City of Santa Rosa

SMALL CELL CELLULAR NETWORK DEPLOYMENT

City Council Study Session

March 6, 2018

Small Cell Cellular Network Deployment

- "**Small cells**" are used to increase cellular capacity and improve cellular network performance, particularly in urban areas.
- Small cells are complementary to more traditional **macrocell** sites, enabling carriers to fill in small gaps and transmit more data in areas where towers may not be sufficient.
- The macrocells provide the **umbrella** network, and the small cells are **underneath** the umbrella network to provide the capacity needed.
- Staff will update council on the status of small cell deployments in the City of Santa Rosa.

Small Cell Cellular Network

Note: City vs. PG&E Poles

Street Light

Utility Pole

Small Cell Cellular Network

Topics

Background

- Past Council discussion and action
- Verizon and Mobilitie Master agreements
- City vs. PGE/Joint Pole infrastructure
- Public Right of way

Planned deployments

- Scope and current status
- Public informational meetings

Permitting and construction process

- Master and Site License agreements
- Encroachment permit and notification

Small Cell Cellular Network

Topics (continued)

General themes of public input and concern

- Notification process
- Are small-cells needed?
- Installation aesthetics and options
- Concerns re: health effects of RF energy

Next Steps

- Resume Verizon construction
- Start Mobilitie construction

Small Cell Cellular Network

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Telecom Facilities on City Facilities and Right of Way

February 14, 2017 City Council Meeting

It is recommended by the Information Technology and Public Works Departments that the Council by resolution amend Council policy 300-04, development of telecommunication facilities on city property and installation of antennas on City facilities.

Telecom Facilities on City Facilities and Right of Way

February 14, 2017

Council Policy 300-04

- Development of telecommunication facilities on city property and installation of antennas on City facilities.
- Adopted in July 2000.
- Amended in February 2015.
- Generally tailored for large, “macro” wireless cell site installations.

Telecom Facilities on City Facilities and Right of Way

February 14, 2017

Technology changes since 2015

- Increased mobile data usage and demand for higher speed wireless networks.
- Capacity vs. Coverage: Desire by wireless carriers to “infill” their networks to deliver higher capacity within existing coverage.
- Development of smaller, distributed network infrastructure.

Telecom Facilities on City Facilities and Right of Way

February 14, 2017

Impact on the City Right of Way

- Smaller wireless cell sites ("small cells") are deployed near high use areas.
- Light poles and power poles are convenient choices for small-cell wireless deployments.
- Wireless carriers are working with many major cities to deploy small cells on City and power utility infrastructure in the right of way.

Telecom Facilities on City Facilities and Right of Way

February 14, 2017

Telecom Facilities on City Facilities and Right of Way

February 14, 2017

Small Cell Infrastructure

- Wireless provider designs, installs and maintains.
- Power is separately metered and paid by wireless provider.
- Fiber data connectivity is managed and paid by wireless provider

Telecom Facilities on City Facilities and Right of Way

February 14, 2017

Review and approval process for telecom facilities on City facilities and City Right of Way

- Review and tentative approval through City Manager office (or designee).
- Negotiation of Master License agreement.
- Negotiation of Site License agreement.
- Encroachment permit process for all sites.
- Master and Site License agreements signed by City Manager or designee.

Verizon Small Cell Program

February 14, 2017

- One of two small-cell deployment applications submitted to the City of Santa Rosa.
- Likely the largest and first to move forward.

- Christal Canada (presentation)
  - Verizon
    - Pacific and North Central Planning
    - Small Cell, In Building, Venue

City of Santa Rosa

Design Options

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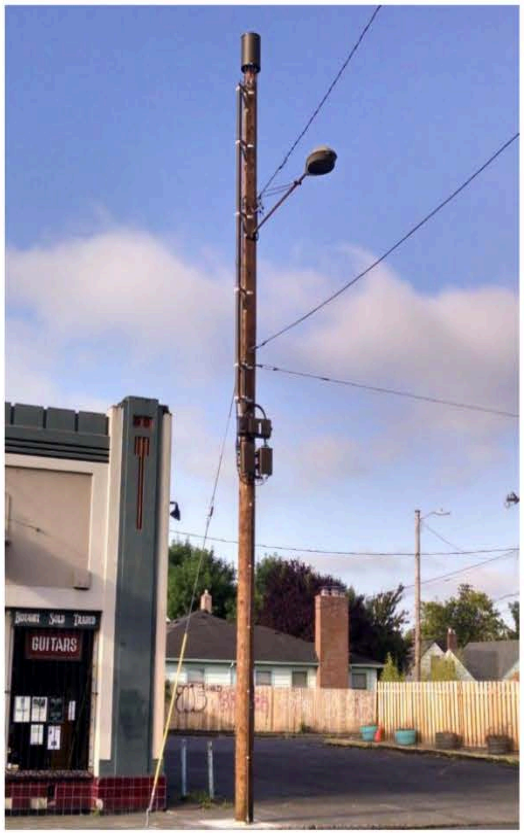
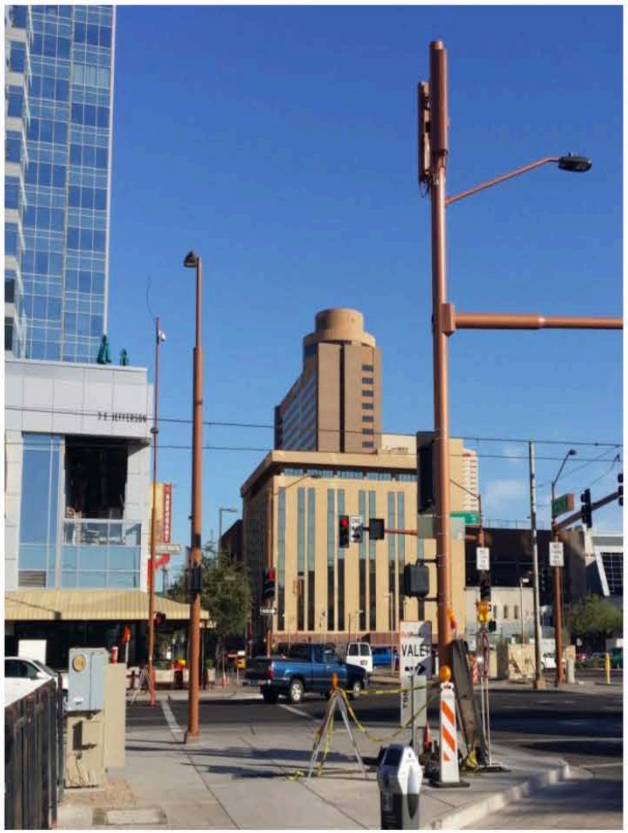
Street Light



Utility Pole

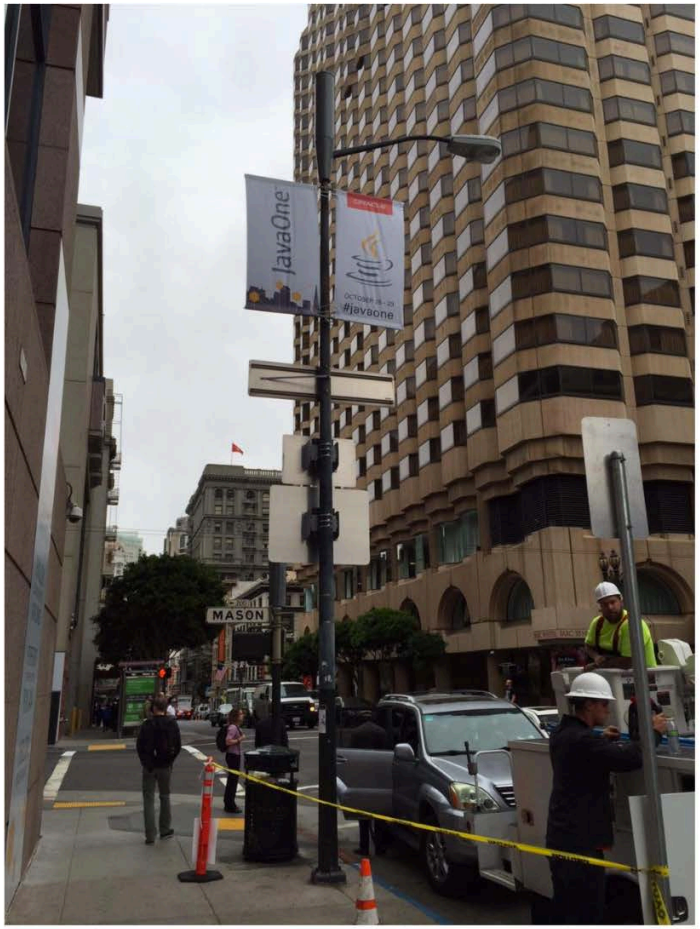


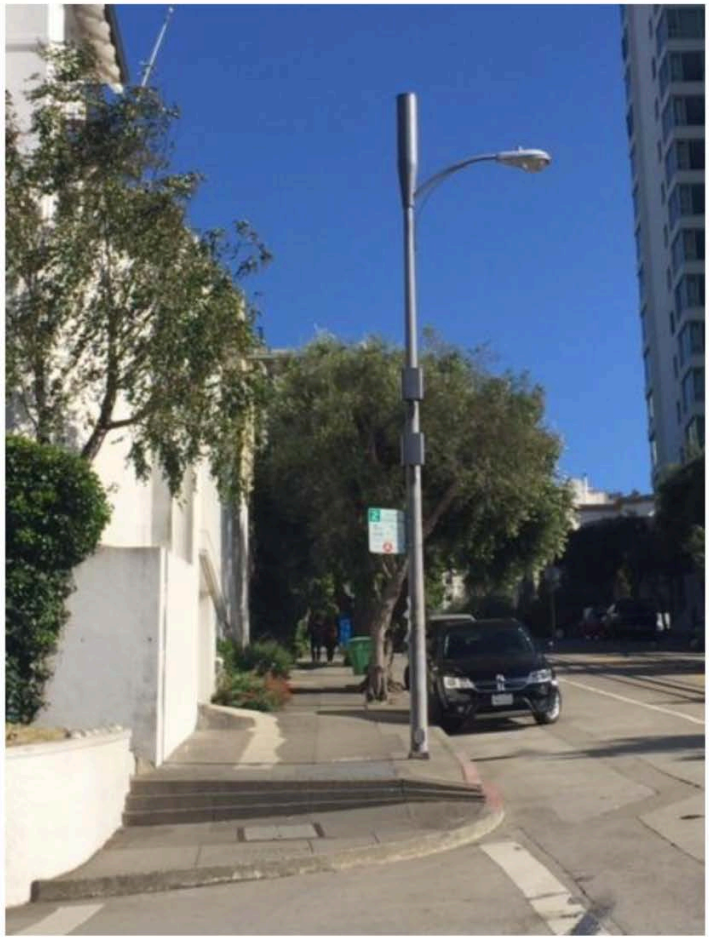
Traffic Control Pole with Cabinet

City of Santa Rosa

San Francisco

February 14, 2017

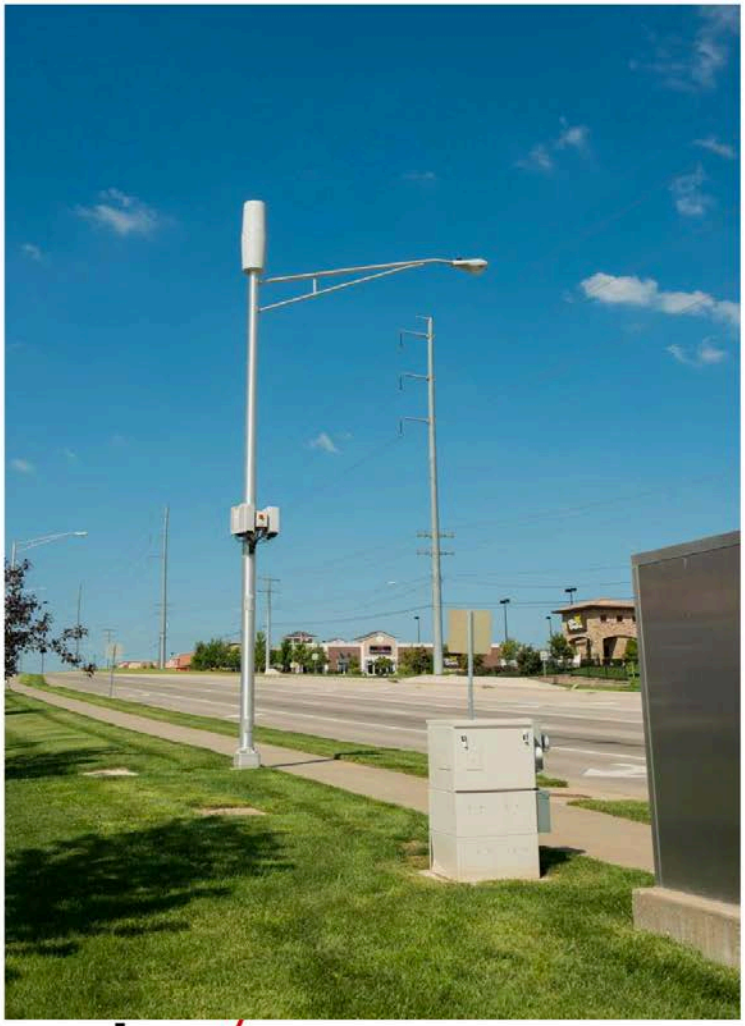




City of Santa

Kansas City, MO

February 14, 2017



verizon

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Components

- ❑ Antenna
- ❑ Radios
- ❑ Power
- ❑ Backhaul
- ❑ Battery Backup
  - ➢4 hours preferred

verizon

February 14, 2017

Amendment to Council Policy

February 14, 2017

- Allows for small-cell type deployments in City right of way.
- Removes prior Master License Agreement template from Council Policy.
- Site license fees will be negotiated within Master License Agreements specific to installation proposals.

Small Cell Cellular Network

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Pole Options

City Owned Poles – this is typically a metal streetlight. The Council authorized a program to work with carriers to install small cells on City owed metal poles. This will require compliance with our standards and public outreach. To date, no applications have been approved to install a small cell on a City pole, however Verizon has submitted plans for an installation near 69 Stony Circle.

Pole Options

Private Poles (PG&E) – this is typically a wood pole owned by another utility. The City requires compliance with Chapter 13 of the City Code and the City's Design and Construction Standards for public improvements (height, placement in the right-of-way), but the standards do not address visual aspects of small cells. Private companies submitting to put these on private poles only need to obtain a ministerial encroachment permit to address the City's Design and Construction Standards.

PG&E Poles

CPUC Rulemaking

COM/LR1/lil/dc3 **Date of Issuance 2/1/2016**

Decision 16-01-046 January 28, 2016

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding the Applicability of the Commission's Right-of-Way Rules to Commercial Mobile Radio Service Carriers.

Rulemaking 14-05-001
(Filed May 1, 2014)

DECISION REGARDING THE APPLICABILITY OF THE COMMISSION'S RIGHT-OF-WAY RULES TO COMMERCIAL MOBILE RADIO SERVICE CARRIERS

Verizon has right-of-way access rights per the modified right-of-way decision of 2016. By way of this decision, PG&E is mandated to provide access to its poles for pole top antennas belonging to Verizon. The process involves Verizon submitting an application and construction drawings, and pole loading calculations are also performed to ensure structural integrity. Verizon is solely responsible for constructing to GO95 compliance and for retaining any jurisdictional permitting required.

PG&E does not get to choose which poles may be encumbered with an antenna on the basis of property value or aesthetic reasons.

Infrastructure Options

Verizon deployment

SUMMARY	Joint (PG&E) Poles	City Streetlights
Initial deployment	~40	~30
Battery backup	Yes (city choice)	Yes (city choice)
Master & Site License	No	Yes
Encroachment permit required for ROW construction	Yes (ministerial)	Yes (ministerial)
Does City have authority over pole equipment design?	No	Yes
Encroachment permit-based notification?	Yes (construction impact radius)	Yes (construction impact radius)

Small Cell Cellular Network

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Planned Deployments

Verizon

- 41 joint pole permits filed
- 39 permits issued
- 15 under construction, 0 completed
- 0 operational

Mobilitie

- 3 street light permits filed
- 0 permits issued
- 0 under construction, 0 completed
- 0 operational

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Current Status

Verizon

- 15 sites completed (first phase)
  - First phase sites being finished: cleanup, modifications, etc.
- Second phase sites temporarily paused
  - Incorporate learnings from first phase sites
  - Time to conduct (4) public information meetings, such that accurate information can be made available to the public.
  - Participate in Council Study Session (March 6th).
  - Construction expected to resume in early March.

Mobilitie

- 3 permits under review

City of Santa Rosa

Small Cell Cellular *Public Informational Meetings*

verizon

Verizon Wireless is improving wireless service in Santa Rosa!

Want to learn more?

Please join Verizon Wireless and the City of Santa Rosa for any of the four informational meetings showcasing Verizon's network designs and radio frequency engineering

OPEN HOUSE – Come by anytime!
Light refreshments served

First Meeting:	Monday, February 26th, 6:00pm - 8:00pm Chamber Building, 637 First Street
Second Meeting:	Saturday, March 3rd, 10:00am – 12:00pm Veterans Memorial Building – Lodge Rm, 1351 Maple Ave
Third Meeting:	Thursday, March 8th, 6:00pm - 8:00pm Veterans Memorial Building – Dining Rm, 1351 Maple Ave
Fourth Meeting:	Saturday, March 10th, 10:00am – 12:00pm Veterans Memorial Building – Dining Rm, 1351 Maple Ave

Light refreshments served

To RSVP or for more questions, please write to Nexius:
santarosanotifications@nexius.com
707.273.6832

Small Cell Cellular Network

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Master License Agreements

- Verizon Master Communication Site License signed May 11, 2017 by Mayor Coursey (Contract F001406)
  - 0 site license agreements signed
- Mobilitie MLA signed on January 8, 2018 by the Director of Planning and Economic Development
  - 0 site license agreements signed

Small Cell Cellular Network

Encroachment Permit Process

- Applications are reviewed for consistency with Chapter 13 of the City Code and the City's Design and Construction Standards.
- All ground and pole equipment must be installed in a fashion that avoids impacting safe pedestrian travel, eliminates conflicts with existing utilities and creates a clear line of site for vehicular traffic.
- Applicant is required to implement traffic and pedestrian control measures throughout the course of construction to ensure that the environment remains safe for the public.

Small Cell Cellular Network
Notification

Public Notice - Public notice for City owned poles and joint poles follows the standard encroachment permitting process prior to construction, and is limited to residents potentially affected by construction or installation. The permit applicant is required to perform the noticing. The notification must clearly identify the project and provide contact information for questions or concerns.

City of Santa Rosa

Small Cell Cellular Network

Notification

Small Cell Cellular Network

Topics (continued)

General themes of public input and concern

- Notification process
- Are small-cells needed?
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Next Steps

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Notification Process

- City Code requirements for notification and/or public input
  - Differs from minor/major wireless facilities.
  - Encroachment permit noticing requirements are typically intended to address normal construction impacts such as noise and parking impacts.
- Process improvements since first wave of small cell installations
  - Requiring noticing prior to approval of street light installations.
  - Increasing lead time on notifications.
  - Requiring additional verification that notifications are occurring.

Are Small Cells Needed?

- Technology providers such as Verizon, AT&T, Comcast, Sonic and others, routinely invest in ways to improve their service offerings.
  - Coverage
  - Speed / performance
  - New technologies (e.g. streaming data services, IoT, etc).
- These investment decisions are made by the service providers, not the City.

Installation Options

- Alternate location
  - Location is mainly determined by service provider network analysis / design
- City (metal) or PG&E (wooden) pole
- Battery backup
  - 4 hour (recommended)
  - 2 hour / partial technology backup
  - None
- Location of battery box in ROW

735 Link Lane

January 2018

February 2018

RF Energy and Interference

- Small Cells RF emission limits are regulated by the FCC as a condition of the spectrum license.
- City Master License Agreement requires compliance with emission requirements

Interference with Communications. Licensee agrees that Licensee's equipment and the electromagnetic energy emitted from the equipment, will at all times comply with all applicable statutes, laws, ordinances, rules and judicial and administrative orders, whether now or hereafter existing, of all applicable federal, state and local governmental authorities and that such equipment shall comply with all obligations to which Licensee is bound in connection with such telecommunications equipment, including, without limitation, applicable regulations of the FCC, the Environmental Protection Agency, and the Occupational Safety and Health Administration.

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Question and Discussion

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