 2009 and beyond. There is perhaps a lot less access to capital today compared with August and September 2008. That may or may not be temporary. Costs of capital probably will remain elevated for some while. We are taking that reality into consideration, but we’re staying right on the strategy we’ve always had, which is to really focus on tower leasing, gaining scale and geographically expanding. We have the financial horsepower to still do that, given our capital structure. We’re also going to

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continue to work on operational efficiency. We are in an eyes-open expansion mode, and while we will take into consideration the higher cost of capital, we’re going to press on with our strategy.

**Ganzi:** We find we are in unique times — and in unique times we find opportunity. Our business sees more opportunity than probably back to 2003 and 2004. We see a robust acquisition market. We see a robust development market. Fortunately for us, we access private capital, so we have access to capital right now. And I believe this sector will continue to have access to capital at all levels, whether you are a developer that’s building 12 towers or putting up 50 towers or whether you sit on this stage [representing a large tower company]. As we look at those opportunities, we temper that enthusiasm with a look back at fundamentals. We have thought about our investment thesis. We thought about what the world looks like under cost-of-capital changes. We’ve thought about moving different dials around and making different operating assumptions that perhaps aren’t quite as aggressive as they have been in the past two to three years.

As a sector, we all need to think about that. We have had an unprecedented three-to-four-year growth spurt. When you go back to the first tower downturn, or you could call it a tower blip, in ’96 and again in 2001, this industry continued. We all continued to sign leases. We all continued to build towers. We started buying towers again back in 2002. We are better positioned today, as a sector, to weather this storm, than we have ever been.

We are all net-levered. Net leverage today is very reasonable for the cash flow growths that all the companies represented on this stage achieve. I feel better about our business today and our prospects for an ability to grow than I felt last year.

**Moreland:** ‘There is a disconnect between the investors and the business reality, which is very much business as usual.’

**Fitch:** How do you see the future for acquisitions? How do you weigh
Ganzi: ‘Sellers’ expectations have changed, and capital markets have changed our ability to pay the prices.’

an acquisition versus other priorities for growth?

Stoops: We have been very busy on the acquisition side for the past couple of years. Growth by acquisition is a very smart way to grow the company. In the wireless infrastructure sector, a couple of things make growth through acquisition more attractive compared with other industries. Some other industries have problems with integrating acquisitions. There’s some potential for slippage and problems arise. In our industry, integrating acquisitions is easy. It’s a unit-based model, and we all have infrastructures that can support a lot of additional assets. One of the beauties of this business and why the business is so valuable is we can service a lot of towers — and continue to grow with a lot more towers — with very little incremental overhead.

Growth through acquisition is an effective way to leverage overhead, grow your EBITDA and grow your equity free cash flow per share. Over the years, the tower business has been very fragmented. The four companies here control about 50 percent of the towers that are out there. There are still a lot of towers in private hands — carriers and small, independent owners — and there are new towers being built every day. We look at the future as we have looked at the past, which is every year there continue to be good opportunities.

We will continue to be active in acquisitions, perhaps not so much in the next short period of time while we are working to deleverage the balance sheet and take away that penalty that is being applied to some of the stocks. Once the credit markets return and there is some sense of normalcy, our strategy will remain as it has been, which is to use growth through acquisitions to help grow the overall company. There will be plenty of opportunities to do that.

Ganzi: We plan to be acquisitive. The fundamentals of acquisition require being disciplined in finding defensible locations, focusing on sites with high-quality rent rolls based on telephony-type technology and broadband technology with a concentration on investment-grade. And then, having a sober view on where growth is coming from in the next two or five years in terms of assumptions on lease-up, assumptions on churn, and then a focus on capital markets.

We all have been able to drink from the fountain of cheap capital. The going-forward model includes an adjusted view of “with approved credit.” On the debt side, we have recognized that the spreads for new capital have moved 200 to 300 basis points away from where we historically have been able to raise debt. If you throw all that into the model, then it’s a value mix. Valuations change. We have seen that in the public sector, and I believe the public-sector valuations will come back. In the private sector, valuations have really moved away from us in the past two or three years to a level that made us very uncomfortable about purchasing [towers]. What we have seen [in September and October 2008] is valuations starting to come back. Sellers’ expectations have changed, and capital markets have changed our ability to pay the prices.

The good news is that the tower market is efficient. Multiples move up and multiples retract very quickly. In the coming six to 24 months, you’ll see the multiples will rein in as cost of capital goes up and capital becomes more difficult to access. In a valuation-adjusted world, we are acquisitive. We have a lot of capital to put to work, and my suspicion is that we will do quite a few transactions in the next 12 to 24 months.

Fitch: What opportunities are ahead for expansion in international markets?

Taiclet: American Tower first and foremost is a U.S. tower business complemented by U.S. broadcasters. You put those two together, and that’s 85 percent of our revenue base. Fifteen percent is overseas today. We intend to grow that U.S. asset and U.S. revenue base, and at the same time, one of my goals is to grow the international business even faster. So, could it go from 15 to 25 percent in the next three or four years? It could, if we are successful in some of the initiatives we have.

Currently, operations in Mexico and Brazil make up the majority of the 15 percent of our revenue that is international. We like other countries in Latin America as prospects for us. So that’s a big area of focus. We have a very talented team down there of Brazilian, Mexican and U.S. people looking at these countries.

We launched a business in India on a
are markets that we like, and there are a few of them that fit that profile. We will continue to look at opportunities and to think about it on a risk-adjusted basis.

**Fitch:** How do new wireless entrants affect the business picture as compared with existing, traditional, continuing expanders?

**Moreland:** It’s very exciting. The spectrum that has been auctioned, and the investments that are going to be made, and with the existing footprints among these companies, obviously we’re best suited to help them deploy on a very rapid basis, going on a market-by-market basis where we can handle a majority of any one owner’s build requirements. There are some new entrants coming out as you have mentioned. It’s verifying the value of the wireless business and the attractiveness that the proposition holds as everyone continues to want to have more wireless services and more broadband and data services and bundled services. There is no shortage of potential opportunity.

We think of consolidation in this industry among carriers that seems to be under way. Now, we have probably more customers leasing sites and building out markets than we have had in quite some time, and it has the potential to increase further. It is a wonderful opportunity for the company to help carriers develop and for new entrants to the market to develop on probably a much more rapid basis than they could have ever before because of the consolidation among sites that has been effected among these four companies. It becomes a ready platform that new entrants can access. We’re all very competitive and working very hard to solidify at least our fair share — if not more — of that business.

You can bet that we’re on it.

**Stoops:** We’re not satisfied with our fair share. [laughter] The difference we see with the new market entrants is that they have an extra element of speed and certainty and kind of a project nature to what they’re doing. While the big existing carriers are very busy and keep us all busy, they tend to have networks that are developed, and they do more one-off siting and capacity in-builds. There are UMTS overlays with AT&T and T-Mobile that have project implications.

For new market entrants like Leap and Metro and what we think will be at Clearwire, they are pulling together massive new systems. What they need from all of us is a coordinated effort to be there when they need us to be there for market launches and the time to market. They all spend tremendous amounts of time advertising and getting ready for a market launch, and nothing is more important to a new carrier getting off the ground than a successful market launch. That brings a slightly higher level of commitment for speed and processing efficiency upon the part of all of us. We expect the new-entrant part of the business to be active for the next couple of years.

**Ganzi:** We participate internationally with our sister companies in Macquarie. We have the largest tower business in the UK and substantial business in Australia. Those teams continue to look at acquisitions in Eastern Europe and Asia.

Here in our sphere of influence, we continue to be intrigued by spectrum auctions in Canada and what that could mean on a strategic-build basis for some of the new entrants up there and the cable operators. We share Jim’s view on Latin America. That is a very dynamic market. With the right entry point, we would stick our toe in the market. Down there, it is a dynamic market where you have new spectrum coming and you have the possibility of three- and four-carrier markets, with some markets going to four or five carriers. Those are markets that we like, and there are a few of them that fit that profile. We will continue to look at opportunities and to think about it on a risk-adjusted basis.

**Taiclet:** ‘American Tower first and foremost is a U.S. tower business complemented by U.S. broadcasters.’

March 2009
**Fitch:** There has been a lot of disagreement on the subject of 2009 lease-ups. What is your view of lease-ups?

**Ganzi:** We’ve had an exceptional year in 2008. This has been the best year of lease-up that I’ve seen in this industry. I want to break down the fundamentals of that because I think to understand 2009, you have to understand 2008.

In a way, when you think about our business and organic cash flow, you have to look at four pools of potential new lease executions.

The first pool is the Tier 1 carriers, the Big Four.

The second pool is the Tier 2 carriers, such as U.S. Cellular and Alltel.

The third pool is the third-tier carriers, the rural players such as Alaska Digital, Maine PCS and Crossroads.

Then we have a fourth pool we call “other.” This was a great year [2008] in terms of “other.” We signed some leases with Clearwire at the beginning of the year. We had U.S. Coast Guard leases; we had the state of New York leases.

We looked at 2008 and what we did with each customer in 2008. With the exception of Sprint, we hit on every one of those customers, and they all had meaningful contributions to our lease-up. That was a big reason for our growth.

We had an exceptional amount of lease-up with a company called Crossroads. A lot of our towers are in corridor areas and rural areas, and Crossroads hit us first, and that was a big part of our growth.

Looking to 2009, we have a sober view of what could happen. We had a tremendous 2008 with AT&T and T-Mobile on the UMTS overlays. Out of gross revenue on same-tower sales, 40 percent of our revenue came from amendment traffic, the largest percentage of amendment traffic in our company history.

We don’t see that same level of growth in 2009 from AT&T and T-Mobile. We see some of that growth in Q1 and Q2, but we don’t see it as being a fourth-quarter leasing frenzy. We have an expectation from those two customers that they will do a little bit less on the UMTS side. We expect positive contributions from Verizon, T-Mobile and AT&T in new lease executions because they do need more capacity and coverage.

In the second tier, there is a lot of uncertainty about Alltel. [A month after Ganzi spoke, the FCC approved Verizon’s acquisition of Alltel. —ed.] Rural Cellular is gone. We think Illinois Cellular will be in play. We had a phenomenal year with Cricket and Metro. Our guidance for those two carriers is that they were launching in a hundred markets this year. Some of those market launches are off of the ground, and some of them aren’t. But we are expecting a little bit of an adjusted slowdown for those two in 2009.

In the third tier, the biggest difference for us was Crossroads, and they are at a crossroads with their financing. We have very low expectations on what we are going to do with them in 2009 compared with what we did with them in 2008.

As for Tier 4, we are not modeling in Clearwire for lease-up in 2009. We don’t expect as much activity with the U.S. Coast Guard, and the New York project with M/A-COM is on hold. We’re hoping for the state of Mississippi’s public service initiative to take hold. These were all opportunities that were very robust in 2008. We have a little bit less rosy outlook for 2009.

Where we came out is that we are going to do a .23 BBE [broadband equivalent] rate, harkening back to the day when we used that metric, and we’re talking about doing something between a .17 or .18 next year. By the way, a .17 or .18 isn’t so bad. In 2008 where we’re going to grow cash flow by 25 percent, and 2009 where we’re going to grow cash flow by 20 percent, I’ll take that. That’s a really good business and a good sector to be in. I have a lot of friends in other businesses who don’t have that kind of cash flow forecast for 2009.

I want to be clear on lease-up: We are dialing it down. We’re going to be down compared with what we were in 2008. It’s based on looking at customers and listening to what they say, but to temper that, we had a great year, and we hope to have great years in the future.

**Moreland:** If the capital markets continue to be challenging in 2009, only prudence would suggest that you might look at some scenarios where leasing actually does go down some, particularly among carriers that may have difficulty in accessing the capital market or that otherwise might elect to pull back, just in an abundance of caution. We don’t believe that’s going to happen. We think the credit market will begin to thaw, and

**Stoops:** ‘We still have a services business that gives us an advance view of where we will be in 2009.’
you will see continued activity for all the right reasons. All of the economic drivers are still present in wireless. Wireless data continues to add incremental margins. It is incrementally more profitable to add the 3G services that the carriers are adding. The build-outs come from new entrants to the market after enormous money has been paid to fund spectrum acquisitions. That is unsold inventory sitting on the shelf, not generating any revenue or cash flow, so there is every incentive to build.

As we look at our planning horizon, our only caveat is whether we can assume a more normal environment. Let’s hope, for all of us, that we’re beginning to see a return to normalcy. In a more normal environment, we see next year being every bit as good as this year. We hope and expect that the Clearwire transaction will close, and that will be, potentially, an upside for next year. [Clearwire announced on Nov. 28, 2008, that it completed its transaction with Sprint Nextel to combine the two companies’ 4G wireless Internet businesses. —ed.] We will wait until that transaction actually closes and funds, and then we will have high expectations for what that means for us in 2009.

Even absent that, we see a year that is very much like 2008, and 2008 looks as though it will track nearly as well or better than we did in 2007.

Stoops: Our portfolio of towers is different from those of the other companies represented here. We think 2009 will be every bit as good as this year. In 2008, Sprint was virtually inactive. That could change in 2009, and it certainly would be an upside for everyone in the industry. Sprint’s a big company, and it is hard for me to believe that a major carrier like that would not invest in its network. And we really do think — as Ben suggests — that markets will improve.

We take statements about Clearwire at face value — that the transaction will close — and we all will be very busy. We all have been in preliminary conversions, and we would all agree that when the deal closes, Clearwire is ready to go, and they will go quickly. That could be interesting for 2009. We don’t see much difference among the rest, such as AT&T and T-Mobile. T-Mobile has a lot to do with where they want to be with 3G. They’re banking a lot on the Android phone, and they have a lot of work to do to get their network up. We’re all busy today with T-Mobile.

We still have a services business that gives us an advance view of where we will be in 2009. There is a lot of activity going on. The lease backlogs are very strong. There is a lag effect to the financial reporting from lease-up. We are signing leases today that will be in our 2009 financial results. We have a better view today of what our financial results will be than anyone actually knows just due to the nature of business. Next year [2009] will be as good as this year [2008], and this year has been pretty good.

Taiclet: We’re in a great sector, but the companies and their portfolios are different. You have to look at how many sites you have to offer, plus what kind of volume deals you already have in place based on that size. How many sites are urban versus rural versus suburban in the context you have with customers? For American Tower, the incremental 2008 revenue was better than it was in 2007, and we expect the 2009 incremental revenue to be as good as or better than 2008. The attitude has a lot to do with all of the things that Ben and Jeff just talked about: The three growing national carriers are continuing to spend along the same line, Sprint Nextel is doing about the same. Let Metro and Leap pursue the markets that they announced that they are going to roll out and that they have funded. And then a number of other carriers that Marc mentioned are contributing. The upside is Clearwire getting funded, closed and then launching their rollout and Sprint Nextel coming back a bit. Given a somewhat normalized capital market, that’s how we think 2009 is going to roll out.
Solar Energy for Remote Cell Site Power

By John DeBoever

At a SunWize industrial training session, a participant asked the fundamental question, “How do you know when solar is the right power solution?” This is a key question when considering solar (photovoltaics or PV) as a power supply for off-grid, remote-site equipment. As with any advanced technology, PV is extremely effective when used properly, so every effort should be taken to see that the technology provides the best possible value.

To consider PV for the application, a potential user should be able to answer “yes” to most of the following questions:

1. Is the load less than 600 watts continuous (14 kilowatt-hours per day)? There is no technical barrier to the use of PV for any load. The size of the PV array (the total collection of PV modules required) and the battery bank is directly proportional to the daily load requirement. At a certain size, the load will require the PV to become quite large and extremely expensive. PV systems make great economic sense when powering loads at 600 watts of continuous demand or less.

2. Is the load in a remote location with limited or no access to commercial (grid) power? PV is an excellent remote-site technology because it is co-located with the load equipment. It does not require long-distance trenching of power lines. The power goes where the load goes, making PV an ideal distributed power supply.

3. Is the load driven by direct current? PV is a direct current technology. PV modules and lead-acid batteries are DC devices. This by no means implies that PV cannot generate AC power when needed. A DC-to-AC inverter can be used. However, if the load is DC, it can be powered directly from the DC.

A hybrid system can cost-effectively power loads from 600 to 3,000 watts. The photovoltaic array is reduced in size from what it would be for a standalone system, which drops the cost of the array. Because the battery bank does not exclusively carry the load, it is also smaller and reduces battery costs. Shown here is a 7.7-kilowatt SunWize power station hybrid system powering a 2.5-kilowatt base telecommunications station/microwave site in California’s Mojave Desert.
output of a PV system, versus having to rectify an AC utility-line voltage down to DC.

4. Is the site largely unattended year-round? PV is almost a purely maintenance-free power technology. Other than annual checks, a PV system will operate unattended year-round. For a remote site that is to operate unattended for the bulk of the year, PV will be totally compatible with the equipment’s maintenance regime.

5. Is the load operating in harsh environmental conditions? Because a PV system is designed to operate reliably in remote, rugged sites, it is built to a demanding set of environmental standards. PV systems operate successfully on all seven continents (even Antarctica) and are exposed to every conceivable temperature and precipitation extreme.

6. Is the application critical in nature, and is reliable power essential? Well-designed PV systems have been successfully powering a huge variety of industrial load equipment for the past 30 years. When properly sized, the rugged nature of PV systems makes them the most reliable form of power on earth. No other power source, whether it be the utility mains, an on-demand or continuously operated generator set, or another form of renewable energy, can compete with the inherent reliability of a well-designed PV system.

Photovoltaic/hybrid power systems

PV can also make sense as part of a hybrid system that uses two generation sources working in conjunction to supply power to the load over the course of the year. The hybrid concept, in which each source contributes on a daily or weekly basis, optimizes the positive features of each power-generation source. For example, a propane-driven engine generator that is capable of operating on demand can be used.

When the PV array is reduced in size to well below what it would be for stand-alone PV operation, the result is a daily loss of battery capacity relative to the load demand. The output of the PV array can be accurately predicted over time, so the average loss rate can be easily forecasted. The engine operation necessary to offset that loss can then be determined.

Control software to start the on-demand generator at a set battery level allows the engine to rapidly recharge the battery bank while providing power to the load. A typical cycle might be an engine start every three to five days, running for six to 15 hours each event. The engine then shuts off and the PV array is once again operating in a mode in which it is losing ground to the load on an average daily basis. Three to five days later, the battery reaches the state-of-charge point at which the controller starts the engine, and the cycle repeats.

The engine capacity in this hybrid is several times greater than the load requirement. The excess capacity is the reason the engine is able to recharge the battery and power the load in a relatively short amount of time. The result is a hybrid system that runs the engine less than 10 percent of the time while contributing 50 percent or more of the annual energy to the load.

Tough PV modules

The PV modules make sense because of their ability to operate in rugged, remote environments. Remote cell sites are subjected to every imaginable weather extreme, including large swings in temperature and humidity, severe wind exposure, corrosive salt-air and impact from debris and hail.

The proof of module durability is best demonstrated by the warranties. Many PV modules now come with a 25-year performance warranty and a guarantee that 80 percent of the rated power of the module will still be available after 25 years. Few other consumer or industrial devices carry a similar warranty.

How can the PV industry offer such an extensive warranty with confidence? Such warranties can be offered because of the rigorous specifications the industry has adopted to guide the design of PV modules. Manufacturers select premium materials, deploy solid manufacturing techniques and use thorough testing reproducing harsh environments to create a product that endures a wide range of outdoor conditions.

The Jet Propulsion Laboratories (JPL) in Pasadena, Calif., first established an industrywide set of test specifications for PV modules in the late 1970s. As the terrestrial PV industry was starting up, JPL was commissioned by the U.S. government to develop a series of tests to ensure that a PV module would operate under all expected environmental conditions. The result of that commission was the JPL Block V test specification. If
Because a photovoltaic system is designed to operate reliably in remote, rugged sites, it is built to a demanding set of environmental standards. PV systems operate successfully in the desert, for example, where they are exposed to temperature and precipitation extremes.

Here is a rundown of the tests encompassed by the JPL Block V specification standard:

- Repetitive temperature cycling from minus 40°C to 90°C
- Temperature humidity freeze test cycling from minus 40°C to 85°C at 85 percent relative humidity
- Mechanical load testing with 10,000 cycles at 20 cycles/minute of positive and negative pressure normal to the module surface
- Wind resistance test with upward forces equivalent to 35 pounds/feet (squared)
- Twist test with forced deviation from a true flat surface by plus or minus 1/4 inch per foot
- Hail impact test with a 1-inch ice ball traveling at a terminal velocity of 52 mph
- Electrical isolation test with 2,000 volts DC applied for one minute to the module terminals without arcing, flashover or 50 microamperes DC of leakage current
- Hot spot endurance test by applying reverse polarity to isolated cells for 100 hours with no delaminating.

**PV/hybrid technology’s advantages**

1. A hybrid system can cost-effectively power loads from 600 to 3,000 watts.
2. The PV array is reduced in size from what it would be for a stand-alone system, which drops the cost of the array.
3. Because the battery bank does not exclusively carry the load through periods of inclement weather, it is also smaller, reducing battery costs.
4. Carefully selecting the generator and rectifier sizes optimizes the loading on the generator. Optimal loading ensures the highest-efficiency operation, minimizes fuel consumption and maximizes intervals between required maintenance.
5. By operating periodically and for relatively brief periods, the engine consumes a modest amount of fuel, with regular refueling trips two to four times per year. Consumption is in the range of hundreds of gallons per year.
6. When multiple sites are deployed over a large geographic area, such as a microwave backbone system, a standardized hybrid system design can be deployed. The only variability is the engine contribution with the subsequent run intervals and fuel consumption. The physical and electrical designs of the power system are identical across the network so that the installation steps are the same at all sites.
7. The PV array is no longer sized for the worst-case solar levels creating excess energy, which cannot be stored during the rest of the year. In the PV/hybrid system, the array is intentionally undersized relative to the load, so nearly all the energy generated by the array is used for battery charging and load energy. Therefore, excess PV energy is not being generated.
Photovoltaics make sense as part of a hybrid system that uses two generation sources working in conjunction to supply power to the load over the course of the year. The hybrid concept, where each source contributes on a daily or weekly basis, optimizes the positive features of each power generation source. Shown above, a 7.7-kilowatt SunWize power station powers a 2-kilowatt base telecommunications station/microwave site in the Mojave Desert using photovoltaics and a gas engine generator capable of operating on demand.

Some readers may be reminded of the military standard developed for similar purposes. MIL-STD-810 is a series of test standards also used to verify the ability of outdoor-rated equipment to survive in harsh environmental extremes. The JPL Block V tests equate to the MIL-STD-810 tests in most respects. One MIL-STD-810 test not in the JPL Block V test program is a salt-fog exposure test.

When PV was planned for military communication and tracking sites in the Gulf of Mexico and off the coast of Okinawa, the MIL-STD-810 salt-fog test was used to verify the ability of the PV modules to survive exposure to a salt-fog environment, and in the case of Okinawa, to the possibility of direct contact with seawater.

Per the standard, a 5 percent salt concentration solution was used, and the PV modules were positioned as they would be under their expected deployment on the platforms and buoys. The modules went through a 48-hour exposure period and then a 48-hour drying period. This four-day cycle was repeated four times, for a total 16-day test.

Afterward, the modules were visually inspected for damage and were flash-tested in a light-simulation chamber (simulating one full sun) to verify their current-voltage characteristics. Both the visual and electrical tests came through at 100 percent. There was no visible damage or corrosion and the modules met the specification electrically.

**Conclusion**

The engineer installing equipment in remote areas has a unique challenge: to balance the placement of equipment in an optimized site from a performance standpoint with the various factors associated with the installation.

Consider the telecom engineer responsible for siting repeater towers. Line-of-sight requirements often dictate that the repeater be placed at the highest possible point, which can be a mountaintop. However, this location can be formidable when planning how to provide and maintain power for the equipment. The engineer might decide to sacrifice the optimum site for one that offers fewer logistical challenges.

PV eliminates the balancing act for the engineer. When the rigorous standards outlined here are considered in combination with the evidence of hundreds of thousands of modules successfully deployed, PV modules are as durable as any other industrial device that could be installed in a remote, rugged site. Additionally, a PV/hybrid system is an option that can minimize up-front equipment costs, generator maintenance and refueling, making it an effective means of powering a large load in a remote location.

In sum, PV is an excellent distributed power generation source that can be located virtually anywhere, on land or sea, alongside the load equipment it is powering. A well-designed PV system is straightforward to install and extremely reliable.

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