



Local Control of Wireless Facilities

City of Los Altos
City Council Meeting

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Intro

- Next wave of wireless deployments focused on “small cells” in public rights-of-way.
- Regulation of communications involves all three levels of government and multiple public agencies.
- Starting premise is local control over placement decisions.
- However, federal and state laws and agency regulations place limits on local authority.



Wireless Technology

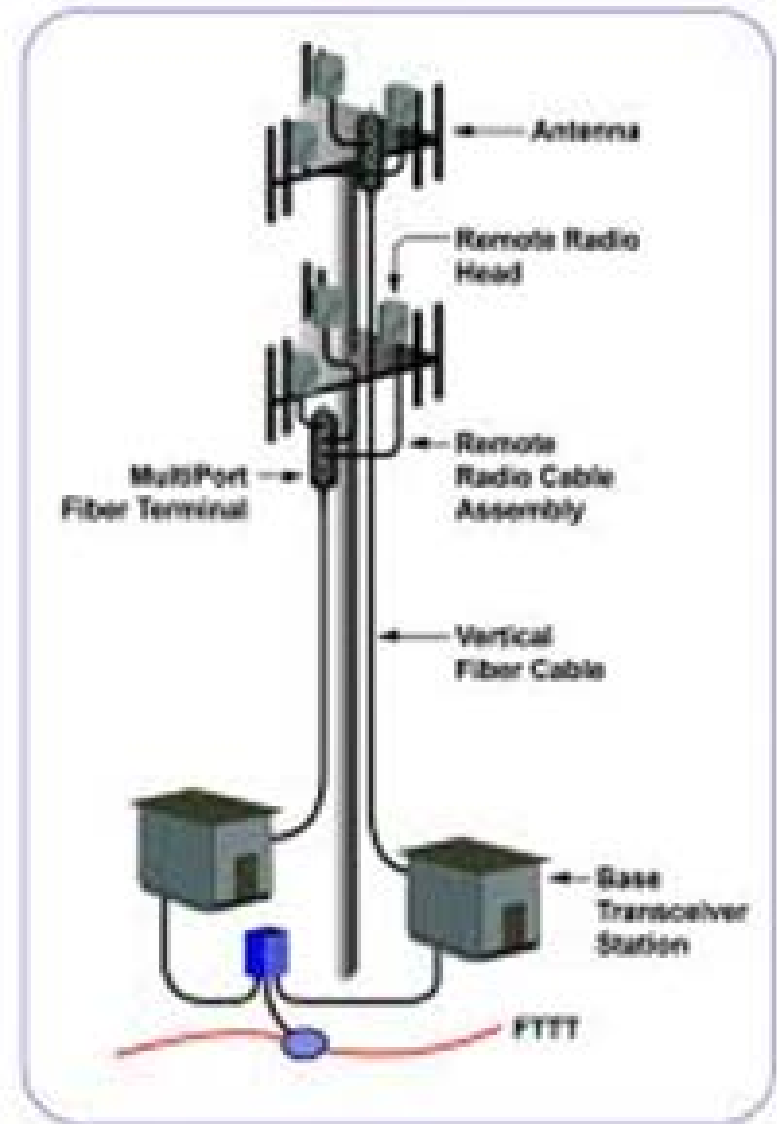


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Macro Wireless Facility

- Antenna(s)
- Equipment
- Connecting Cables
- Support Structure
- Power Source (Meter/Battery)
- Backhaul (wired or wireless)



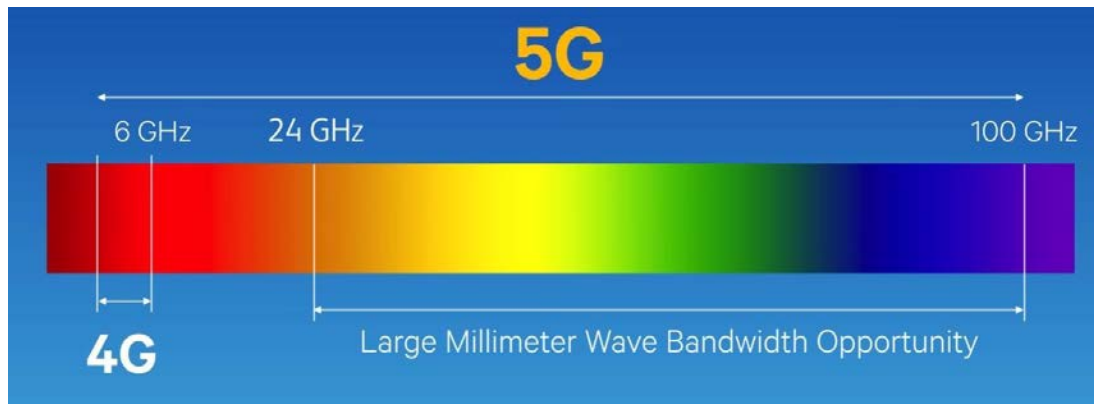
What are “Small Cells”?

- Typically smaller facilities serving smaller coverage area
- Distributed Antenna Systems or DAS is a type of small cell network
- Common location is in public rights-of-way



What is 5G?

- High capacity spectrum with short range
 - 100 times faster than 4G, low latency
 - More antennas, closer to users
- Need for high capacity backhaul
 - More fiber and fiber alternatives (microwave)



<http://www.rcrwireless.com/20160815/fundamentals/mmwave-5g-tag31-tag99>



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Small Cells/DAS in PROW

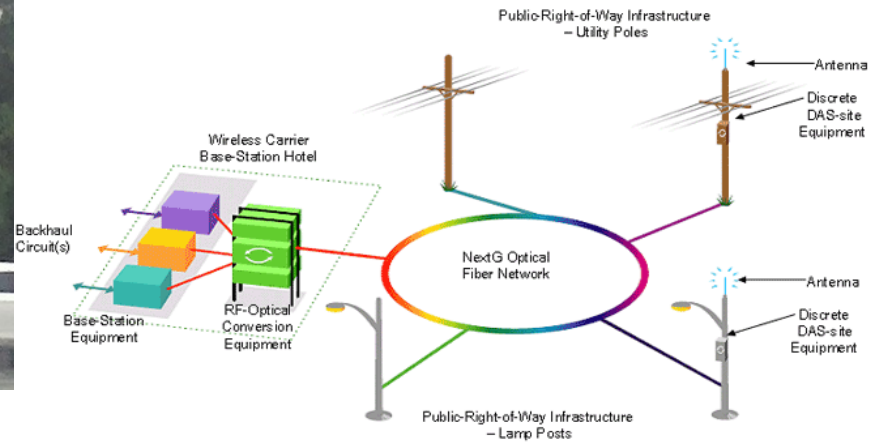
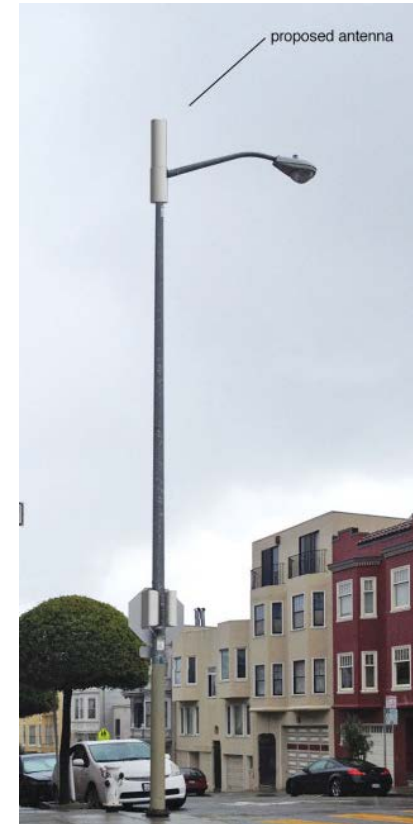


Figure 2: Distributed Antenna System



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Pole-Top, Mid-Pole, Mid-Strand



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Stealth Designs Evolving



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What is driving deployment?

SMARTPHONE ECOSYSTEM

400M+
mobile devices, that's about

1.2 devices
for every person in
the country

of those devices,
273M
are data-intensive smartphones

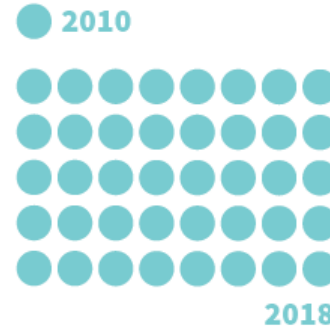
that's
equal to **82%**
of the U.S.
population

Up 56%
over the last
ten years

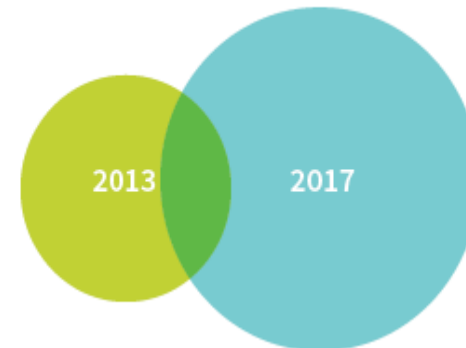


2008 2018

DATA USE IS UP
40X SINCE 2010



TOTAL REPORTED DATA-ONLY DEVICES



+147%
in the last
five years

+19.5%
from 2016-2017
alone

Source: CTIA (2018)



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Types of Entities Deploying Wireless

Industry	Deployment
Wireless carriers	Small cells; distributed antenna systems (DAS); mmW 5G
Telephone companies	Small cells; DAS; mmW 5G
Cable operators	Wi-Fi hotspots; small cells; DAS; LoRaWAN
Gas, electric, water utilities	Advanced metering infrastructure (AMI); smart grids
Municipal	Traffic/parking/transit management; utilities; lighting; public safety
Others	Building automation; fleet management; monitoring systems, etc.



Wireless Regulation Federal Law



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Key Provisions of Federal Communications Law

- 47 U.S.C. 332(c)(3) No State or local government may regulate the entry of or the rates charged by any commercial mobile services provider
- 47 U.S.C. 332(c)(7) generally preserves local authority to decide on placement of “personal wireless services” facilities, subject to certain substantive and procedural limits
- 47 U.S.C. 1455(a) (Section 6409(a)) *requires* local governments to allow eligible changes to “existing” wireless facilities (Eligible Facilities Requests or EFRs)
- 47 U.S.C. 224 allows FCC to regulate rates and conditions for attachments to utility poles unless state chooses to do so
- 47 U.S.C. 253 related to “telecommunications services”, and right-of-way management and compensation



47 U.S.C. 332(c)(7)

- Limitations on local authority:
 - Action within reasonable period of time
 - No effective prohibition of personal wireless services
 - Denials in writing and supported by substantial evidence
 - No consideration of RF emissions if meet FCC standards
 - No unreasonable discrimination among providers of functionally equivalent services
 - Expedited appeals to court



Federal Radio Frequency (RF) Exposure Standards



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Federal RF Exposure Standards

- National Environmental Policy Act of 1969 (NEPA) requires the Federal Government to evaluate and set standards
- FCC has been assigned the responsibility to set standards for human exposure to RF energy emitted by FCC-regulated equipment
- FCC adopted first set of guidelines in 1985
- Current FCC guidelines: OET Bulletin 65 Edition 97-01
- Standards were developed with input from expert agencies such as National Council on Radiation Protection and Measurement, Institute of Electrical and Electronic Engineers (IEEE), American National Standards Institute (ANSI), Environmental Protection Agency (EPA), Food and Drug Administration (FDA) and others

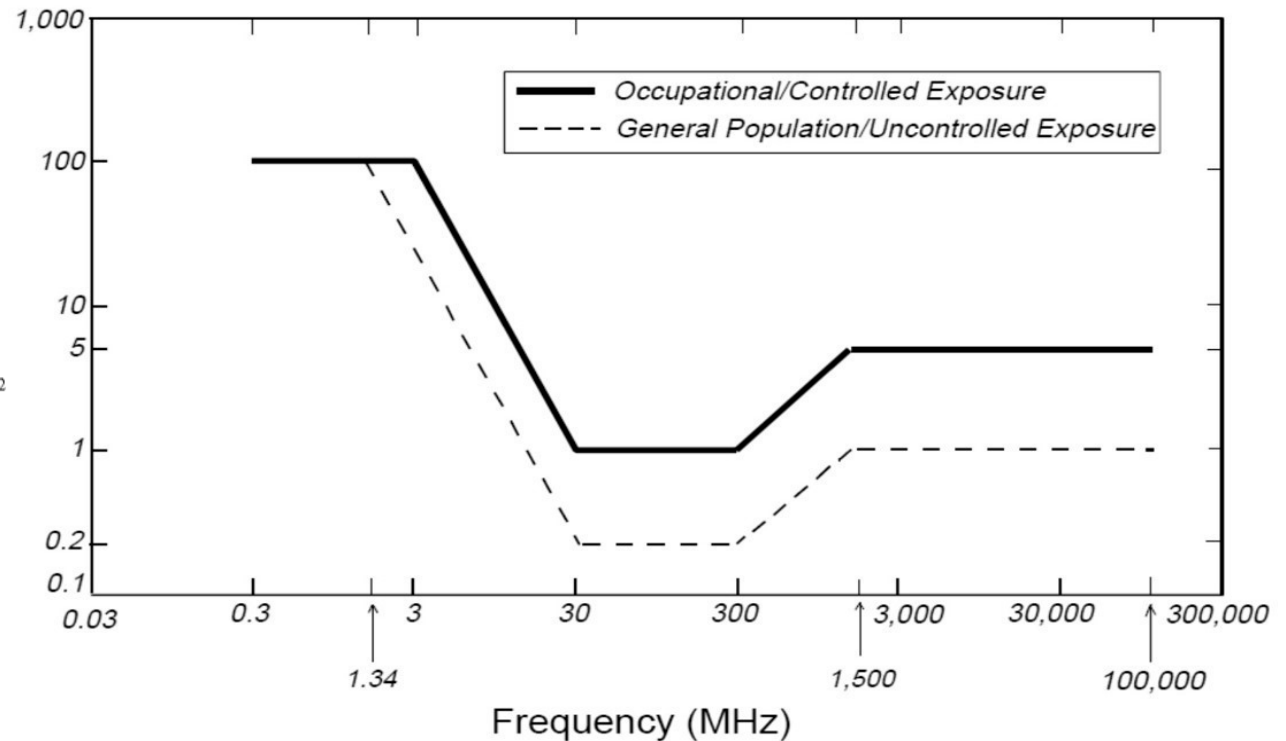


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Federal RF Exposure Standards

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



$$S = \frac{33.4 ERP}{R^2}$$

where: S = power density in $\mu\text{W}/\text{cm}^2$
ERP = power in watts
R = distance in meters

Source: FCC



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Sample Exposure Levels

Table 1 – Radio-Frequency Levels from Various Sources

Source	Frequency	Exposure Level (mW/cm ²)	Distance	Time	Spatial Characteristic
Cell phone ⁽¹⁾	900 MHz, 1800 MHz	1–5	At ear	During call	Highly localized
Cell phone base station ⁽²⁾	900 MHz, 1800 MHz	0.000005–0.002	10s to a few thousand feet	Constant	Relatively uniform
Microwave oven ⁽³⁾	2450 MHz	~5 0.05-0.2	2 inches 2 feet	During use	Localized, non-uniform
Local area networks ⁽⁴⁾	2.4–5 GHz	0.0002–0.001 ^a 0.000005–0.0002 ^b	3 feet	Constant when nearby	Localized, non-uniform
Radio/TV broadcast ⁽⁵⁾	Wide spectrum	0.001 (highest 1% of population) 0.000005 (50% of population)	Far from source (in most cases)	Constant	Relatively uniform
Smart meter ⁽⁶⁾	900 MHz, 2400 MHz	0.0001 (250 mW, 1% duty cycle) 0.002 (1 W, 5% duty cycle)	3 feet	When in proximity during transmission	Localized, non-uniform
		0.000009 (250 mW, 1% duty cycle) 0.0002 (1 W, 5% duty cycle)	10 feet		

Source: Electric Power Research Institute – “Radio-Frequency Exposure Levels from Smart Meters: A Case Study of One Model” (February 2011)



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Key FCC Orders Limiting Local Authority

- **2009** – Established two wireless application shot clocks (90 and 150 days)
- **2014** – Established rules for Eligible Facilities Requests (plus 60 day shot clock)
- **2018** – Banned express and *de facto* moratoria on processing applications
- **2018** – Adopted new shorter shot clocks for small wireless facilities (60 and 90 days) and put limits on local fees and aesthetic rules. Order in effect Jan 14, 2019 (shot clocks/fees), and on April 15, 2019 (aesthetics).



Moratoria Ban

- August 3, 2018: FCC released *In the Matter of Accelerating Wireless Broadband Deployment By Removing Barriers to Infrastructure Investment*, FCC 18-111, Third Report and Order and Declaratory Ruling, WT Docket No. 17-79
- Holding: *de jure* moratoria and *de facto* moratoria on wireless and wireline deployment generally “prohibit or effectively prohibit” provision of telecom services in violation of federal law, and are not saved from preemption as a form of rights-of-way management.
- De Facto moratoria are “...state or local actions that are not express moratoria, but that effectively halt or suspend the acceptance, processing, or approval of applications or permits for telecommunications services or facilities in a manner akin to an express moratorium.” (¶139)
- Examples: street cut moratoria that don’t allow alternative means of deployment such as aerial lines



Small Cell Order

- Sept. 26, 2018: FCC Adopts *Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, Declaratory Ruling and Third Report and Order*, WT Docket No. 17-79
- Changed “effective prohibition” standard to “material inhibit”
- Established shorter 60 and 90 day shot clocks for “small wireless facilities” (defined by FCC)
- Fees for permits and for use of city-owned vertical infrastructure must be cost-based; established “safe harbors” (\$500, \$1000, and \$270)
- Authority to impose aesthetic regulations limited
- All permits/authorizations subject to shot clocks
- Collocation not limited to existing wireless facilities



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FCC on Aesthetics

- Aesthetics requirements (including undergrounding) not preempted if:
 - (1) reasonable,
 - (2) no more burdensome than those applied to other types of infrastructure deployments, and
 - (3) objective and published in advance.
- “...aesthetic requirements that are reasonable in that they are technically feasible and reasonably directed to avoiding or remedying the intangible public harm of unsightly or out-of-character deployments are also permissible.”

Para. 84-89.



Spacing Requirements

- “...a minimum spacing requirement that has the effect of materially inhibiting wireless service would be considered an effective prohibition of service.” Para 87
- “Some parties complain of municipal requirements regarding the spacing of wireless installations... ostensibly to avoid excessive overhead “clutter” that would be visible from public areas. We acknowledge that while some such requirements may violate 253(a), others may be reasonable aesthetic requirements.” Para. 91
- “...it is difficult to envision any circumstances in which a municipality could reasonably promulgate a new minimum spacing requirement that, in effect, prevents a provider from replacing its preexisting facilities or collocating new equipment on a structure already in use.” Para. 91



Undergrounding

- “a requirement that materially inhibits wireless service, *even if it does not go so far as requiring that all wireless facilities be deployed underground*, also would be considered an effective prohibition of service. Thus, the same criteria discussed above in the context of aesthetics generally would apply to state or local undergrounding requirements” (Para. 90)



Litigation Challenging 2018 FCC Orders

- Many appeals filed by locals and industry
- BBK represents coalition of 50+ localities
- All appeals consolidated in 9th Circuit
- FCC and 10th Circuit denied stay requests
- Coalition's opening brief was filed June 10, and case remains pending before the 9th Circuit. Reply briefs are due September 4.
- Reconsideration petitions also filed with FCC, notice and comment periods closed but no FCC recon orders to date. In April, the 9th Circuit denied the FCC's request to hold the case in abeyance pending resolution.



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Wireless Regulation State Law



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Key Provisions of State Law

- Cal. Pub. Util. Code
 - **Sec. 7901** grants state franchise to telephone companies to use public rights-of-way, subject to limitations (may not “incommode the public use”).
 - **Sec. 7901.1** reasonable control as to the time, place, and manner in which roads...are accessed by telephone co.
 - **Sec. 2902** preserves local regulation of use and repair of public streets, location of the poles, wires, mains, or conduits of any public utility, on, under, or above any public streets where not preempted by CPUC
- ***T-Mobile West LLC v. City and County of San Francisco*** (Cal. Sup. Ct, April 4, 2019) upholds local regulation of wireless facility aesthetics in streets, essentially confirming the conclusion reached in ***Sprint PCS Assets v. City of Palos Verdes Estates*** (9th Cir. 2009) 583 F.3d 716.



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Key Provisions of State Law

- **Cal. Gov. Code 65964.1** (AB 57) deemed approved remedy for FCC shot clocks adopted in 2009
- **Gov. Code 65964** prohibits:
 - Escrow deposit for removal of a facility. (bonds ok)
 - Permit of less than 10 years (unless “public safety” or “land use” reasons).
 - Requiring all facilities to be located on sites owned by particular parties.
- **Gov. Code 65850.6** intended to allow:
 - Discretionary permit to approve base facilities that may later add collocation facilities.
 - No discretionary review of facilities collocated on base facility.
- *[2018 SB 649 small cell bill vetoed by Gov. Brown]*



Key State Actors

- California Public Utilities Commission
 - “regulates services and utilities, protects consumers, safeguards the environment, and assures Californians’ access to safe and reliable utility infrastructure and services.” legislative and judicial powers.
 - “also includes hundreds of individuals who inspect track, municipal rail systems, electric and communications wire and poles, and gas pipelines.”
- Northern California Joint Pole Association / Southern California Joint Pole Committee – joint pole owner associations responsible for tracking utility pole ownership transactions.



Key CPUC Orders

- General Orders on construction, operation and maintenance
 - GO 95 – overhead electric lines, poles, communications lines, antennas
 - GO 128 – underground electric and communications systems
 - GO 131-D – generation and certain electric transmission facilities
 - GO 159-A – defers to local zoning for cellular facilities
- Pole Attachment Rights
 - D.98-10-058 provided competitive local exchange carriers and cable television providers with nondiscriminatory access to public utility infrastructure.
 - D.16-01-046 provides wireless carriers with nondiscriminatory access to utility poles.



City Process

- LAMC Chapter 11.12 regulates wireless facilities through zoning regulations and use permits, but exempts facilities regulated by the CPUC
- City regulates small cell facilities through an encroachment permit application process
- Encroachment permit requirements address:
 - Location preferences (arterial and collector streets)
 - Design criteria (height, equipment and cabling placement, color, batteries)
 - Build-out plans disclosure
 - RF emissions report for the facility's maximum planned operating power
- Encroachment permit conditions include:
 - Temporary permission
 - Notification of 3 closest adjacent property owners prior to construction
 - Indemnification and insurance
 - Work hours
 - Traffic control plan and protections for traffic signal and irrigation controller conduit
 - Trenching and backfill
 - Compliance regarding discharge of pollutants
 - Future undergrounding and relocation
 - Maintenance in good repair
 - Removal when facility abandoned



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Summary

- Next generation wireless facilities mostly will be placed in public rights-of-way on utility and other ROW poles
- Providers have a limited franchise right to use the public rights-of-way and utility infrastructure for their wireless facilities
- Federal law and FCC orders place procedural and substantive limitations on local authority
- CPUC mainly responsible for rules on safety of infrastructure
- Localities mainly regulate placement and aesthetics
- Process and decisions must comply with limits imposed by state and federal law
- FCC small cell order puts shorter limits on local time for review, and new limits on aesthetic rules and fees
- Many cities are adopting streamlined processes and objective standards in light of new FCC rules

