

The Wireless Master Plan (WMP) is a comprehensive, customized study designed for cities, counties, and properties owners with large area(s) of consolidated land to keep an up-to-date inventory of the existing wireless communications facilities within their jurisdiction, as well as to indentify future potential cell sites. Thus, it is used as a marketing tool that maximizes the potential revenue that can be generated from new cell sites on a property.



20 Years in Mobile, Broadband and Electronics Infrastructure -- Business Media

1998 Tower Technology Summit:

Paradigm Shift: Wireless carriers shifted network spending away from wholly-owned and to Independent property (tower) owners (neutral hosts)

2001 Broadband Fixed Wireless World

Paradigm Shift: Unlicensed wireless links as replacement to fiber and DSL; made possible Wireless ISP industry

2003 RFID World

Paradigm Shift: Industry production behind electronic bar codes for tracking & tracing services; Wal-Mart signals mandate for suppliers. First utterance of the phrase “Internet of Things” (Kevin Ashton)

2010 Telecom Industry Association “The Network” Conference

Paradigm Shift: Google Fiber and Software Defined Networking (Intel & ATT) discussed in telecom networks

2016 “SmartGig Cities” – Regional Conference Series

Not just “smart”; “Smart plus Connected”

2017 SmallCellSite.com & Wireless Infrastructure Association

Paradigm Shift: New Tools, New Thinking for Wireless Infrastructure



smartGIG
media

Why Develop a Wireless Master Plan

Federal law does not allow the city to prohibit installation of these towers. The goal of the plan is to control -- as much as possible -- where structures may be placed and how they are disguised from view.

It is predicted there will be more and more demand for improved wireless connectivity. The plan is designed to ensure that we get improved service while also protecting your city's visual beauty and neighborhood views.

As a Landlord, the City has More Say

The City should be proactive with guidelines to give carriers strong incentives. If wireless infrastructure is placed on city infrastructure, the city can dictate stricter terms for the equipment and aesthetic than it could simply through code requirements for other property. More effectively influence the

- Height
- Location
- Appearance

The Shot Clock Ruling

Impetus: Wireless industry frustrated with the time that it took for local government to act on siting requests. Consequently they petitioned the FCC for relief.

The FCC issued a Declaratory Ruling in 2009 (the “Shot Clock”).

- The Shot Clock ruling requires collocation decisions to be made in 90 days and new tower decisions to be made in 150 days.

This puts an administrative burden on local government to make decisions expeditiously, or otherwise the application will be deemed approved.

Some communities have challenged the FCC’s authority to impose these timelines, but the US Supreme Court ultimately decided the FCC was within its authority to impose the Shot Clock on local government.

The Spectrum Act

The Spectrum Act Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, referenced as the “Spectrum Act” was enacted by Congress to promote wireless deployments of broadband for public safety and commercial purposes.

“...a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.”

What does this mean and how does it affect local planning agencies nationwide?

An Eligible facilities request is one that requests modification of an existing wireless tower or base station that involves

- (a) collocation of new transmission equipment;
- (b) removal of transmission equipment; or
- (c) replacement of transmission equipment.

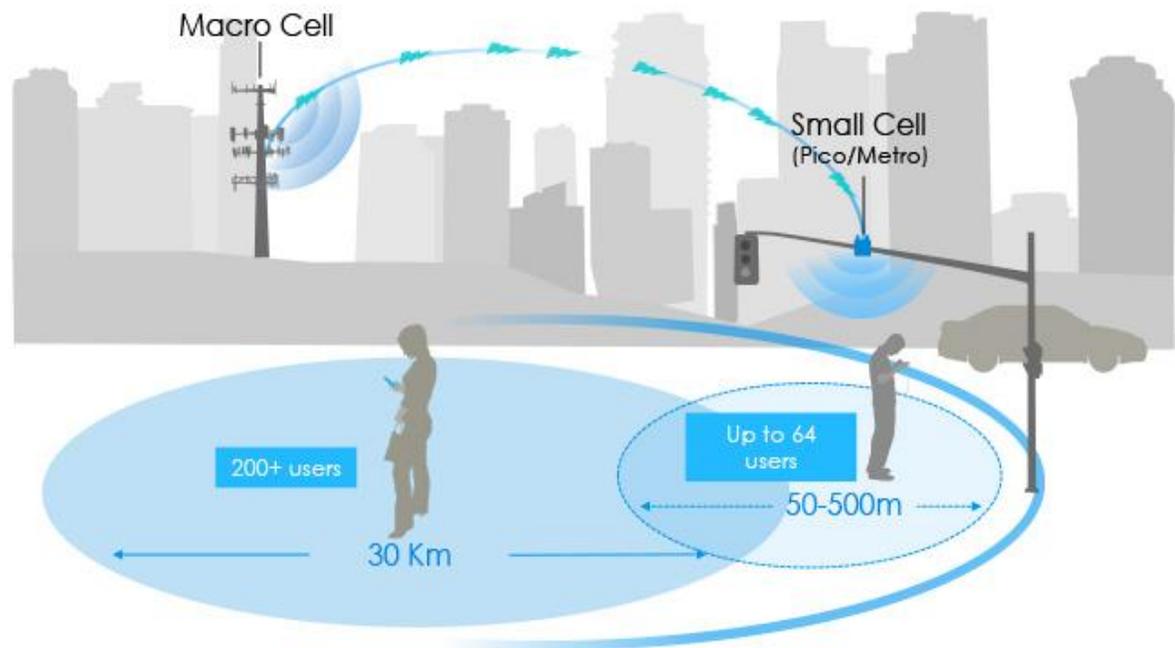
What is a Small Cell?

Small cells are low-powered cellular [radio access nodes](#) that operate in licensed and unlicensed spectrum that have a range of 10 meters to under a kilometer.

- They are "small" compared to a mobile [macrocell](#), partly because they have a shorter range and partly because they typically handle fewer concurrent calls or sessions.
- They make best use of available spectrum by re-using the same frequencies many times within a geographical area. Fewer new macrocell sites being built, with larger numbers of small cells is recognized as an important method of increasing cellular network capacity, quality and resilience with a growing focus using [LTE Advanced](#).



What is a Small Cell?



Distribution of new small cells deployed by density forecast

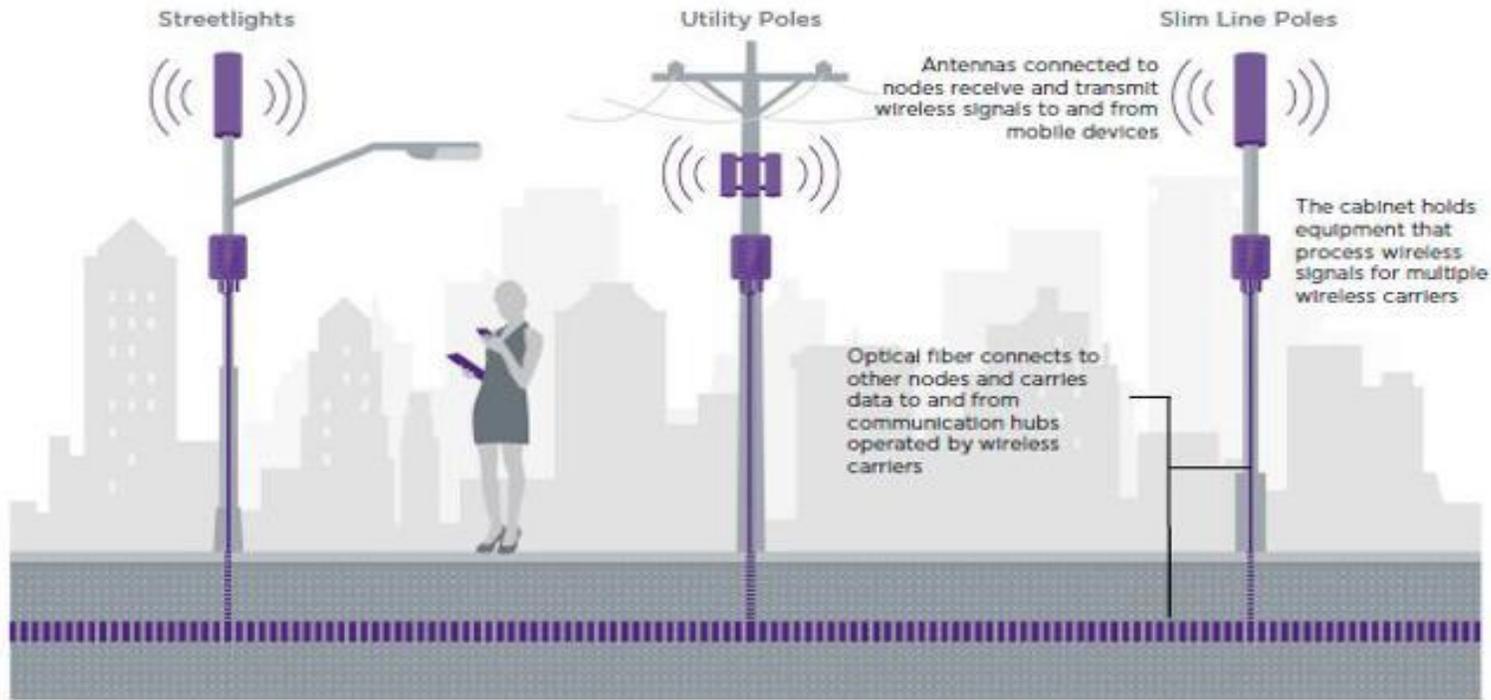
- Low density small cells <20 per square km
- Medium density 20-75 per square km
- Dense 75-200 per square km
- Hyperdense >200 per square km

Source: Rethink Technology Research

City of Los Angeles: >10,000

What Are Small Cell Deployments?

Small cell deployments are complementary to towers, adding much needed coverage and capacity to urban and residential areas, venues, and anywhere large crowds gather



900: Number of cell towers in 1985

215,000: Total number of cell towers in

US

1 million + Estimated number of small cells needed for 5G and other networks

Many considerations and variables go into the design of the WMP including:

- the size of the area,
- seasons,
- tourism,
- year round residents,
- topography and
- location of existing infrastructure in and around the City.

The WMP development process includes:

- Engineering a search radii template and applying it over the jurisdictional boundary of the City to evaluate theoretical build-out conditions; and
- Identifying, assessing, cataloguing and mapping exiting transmission equipment; and
- Forecasting **future wireless infrastructure needs** based on existing locations, terrain, climate, demographics, gap analysis, population trends, gaps in network coverage and anticipated continued evolution of the industry.

Types of Infrastructure in Plan

Non Concealable Towers:

- **The Monopole Tower** is a single tube tower. It typically stands between 100-200 ft. with antennas mounted on the exterior of the tower. Its primary use is telephony.
- **The Lattice Tower** is sometimes referred to as "self-support" or SST because it is free-standing. It stands 200-400 ft. tall with a triangular base and three-four sides.
- **The Guyed Tower** is basically a straight rod supported by wires that attach to the ground as support. It's cheapest to construct, especially at heights of 300 ft and beyond.

Concealed Base Station: A base station as defined in the FCC Report and Order is, "equipment and non-tower, supporting structure at a fixed location that enables commission licensed or authorized wireless communications between user equipment and a communications network".

Concealed Macro Towers: A concealed tower is one that is not readily identifiable as a wireless facility and is designed to visually blend in with its surroundings. Concealed towers are disguised to look like something other than a tower.

Concealed Small Cell Sites: Small cell sites, also known as microcell sites, are connected to form a "mini-network" and are lower powered sites that cover a geographic area less than one mile in diameter.

Why? A base map with the existing tower and base station sites allows for observations and analysis of current and future deployment patterns.

What? Your plan should include research to identify the location of existing towers and base stations, the assessment of the facility and cataloguing the pictures and data from the assessment process.

- A complete data base of facilities can be compiled from various databases including but not limited to the City, FCC, American Tower, Crown Castle International, SBA and TowerCo.
- Each location should be individually assessed and validated for:
 - Physical location
 - Type of infrastructure
 - Ownership of the infrastructure
 - Wireless tenants at each facility
 - Potential for future collocation

Typically exclusions to a Wireless Master Plan include:

- Amateur radio antenna supporting structures and antennas;
- Satellite earth stations that are two meters or less in diameter and that are not greater than 35 feet above grade;
- The substitution or change of existing antennas or antenna panels, feed lines or other equipment on an existing antenna-supporting structure
 - Provided the substituted antennas or equipment meet building code requirements
- Antenna-supporting structure, antenna or antenna array, owned by a public agency or agencies, to be used for public-safety-related telecommunications
- Broadcast Antenna supporting structures, for non-wireless telecommunications facilities
 - AM/FM/TV/DTV broadcasting transmission facilities licensed by the Federal Telecommunications Commission

Siting of Facilities –

The order of ranking from higher to lower with “1” being the highest or most preferred siting alternative and “6” being the lowest or least preferable siting alternative.

1. Collocation on an existing antenna supporting structure;
2. Attached wireless telecommunications facility;
3. Replacement of existing antenna support structure;
4. Stealth wireless telecommunications facility (public property);
5. Stealth wireless telecommunications facility (private property);
6. New antenna supporting structure.

Concealed facilities are preferred; and

- Equipment Cabinets and Compound Areas
- Towers, Antennas and Cabling

Interference with Public Safety Communications

Collocations on an Existing Antenna-Supporting Structure

Radio Frequency Emissions.

- The radio frequency emissions shall comply with FCC standards for such emissions.

Wireless Facility Abandonment

- Required to be removed at the owner's expense within 180 days of cessations of use and the site area returned to its natural state prior to the tower or base station being built

The Opportunity for Municipalities

Simplified, standardized and repeatable set of processes to support the massive build-out:

- ✓ Pre-approve antenna configurations and site layouts to assist in streamlining the permitting process.
- ✓ Develop acceptable antenna attachment configurations for each pole type, including utility poles, street lights or traffic signals.
- ✓ Develop a wireless master plan that shows existing wireless infrastructure and a two-year buildout forecast.
- ✓ Codify lease terms and antenna configurations in a Site License Agreement or another such instrument.
- ✓ Charge rental rates that are reasonable and reflect the regulated rates typically charged between pole owners and utilities within the ROW.

Ensure that residents and businesses within your city jurisdiction receive the maximum benefit of all available services from all existing wireless services providers.

- Maximize the use of underutilized City assets
- Maximize financial benefit to the City
- Ensure Digital Divide is minimized
- Reinvest in City fiber infrastructure
- Reduce visual blight in crowded areas

View everything that is connected or enables connectivity as a system - to be managed systematically

Helpful:

1. Do you have a specific person, team or department tasked with small cell applications and permits?
2. Do you have direct relationships with existing and future network carriers for site opportunities?
3. Do you have existing Master Lease Agreements with national carriers?
4. Which is the most important 'problem' to solve?
 - a. Managing the influx of small cell applications from carriers?
 - b. Maximizing the revenue from mobile carriers for small cells and wireless infrastructure?
 - c. Maintaining aesthetics and site visibility?
 - d. Workflow efficiency: Information sharing; storing and management – permits, applications etc.
 - e. Compliance: Legal, Environmental and FCC?
 - f. Mitigating risk to RF exposure?



SmallCellSite.com

powered by  **TeleWorld Solutions**

- An industry portal creating a revolutionary site acquisition marketplace for wireless operators' small cell and 5G deployments.
- Large venue operators, small/individual property owners, and municipalities upload their assets with details like height, power, and property type.
- Fiber owners upload their information so wireless operators can leverage existing backhaul.
- Carriers adopt the site to search for viable attachment assets, from small cells to macro sites.
- By joining willing property owners, nearby fiber owners, and carriers, the solution reduces friction by lowering carrier costs and accelerating deployments

Contact Me:

Timothy Downs, SmartGig Media

tdowns@smartgigmedia.com

M 949-235-8985

