



REPORT TO PLANNING COMMISSION City of Sacramento

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915 I Street, Sacramento, CA 95814-2671

PUBLIC MEETING
February 24, 2011

To: Members of the Planning Commission

Subject: Workshop on Telecommunications Facilities

An introduction to the current siting guidelines, policies, codes, and existing technologies related to telecommunication facilities.

Recommendation: Staff recommends the Planning Commission receive and file.

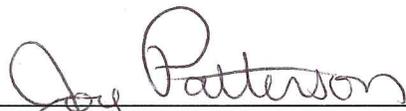
Contact: Sandra Yope, Senior Planner, 916-808-7158 and Joy Patterson, Principal Planner, 916-808-5607

Summary: The Planning Commission directed staff to conduct a workshop on the siting of telecommunication facilities. The current siting guidelines, policy, and Zoning Code requirements were adopted by the City Council in 1997, after a committee consisting of City and County Planning staff, wireless carrier representatives, and community group representatives met regularly for approximately 18 months. Staff will present the adopted guidelines, policy, and Zoning Code requirements as well as provide a statistical look at the type of applications submitted since 2009. The presentation will address many of the Commissioner's questions. Carrier representatives will discuss technological issues.

Respectfully submitted by:


for SANDRA YOPE
Senior Planner

Recommendation Approved:


JOY PATTERSON
Principal Planner

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WORKSHOP ON TELECOMMUNICATIONS FACILITIES INTRODUCTION

- ❖ Overview of existing Zoning Code requirements
 - History of existing policy
 - Description of current siting guidelines adopted by the City Council
 - Review of the different levels of application review/approval for wireless sites
- ❖ Report on the actual number of telecommunication facility applications since 2009 by type of entitlement requirement.
- ❖ Explanation of the past year's increased number of applications- an unusual year!
- ❖ Categorize the Planning Commissioner's questions
 - Identify questions beyond our ability to answer
 - Review Federal Law and the areas we are prohibited from regulating
- ❖ Discussion by carriers of current technologies
- ❖ Next steps

Attachment 2: Guidelines for Telecommunications Facilities

Guidelines for Telecommunications Facilities

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Guidelines for Telecommunications Facilities

Background

- Zoning Ordinance Amendment and Policies adopted by the City Council on April 29, 1997
- Policies were created through an 18 month process of regular meetings between City and County Planning Staff, wireless carrier representatives, and community group representatives.
- Policies provide location criteria and guidelines for evaluating proposed telecommunication facilities project requests for which planning entitlements are required.
- Policies recognize dramatic changes and growth in the telecommunications industry and the value of the increased services gained by the City's business community and private citizens.
- Key objectives for the City are to maximize the number of "invisible" telecommunications facility sites, provide locational opportunities on City owned property or right-of-ways, encourage co-location of facilities, and maximize the proliferation of monopoles.

Facility Siting Highlights

Siting Preferences (Listed in order of preference)

- Located completely within an existing or constructed structure.
- Existing structures (public or private) that allow a facade mounted antenna
- Existing structures (public or private) which require a modification of the structure architecturally or in height in order to mount antennas (includes roof mounts)
- Collocation on existing poles or light standards at a lower height
- Collocation on existing poles or light standards at a higher height
- New monopole (whether co-developed or single carrier)

Facility Location & Design Guidelines

- Antenna panels should match the building colors and/or architectural character so as to not be visible.
- Antennas should be screened with stealthing materials so as not to be visible (as much as possible).
- Roof mounted antennas should be located in the center of the roof or as close to the center of the roof as possible. Projections above the roof should be "invisible" to pedestrians passing the site from the opposite side of the street. Although the current standard allows a maximum projection height of 12 feet; the intent is not to interpret that height as a solution for

a building that is not as tall as is needed to serve the carrier.

- Carriers should consider constructing new parapets or structures on building roof tops that are in keeping with the building architecture so that roof mounts can actually be constructed as facade mounts.
- Monopoles should be constructed of materials that match the prevalent poles and/or buildings and landscaping in the area or provide stealthing for the pole (i.e. wood, metal, palm/pine tree). Also carriers should consider using "close proximity/bi-polar or tight antenna arrays" configurations on monopoles instead of "traditional top hat" antenna arrays.
- Monopoles should be painted to match either the sky line (dull matte gray) or other prevalent architectural or natural features (i.e. trees).
- Antennas that are collocated on another facility should be designed to coordinate and compliment the existing design of the facility.
- Carriers should consider enclosing the antennas within another structure such as a sign or an architectural feature.
- Carriers should avoid sites that will require monopoles to be painted or lighted per FAA standards.
- Carriers should consider siting as much as possible on existing infrastructure such as highway structures, transmission towers/poles, light standards etc.
- Carriers should consider the distance from residentially zoned properties when considering the placement of additional antennas on an existing monopole (or other collocation), or when installing a facade mounted antenna. The objective is to have the facility be invisible when viewed from the residentially zoned property.
- Carriers should include landscaping in proposals to better screen equipment building or cabinets.
- Carriers should locate all equipment shelters or cabinets to the rear of existing buildings away from the streetscape view.
- New telecommunications towers in sensitive areas may be subject to a term limit or required periodic review as part of the conditioning of any approved entitlements.

Further Information

- City of Sacramento Zoning Code [Chapter 3.76.050](#) and [Chapter 17.24.050](#)
- Contact [Sandra Yope](#), Associate Planner, at 916-264-7158.

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Attachment 3: Planning Commissioner Questions/Comments

Commissioner Molander:

- Have a better understanding of the technology now and where it is going.
- Provide mapping for all cell sites and telecomm sites.
- Can we use permitting or something like it to make telecomms come back each year and take down unused sites (how do we do a better job of keeping track of the sites that are out there now)?
- Can we get developers to build-in siting in new areas that will be friendly and better cloaked for telecomm use?

Commissioner Declines:

Community Input, Education and Collaboration

- We do not do a good job educating the public & commissioners about the regulations. Educate the community and leaders about what the City vs. FCC regulates in the Telecom Act of 1996. Maybe a general statement from the City in the report by either the planning staff or the applicants?
- Create a shared vision between communities and industry to reduce the amount of time and money spent with numerous applications or hearings. I have seen this work in other areas like the Specific Design guidelines that we have in each neighborhood district.
- Address the health concerns up front and in the application. Is this out of scope or can the applicants or staff put some wording around this for everyone?

Design

- Have pre-approved plans or designs, that have been reviewed by all parties depending on the application of use.
- Improve architectural designs by using newer technology and the type application. Has there been any improvements over the last couple years? Are engineers coming up with new ways to transmit wireless signals by using different devices?

Long Term Planning & Wireless Mapping

- How are we going to ensure that our wireless infrastructure for the City of Sacramento is scalable, less intrusive and promotes reliability for public safety and emergency response?
- Can we have a LTP plan for wireless that can be made and reflected in the general plan so that is a coordinated effort, not individual sites? We need a

wireless master plan that incorporates and addresses the technical buildout and future technology. It needs to be scalable & flexible regardless of technology.

- We know the science & engineering needed to transmit a signal, based on height, density and the spectrum used. Why not have a modeling tool available or guidelines set based on these factors that can identify areas of improvement? We do it for transportation and traffic patterns, can we do it for wireless traffic?
- Why not incorporate wireless design so that it can easily be incorporated in the architecture of the building? What if a building or property had an ability to house a wireless carrier or multiple carriers because it was incorporated in the design?
- What is the estimated power consumption for the towers? Is there a way to create green energy to power these facilities?
- Lease Agreements- How can we streamline this so it is a win for all parties involved? Some cities have Community Benefit Funds that help with other city services or parks.
- What can we learn from other cities & commissions about what policies work and what policies are cumbersome to the planning process?
- If we could picture Sacramento in 30 yrs with mobility applications and communications going totally wireless, what would that look like?

Commissioner Mendez:

- FCC public health and safety reports/studies on cell phone transmission (this comes up a lot during the hearing from the public - I would like an overview of the scientific findings).
- Federal guideline/laws for timelines on when and how local governments must approve/deny cell phone tower applications.
- Emerging technologies in cell phone transmissions, i.e. 4G, 3G, web-based, etc. Please see the articles listed in the Technology Review (MIT) magazine. <http://www.technologyreview.com/briefings/wireless/?p1=BR>. Is it possible to have an expert from industry to go over these new and emerging technologies discussed in the articles? Such a briefing would help the CPC understand how the industry is changing, anticipate future consumer demand and how that might impact the need for more towers, etc. (hence more CPC applications).

Commissioner Contreras:

- How many apps are in the pipeline for this year?
- How do they choose locations?
- Is technology going to allow for replacement of existing panels with newer technology?

Attachment 4: The Sacramento Bee article of February 11, 2011

Wireless advances could mean no more cell towers

AP Technology Writer

Published Friday, Feb. 11, 2011

NEW YORK -- As cell phones have spread, so have large cell towers - those unsightly stalks of steel topped by transmitters and other electronics that sprouted across the country over the last decade. Now the wireless industry is planning a future without them, or at least without many more of them. Instead, it's looking at much smaller antennas, some tiny enough to hold in a hand. These could be placed on lampposts, utility poles and buildings - virtually anywhere with electrical and network connections. If the technology overcomes some hurdles, it could upend the wireless industry and offer seamless service, with fewer dead spots and faster data speeds. Some big names in the wireless world are set to demonstrate "small cell" technologies at the Mobile World Congress, the world's largest cell phone trade show, which starts Monday in Barcelona, Spain.

"We see more and more towers that become bigger and bigger, with more and bigger antennas that come to obstruct our view and clutter our landscape and are simply ugly," said Wim Sweldens, president of the wireless division of Alcatel-Lucent, the French-U.S. maker of telecommunications equipment. "What we have realized is that we, as one of the major mobile equipment vendors, are partially if not mostly to blame for this."

Alcatel-Lucent will be at the show to demonstrate its "lightRadio cube," a cellular antenna about the size and shape of a Rubik's cube, vastly smaller than the ironing-board-sized antennas that now decorate cell towers. The cube was developed at the famous Bell Labs in New Jersey, birthplace of many other inventions when it was AT&T's research center. In Alcatel-Lucent's vision, these little cubes could soon begin replacing conventional cell towers. Single cubes or clusters of them could be placed indoors or out and be easily hidden from view. All they need is electrical power and an optical fiber connecting them to the phone company's network.

The cube, Sweldens said, can make the notion of a conventional cell tower "go away." Alcatel-Lucent will start trials of the cube with carriers in September. The company hopes to make it commercially available next year. For cell phone companies, the benefits of dividing their networks into smaller "cells," each one served by something like the cube antenna, go far beyond esthetics. Smaller cells mean vastly higher capacity for calls and data traffic. Instead of having all phones within a mile or two connect to the same cell tower, the traffic could be divided between several smaller cells, so there's less competition for the cell tower's attention.

"If it is what they claim, lightRadio could be a highly disruptive force within the wireless industry," said Dan Hays, who focuses on telecommunications at consulting firm PRTM. Rasmus Hellberg, director of technical marketing at wireless technology developer Qualcomm Inc., said smaller cells can boost a network's capacity tenfold, far more than can be achieved by other upgrades to wireless technology that are also in the works. That's sure to draw the interest of phone companies. They've already been deploying older generations of small-cell technology in areas where a lot of people gather, like airports, train stations and sports stadiums, but these are expensive and complicated to install.

In New York City, AT&T Inc. has started creating a network of outdoor Wi-Fi hotspots, starting in Times Square and now spreading through the midtown tourist and shopping districts. Its network has been hammered by an onslaught of data-hungry iPhone users, and this is one way of moving that traffic off the cellular network. Smaller cells could do the same job, but for all phones, not just Wi-Fi enabled ones like the iPhone. They could also carry calls as well as data. San Diego-based Qualcomm will be at the Barcelona show with a live demonstration of how "heterogeneous networks" - ones that mix big and small cells, can work. A key issue is minimizing radio interference between the two types of cells. Another hurdle is connecting the smaller cells to the bigger network through optical fiber or other high-capacity connections. "That's an impediment that we're seeing many operators struggling with right now as data volumes have increased," Hays said.

LM Ericsson AB, the Swedish company that's the largest maker of wireless network equipment in the world, is also introducing a more compact antenna at the show, one it calls "the first stepping stone towards a heterogeneous network." Small cellular base stations have already penetrated hundreds of thousands of U.S. homes.

Phone companies like AT&T, Verizon Wireless and Sprint Nextel Corp. have for several years been selling "femtocells," which are about the size of a Wi-Fi router and connect to the phone company's network through a home broadband connection. The cells project radio signals that cover a room or two, providing five bars of coverage where there might otherwise be none. British femtocell maker Ubiquisys Ltd. will be in Barcelona to demonstrate the smallest cell yet. It's the size of a thumb and plugs into a computer's USB drive. According to Ubiquisys, the idea is that overseas travellers will plug it into their Internet-connected laptops to make calls as if they were on their home network, but there are potential problems with interference if used that way.

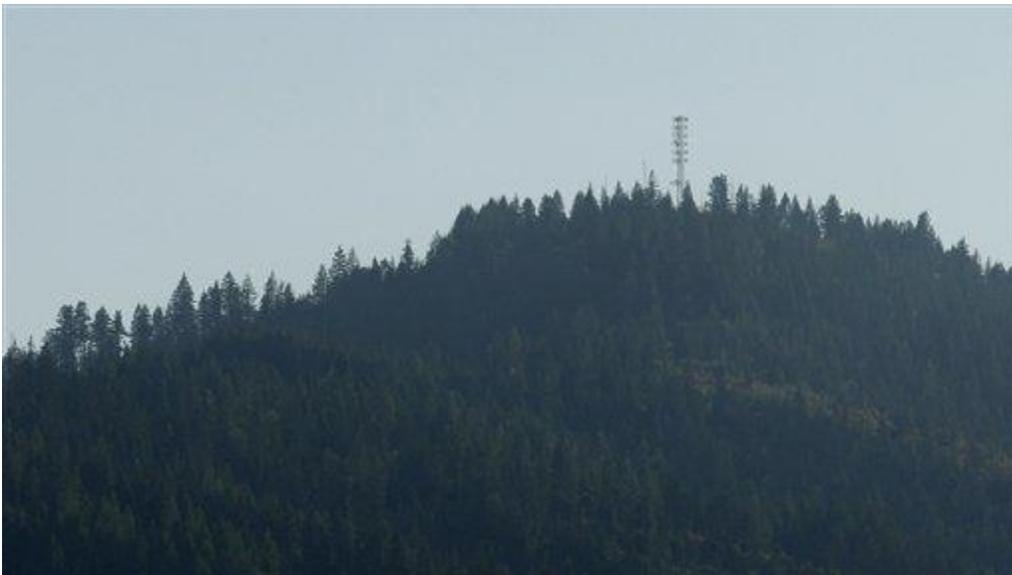
According to Rupert Baines, marketing head of Picochip Ltd., a more realistic application for a tiny plug-in cell is to make it work with cable boxes or Internet routers, to convert them into femtocells. A key part of the "small cell" idea is to take femtocells outside the home, into larger buildings and even outdoors.

Picochip, a British company that's the dominant maker of chips for femtocells, will be in Barcelona to talk about its chips for "public-access" femtocells, designed to serve up to 64 phone calls at a time, with a range of more than a mile. They could be used not just to ease wireless congestion in urban areas, but to fill in dead spots on the map, Baines said. For instance, a single femtocell could provide wireless service to a remote village, as long as there's some way to connect it to the wider network, perhaps via satellite.

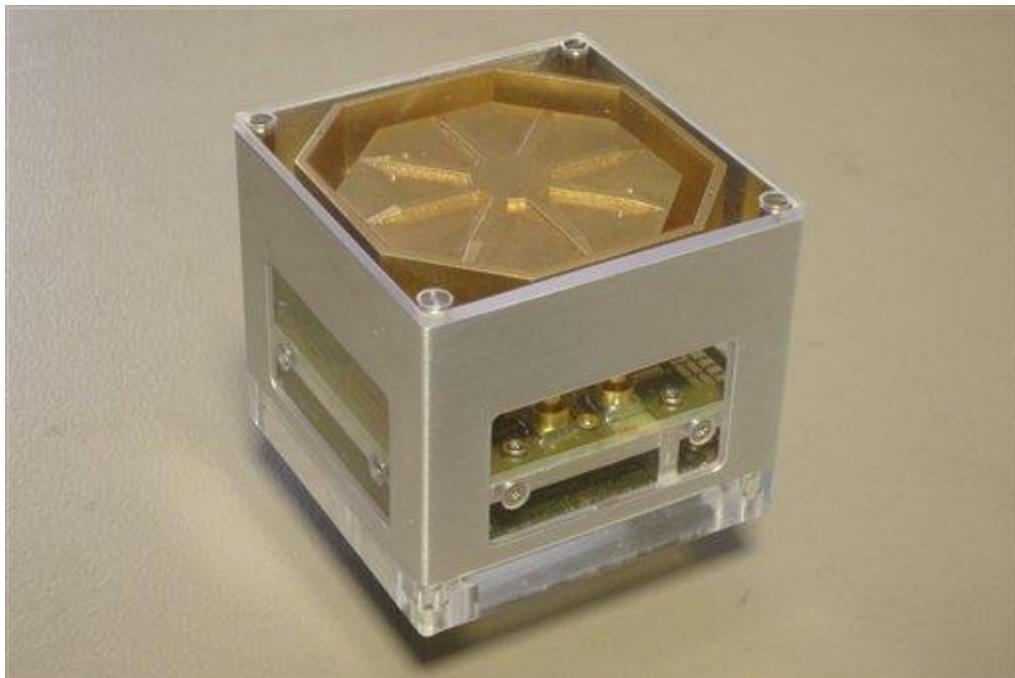
Analyst Francis Sideco of research firm iSuppli pointed out a surprising consumer benefit of smaller cells: better battery life in phones. When a lot of phones talk to the same tower, they all have to "shout" to make themselves heard, using more energy. With a smaller cell, phones can lower their "voices," much like group of people moving from a noisy ballroom to a smaller, quieter room. "Ultimately, what you end up with is a cleaner signal, with less power," Sideco said.



In this undated photo provided by Alcatel-Lucent, Wim Sweldens, the president Alcatel-Lucent's wireless division is seen holding a lightRadio cube, a small cell-phone antenna that can be deployed on lamp posts, buildings, and other places that can't accommodate a full-sized antenna. The cube integrates much of the regular workings of a conventional cell phone base station, seen behind Sweldens.



FILE - In this file photo made Oct. 6, 2009, a mountain-top wireless Internet transmitter tower that serves the Coeur d'Alene Indian reservation and surrounding communities, is shown near Plummer, Idaho. The spread of cell phones has also meant the spread of big cell towers, an unpopular sight in many places. Now, the wireless industry is looking at boosting wireless coverage in a different way: by putting small antennas on lamp-posts, utility poles and buildings.



In this product image provided by Alcatel-Lucent, the lightRadio cube is shown. This small cell-phone antenna can be deployed on lamp posts, buildings, and other places that can't accommodate a full-sized antenna for wireless activation.



In this product image provided by Alcatel-Lucent, a number of lightRadio cubes are shown. This small cell-phone antenna can be deployed on lamp posts, buildings, and other places that can't accommodate a full-sized antenna for wireless activation.

Read more: <http://www.sacbee.com/2011/02/11/3395996/wireless-advances-could-mean-no.html#ixzz1EEtF6RKE>

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<http://www.sacbee.com/2011/02/11/v-print/3395996/wireless-advances-could-mean-no.html> 2/17/2011