# Kitsap County Code Update

## 17.530 ‘Wireless Communication Facilities’

Planning Commission Work Study

December 18, 2018

# Planning Commission Public Process: Today

- December 18, 2018: Work Study
  Workplan, Small Cell Introduction, Federal Standards
  Recorded by BKAT, link available on project website
  https://www.kitsapgov.com/dcd/Pages/Code-Updates.aspx
- January 8, 2019: Work Study
  Staff Report, Proposed Code
- January 22, 2019: Public Hearing
- February 5, 2019: Recommendation
- February 19, 2019: Findings of Fact

# Wireless Communication Facilities Code Update: Workplan

- Purpose
  - remain consistent with new federal standards
  - Federal Communication Commission (FCC) rulings

# Wireless Communication Facilities Code Update: Workplan

- Topics
  - definitions
  - required permits
  - permit review times
  - general design standards
    (height, visual appearance, lighting, noise, agreements)
  - specific design standards
    (tower facility vs. non-tower facility)

# Wireless Communication Facilities Code Update: Workplan

- Goals
  - ensure compatibility
  - provide a predictable permit process
  - encourage collocation
  - streamline review for small cell technology that meets aesthetic criteria

# Small Cell Introduction

**Dec 18th, 2018**

## Presented by

**Lelah Vaga, Verizon Wireless**

verizon

# Industry Contacts

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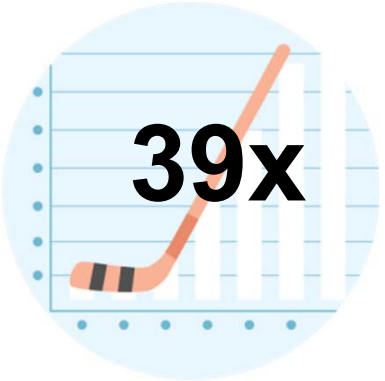
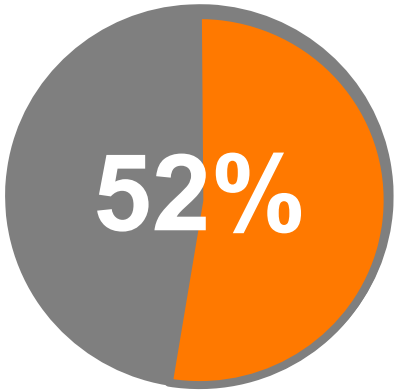
# Trends

From 2010 - 2017
Mobile data use ⇧ 39 times



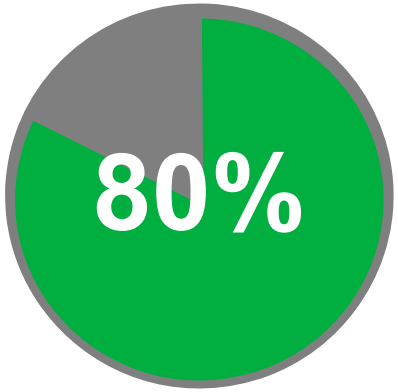

52%+ American Households
Wireless-only

Average American Household:
13 Connected Devices


verizon

# Trends

94% of Millennials
have a Smartphone




80% of 911 Calls
Originate from a cell phone and
First responders rely on mobile data

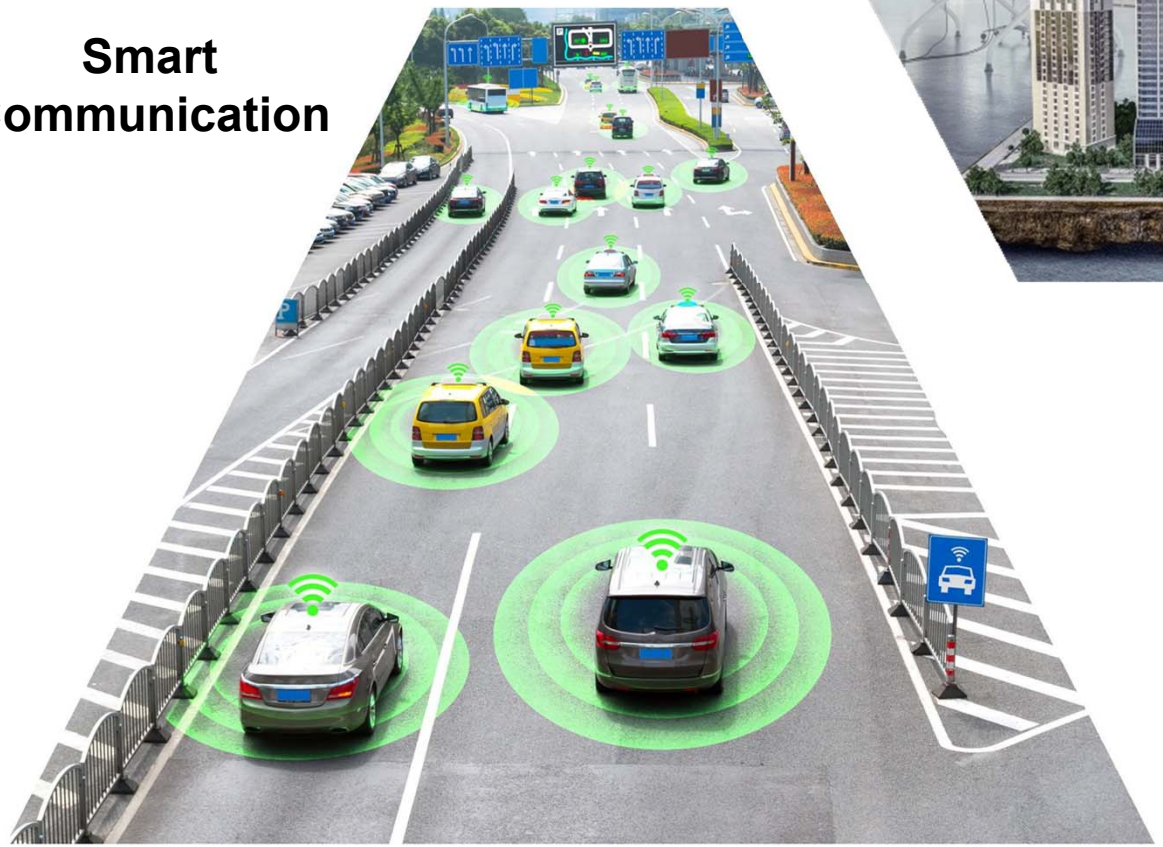
Machine to Machine Connections
Projected to Increase from
36M in 2013 to 263M in 2018

Digital Equity: lower income families are quicker to depend solely on wireless for data

verizon

# What are the possibilities?

**Smart Communication**



**Virtual Reality Applications**

verizon

# Smart Communities


Smart
Health


Public
Safety

Smart
Transportation

verizon

# SMALL WIRELESS FACILITIES

## Joint Presentation by:

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**AT&T**

**T-Mobile**

**Verizon Wireless**

**Sprint**

LEAGUE of Oregon CITIES

*League of Oregon Cities*
*October 25, 2018*

# *Topics*

- ***Network Evolution--dramatic growth***
- ***What is the difference between a small cell and a macro solution?***
- ***What are the components of a small cell installation?***
- ***What antenna variations exist?***
- ***Types of Small Wireless Faciilities***

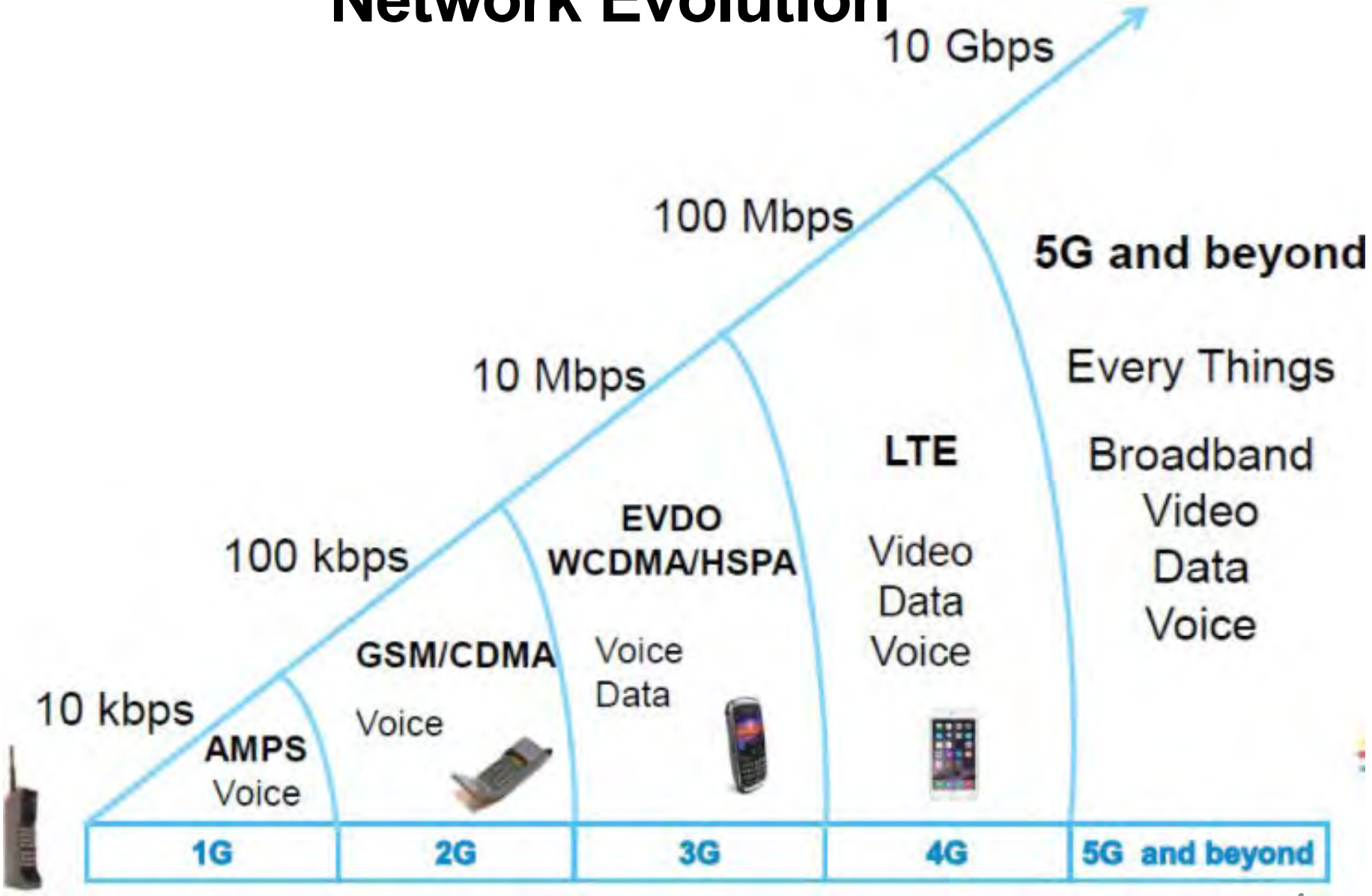
  ***Utility Pole***

  ***Strand Mount***

  ***Light Standards***

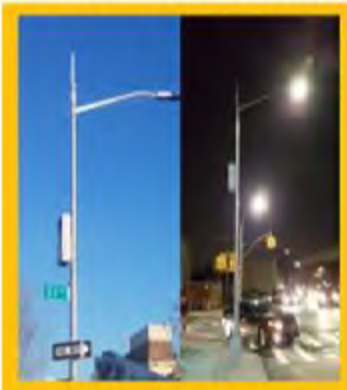
# *Network Evolution*

# Network Evolution



# Densification: Small Cells are an important component of our Densification & Optimization strategy

Sprint



New York City

Chicago

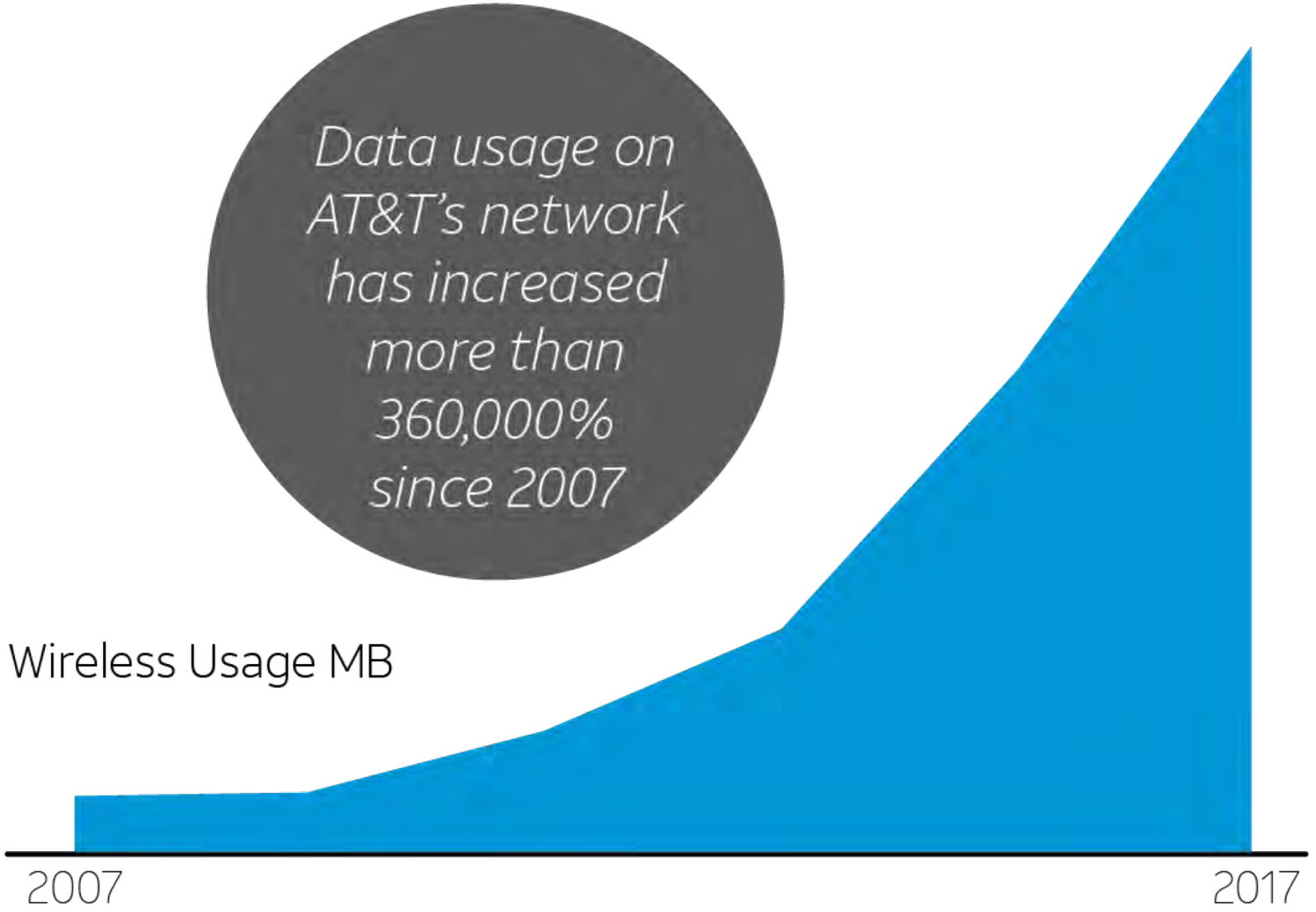
Atlanta, GA

St. Paul, MN

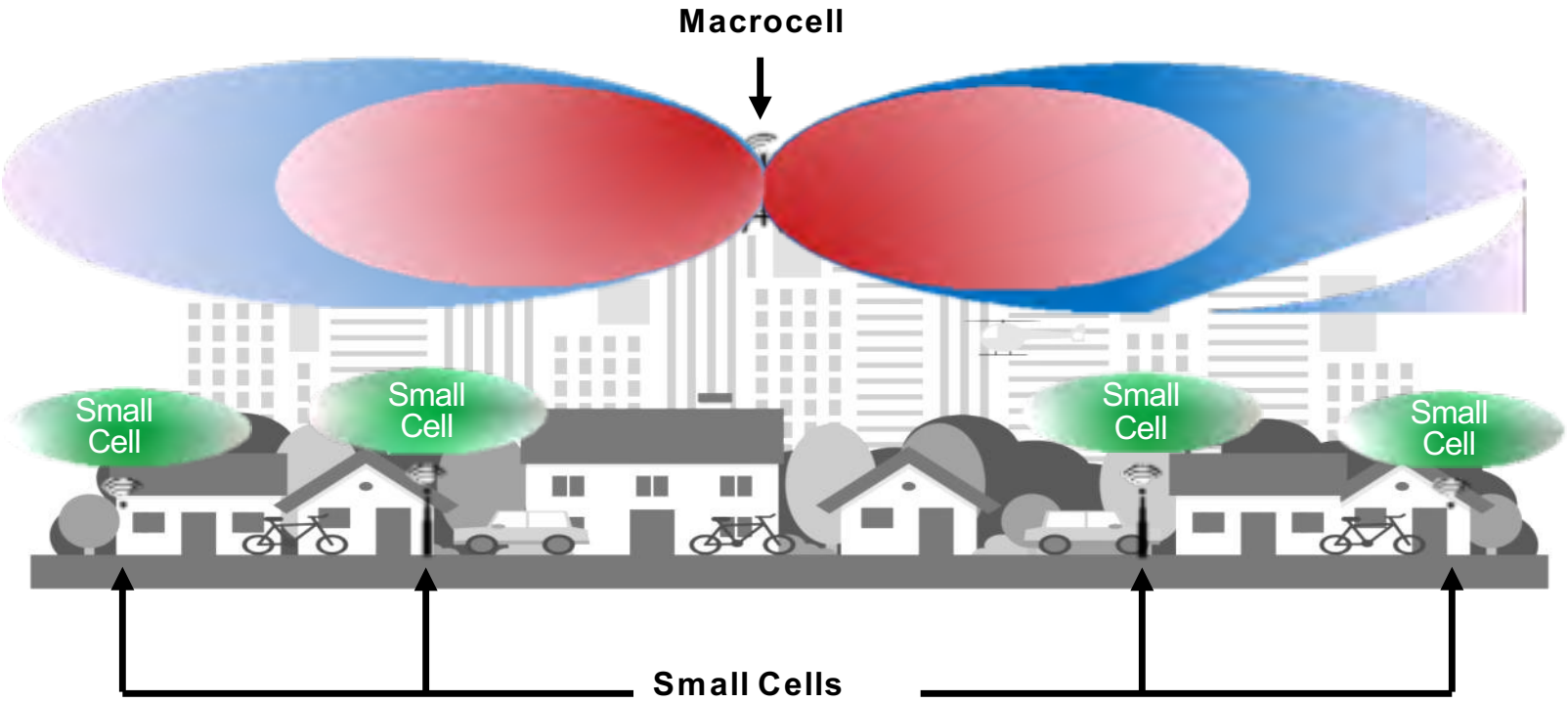
Los Angeles

Miami, FL

# Consumer and business demand for wireless data is on the rise



# Network Evolution

***What is the difference between a small cell and a macro solution?***

# Small vs. Macro Cell – Antenna

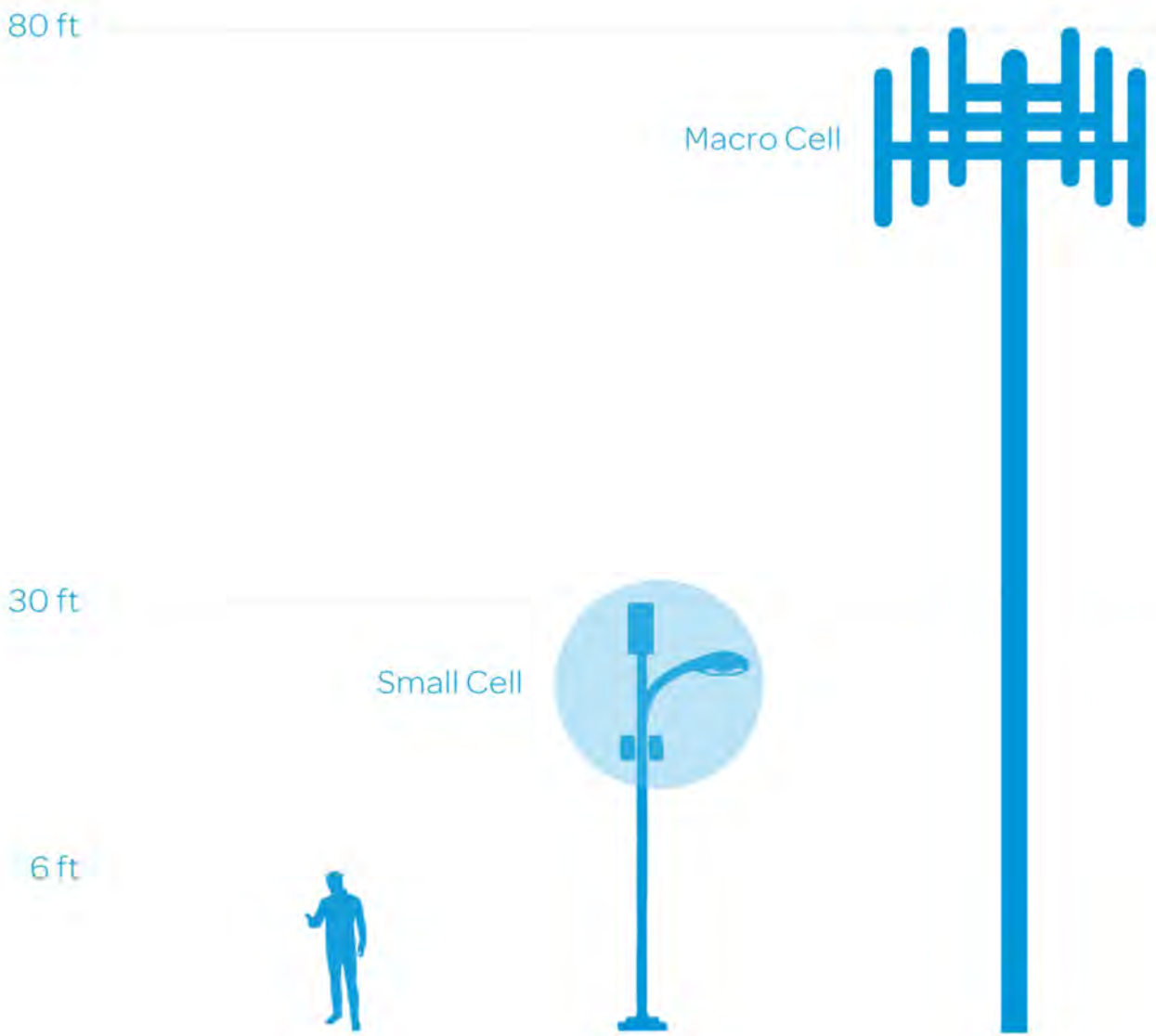
**Typical Small Cell Antenna**

- **~2 ft. in Height**
- **1 to 3 per Pole**
- **Install Height of 20 to 40 ft.**
- **No Ground Cabinet**

**Typical Macro Cell Antenna**

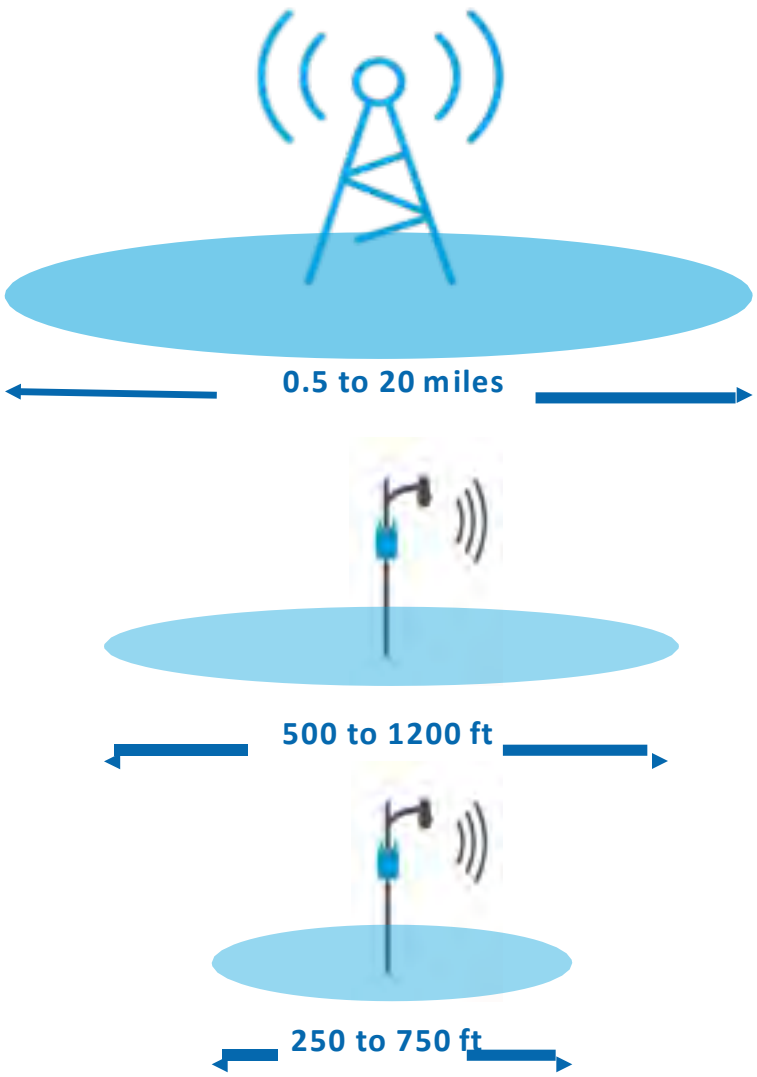
- **6 or 8 ft. in Height**
- **6 to 12 per pole**
- **Install Height 80 to 200 ft.**
- **2 to 4 Large Ground Cabinets or in an Equipment Room**

# Different technology, different process




This slide depicts a graphical representation of small cells and macro cells. The actual equipment, size and design may vary.

**The footprint, or service area, of a site is determined by height and by frequency band**




## Macrocell (4G LTE)

*The common form factor for wireless communication. Higher height and lower frequencies used result in the larger service area.*

## Current Small Cell (4G LTE)

*Uses the same frequencies as macrocells, in addition to utilizing unlicensed spectrum. Due to lower height, footprint is smaller. Increases capacity or coverage in target areas.*

## Future Small Cell (5G)

*Very high frequencies enabled by future 5G technology will result in a smaller footprint, but can be used to meet the exponential increased capacity demand. These frequencies are not used for wireless service today.*

- *Heights and service areas are approximations*
- *Small cell sites supplement vs. replace macrocell sites*

# Small vs. Macro Cell – Install

1 to 3 Small Antennas

Small Radio Enclosure
No Ground Cabinets

Small Cell on Utility Pole

Macro Site on Utility Pole

3 to 12 Large Antennas

4 to 6 Large Cabinets
on Adjacent Property

***What are the components of a small cell installation?***

# Small Cell Components

Fiber & Coax Conduit

Power Conduit

Power Disconnect

Antennas

Dark Fiber
(leased from 3rd party)

Radios & Fiber Termination Box

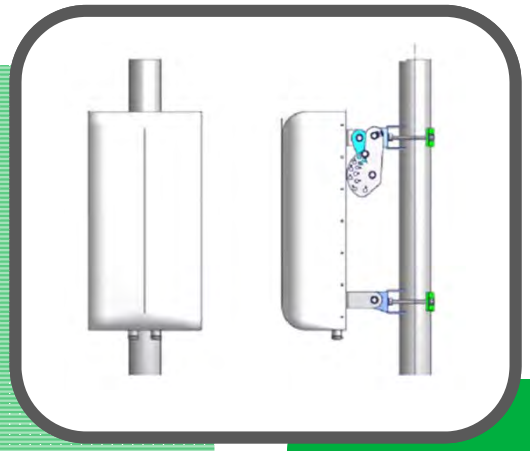
# *What antenna variations exist?*

# Antenna Options

## Cylindrical

Height
~2 ft.

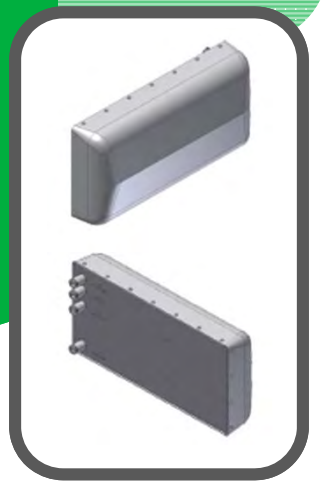
Diameter
~16 in.



## Panel

Height
~2 ft.

Width
1 to 3 ft.



verizon

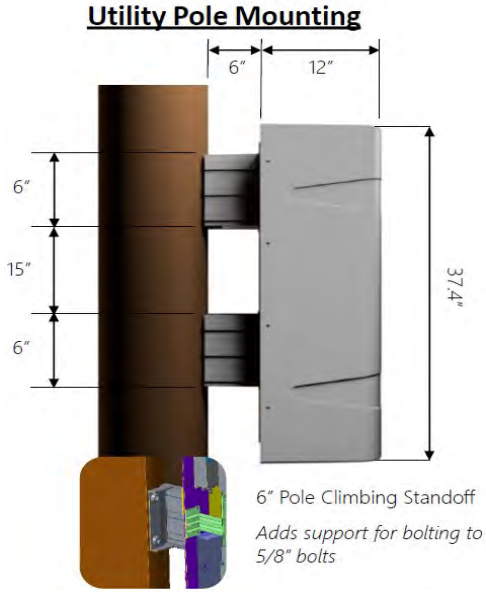
# Small Cell Antenna Examples – Pole Top/Stand-off Bracket Mount

| Mechanical Specification | |
|---|---|
| Dimension (Length x Phi) | Ø16.0x24.0inches (Ø408.0x609.0mm) |
| Weight (Without clamp) | 34.2lbs (15.5kg) |
| Connector | 12 x 4.3-10 (Female). Long Neck |
| Max Wind Speed | 150mph(67m/s) |
| WindLoad (@100 mph) | 254N |

| Mechanical specifications | | |
|---|---|---|
| Input | | 12 x 4.3-10 connector female |
| Connector position | | Bottom |
| Weight | kg<br>lb | 15.0<br>33.0 |
| Wind load at Rated Wind Speed: 150km/h | N<br>lbf | 138<br>30 |
| Max. wind velocity | km/h<br>mph | 242<br>150 |
| Mechanical interface | | max nut (requires a 1-1/2" wrench) Torque setting: 122 Nm (90 lbf-ft) |
| Packing size | mm<br>inches | 755 x 480 x 480<br>29.7 / 18.9 / 18.9 |
| Height / diameter | mm<br>inches | 626 / 407<br>24.6 / 16 |

# T-Mobile's Small Cell Shroud

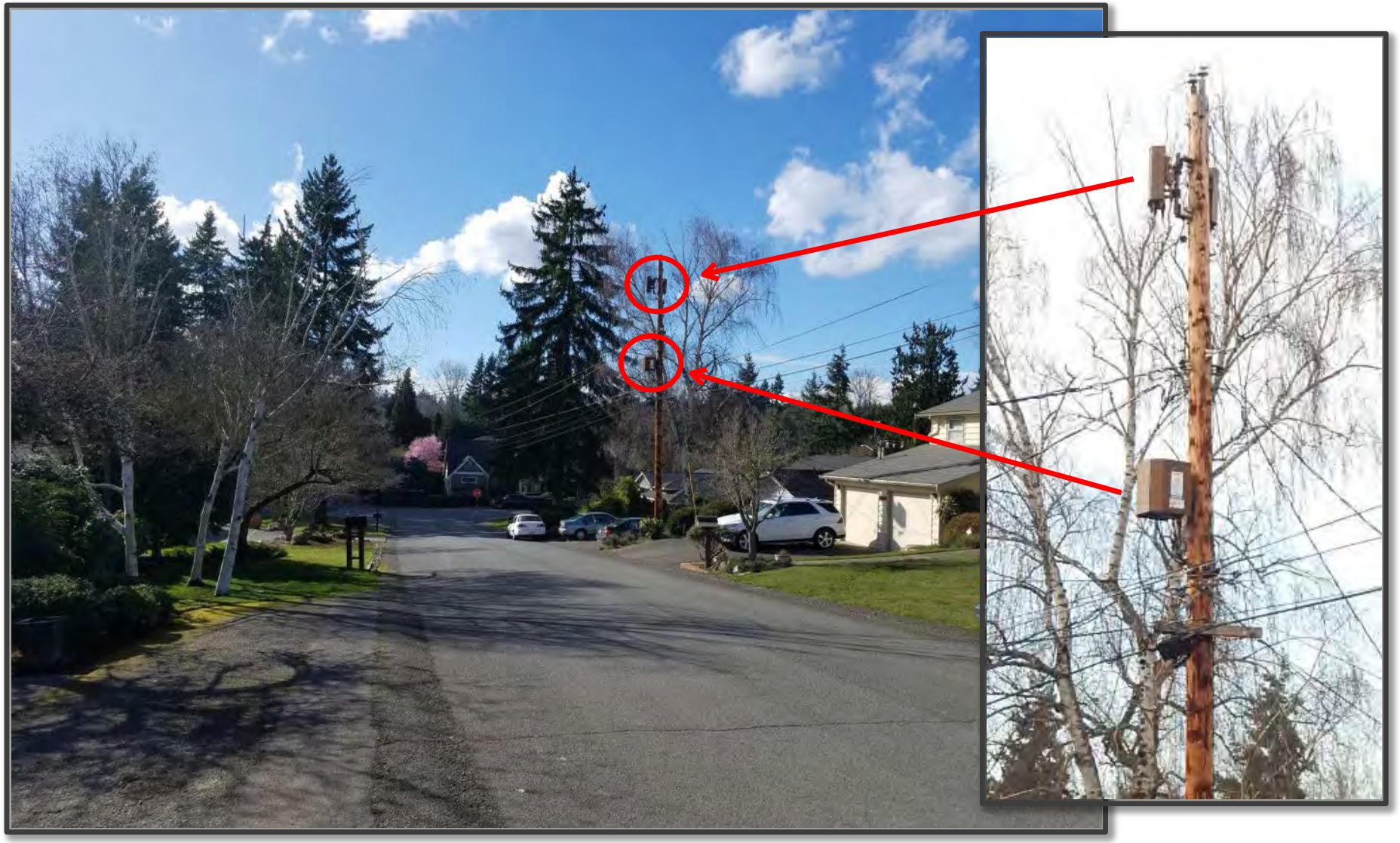





- Sleek design
- Creates uniformity
- Two Configurations: (1) Antennas and radios in close proximity in a unified shroud for improved performance (faster data speeds); or (2) radios in shroud connected to external omni-directional antenna
- Can blend with existing infrastructure

# *Utility Poles*

# First Bellevue Installation – Archerline



# First Bellevue Installation – Archerline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# Locally Built Sites


verizon

Eugene, OR

# Wood Pole Installations

T··Mobile·
NATIONAL DEVELOPMENT

Jacksonville, FL

Baltimore, MD

# *Strand Mounts*

# Strand Mount – Seattle Trial

The power disconnect is mounted to the pole

Combined antenna and radio units are mounted to a bracket that his hung on the fiber strand.

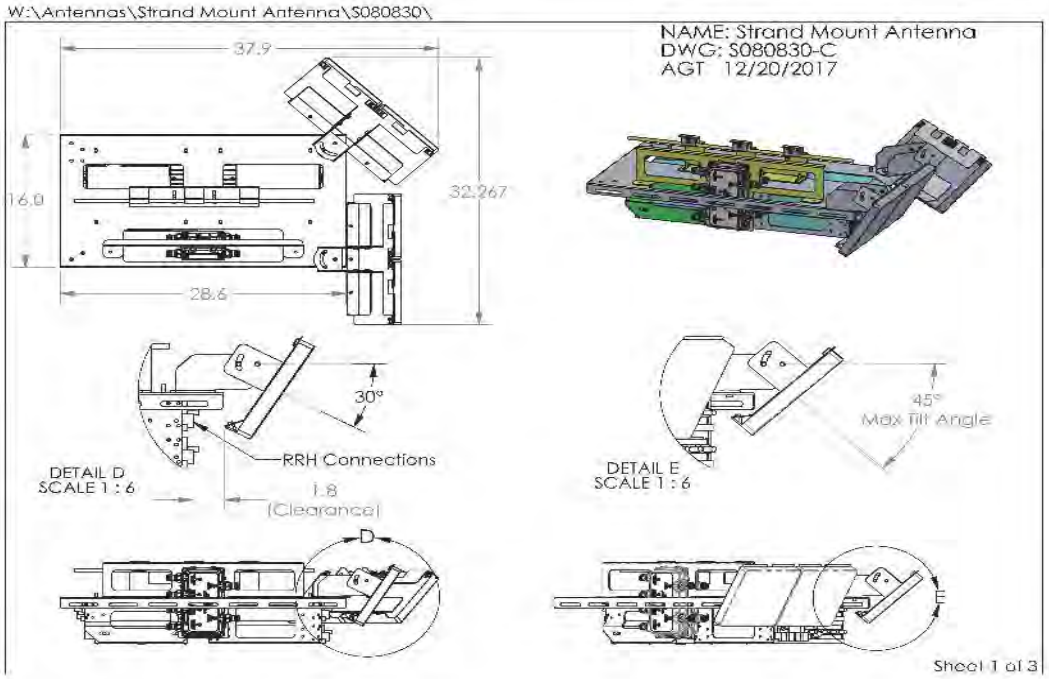
Fiber runs into the radios from nearby fiber termination box.

Conduit contains power lines running from the supply space to the power disconnect and then to the antenna and radio units.

verizon

# T-Mobile's Strand-Mount Solution

T · · Mobile · ·
NATIONAL DEVELOPMENT




# Strand Mount Installation (Salt Lake City)

T··Mobile·
NATIONAL DEVELOPMENT

# Strand Mount Installation (Phoenix)

T··Mobile·
NATIONAL DEVELOPMENT

30

# Strand Mount Installation (Phoenix)

T··Mobile·
NATIONAL DEVELOPMENT

# Light Standards

# San Francisco, CA


Kent, WA


Example small cell photo-simulation, actual design may differ.

Gresham, OR

Example small cell photo-simulation, actual design may differ.

Clark County, Nevada
Small Cell

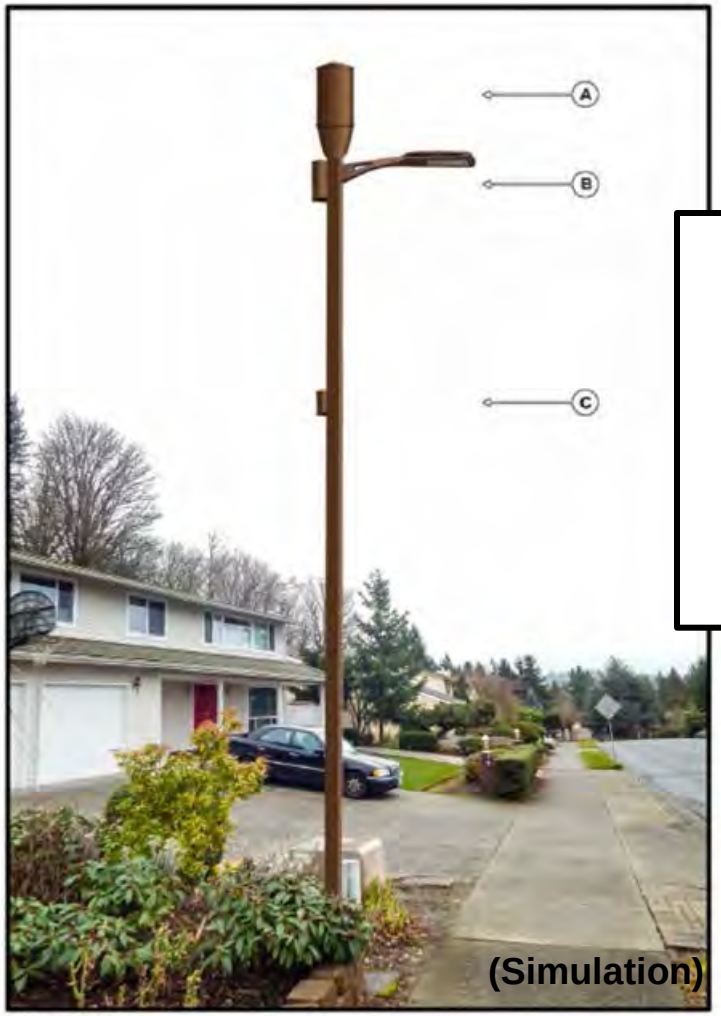
# Light Standard


# Light Standards-Good Design Matters

New small cell decorative pole next to existing pole before removal.

verizon

# Light Standard




PROPOSED

**City of Bellevue**

**Puget Sound Energy**

(A) Antenna
ANTELL CWT360x06Fx0
24" H x 14" W
28 lbs

(B) Radio 2203
7.88" H x 7.88" L x 3.94" D
11 lbs

(C) Disconect Box
9.75" H x 9.00 L X 5.25 D
WT. TBD


PROPOSED

# Light Standard


Minneapolis, MN


Kansas City, KS

verizon

# Light Standard Examples

T · ·Mobile·
NATIONAL DEVELOPMENT

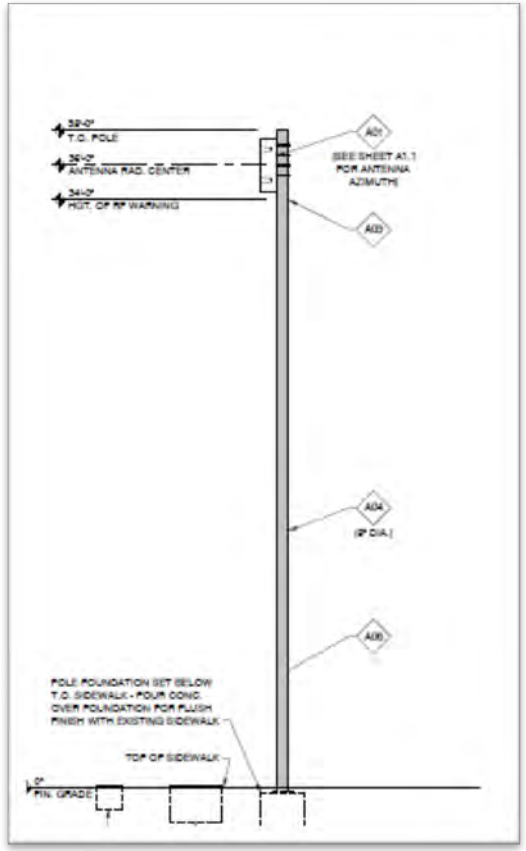

# Wireless Only Poles

# Wireless Only Pole

T-Mobile
NATIONAL DEVELOPMENT

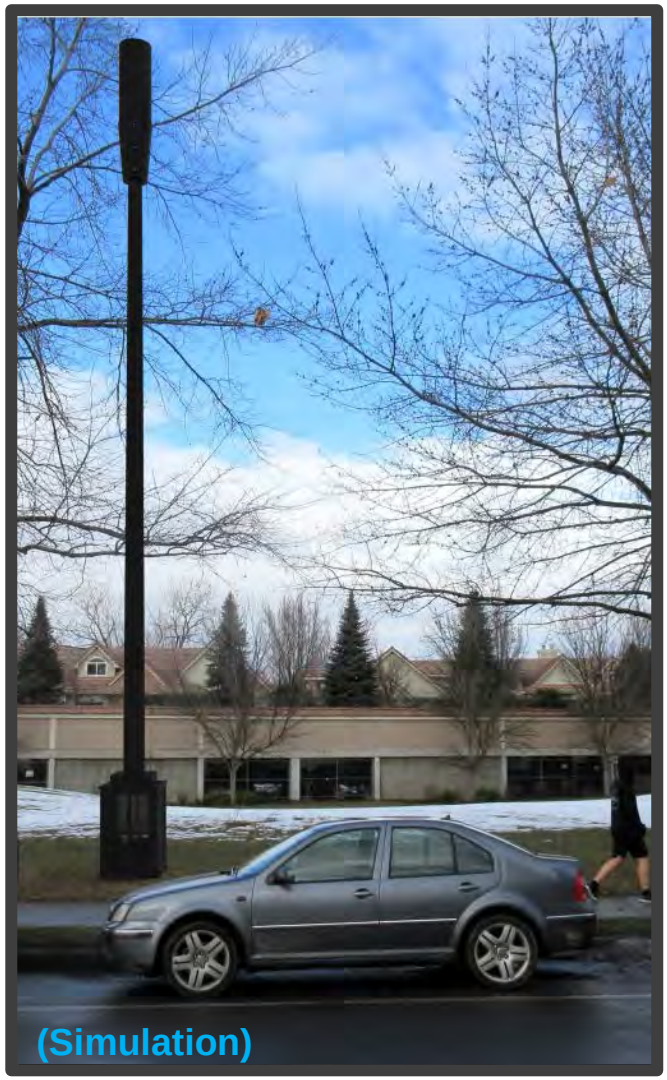
Bellevue, WA

## Pole Specs




## Photo Simulation

# Wireless Only Poles




# Portland Designs

Glotel.

# WPG Cobrahead Pole

6800 NE Martin Luther King Jr Blvd Portland OR 97211

ARTISTIC engineering
AEsims.com
877.9AE.sims

View 1


Existing


Proposed — Looking west from Dekum Street



Accuracy of photo simulation based upon information provided by project applicant.

Glotel

# WPG Cobrahead Pole

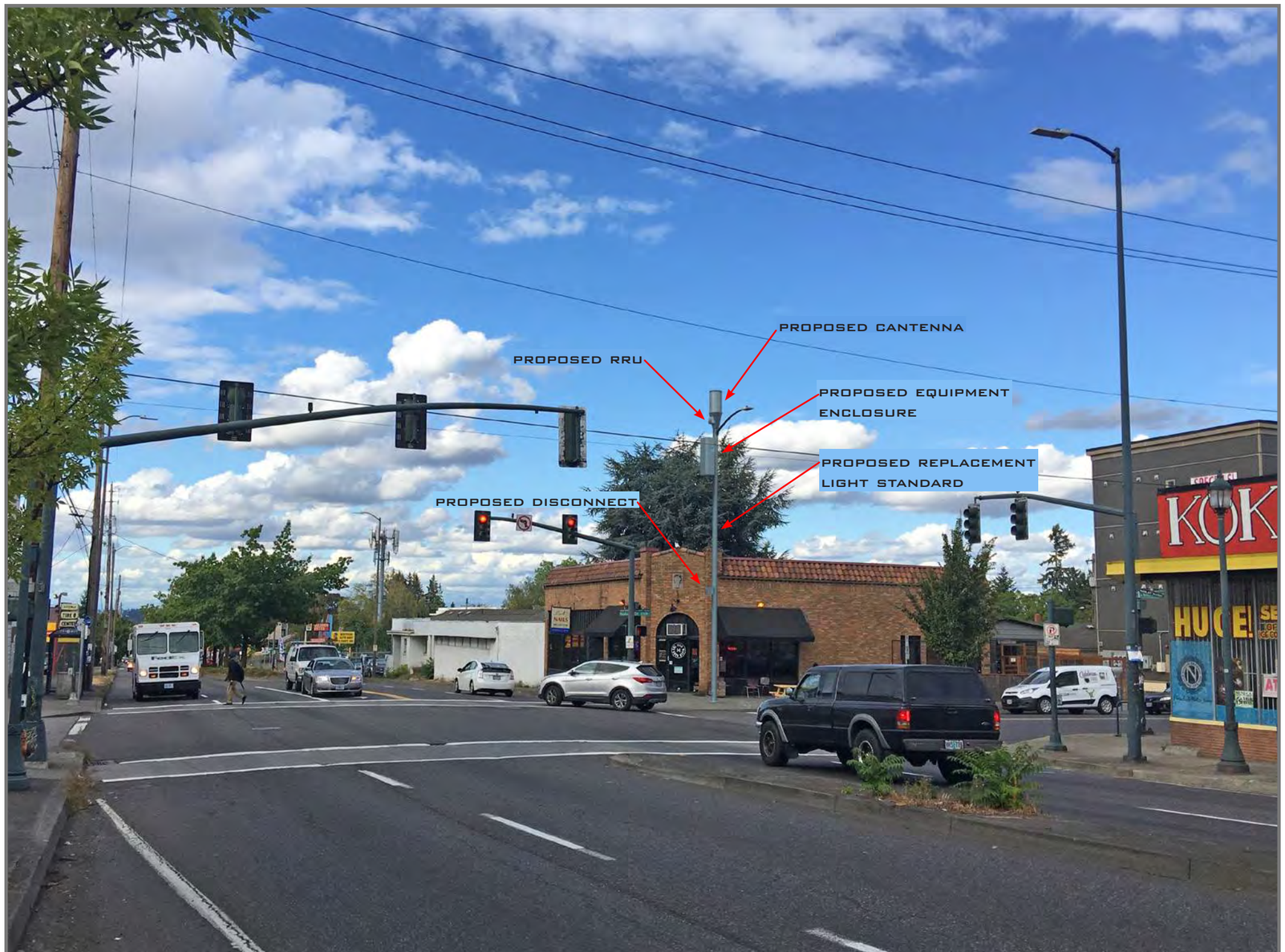
6800 NE Martin Luther King Jr Blvd Portland OR 97211

ARTISTIC engineering
AEsims.com
877.9AE.sims

View 2


Location ©2018 Google Maps

Existing




Proposed Looking northeast from Martin Luther King Jr Boulevard

Accuracy of photo simulation based upon information provided by project applicant.

Glotel.

# WPG Decorative Street Light Pole

SW Hall St & SW 4th Ave Portland OR 97201

ARTISTIC engineering
AEsims.com
877.9AE.sims

View 1


Location ©2018 Google Maps

Existing


Proposed Looking northeast from SW Hall Street



Accuracy of photo simulation based upon information provided by project applicant.

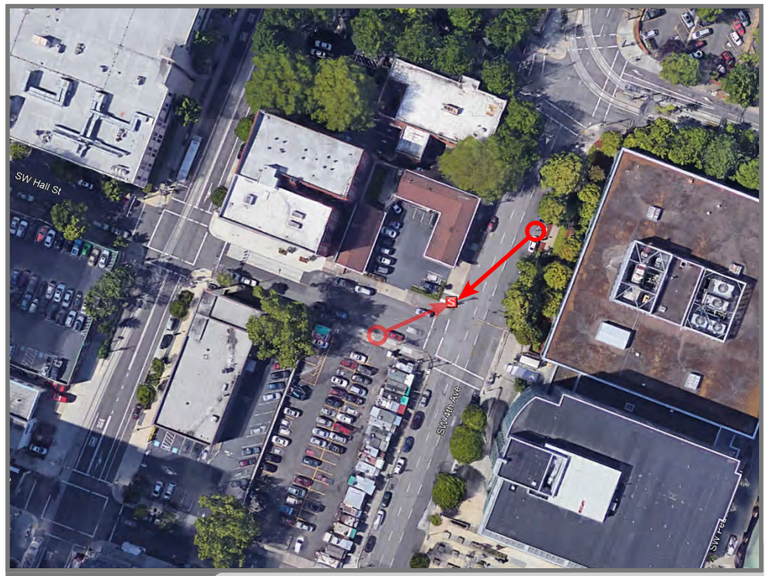
# WPG Decorative Street Light Pole

SW Hall St & SW 4th Ave Portland OR 97201

Glotel.

ARTISTIC engineering
AEsims.com
877.9AE.sims

View 2




Location ©2018 Google Maps

Existing


Proposed — Looking southwest from SW 4th Avenue



Accuracy of photo simulation based upon information provided by project applicant.

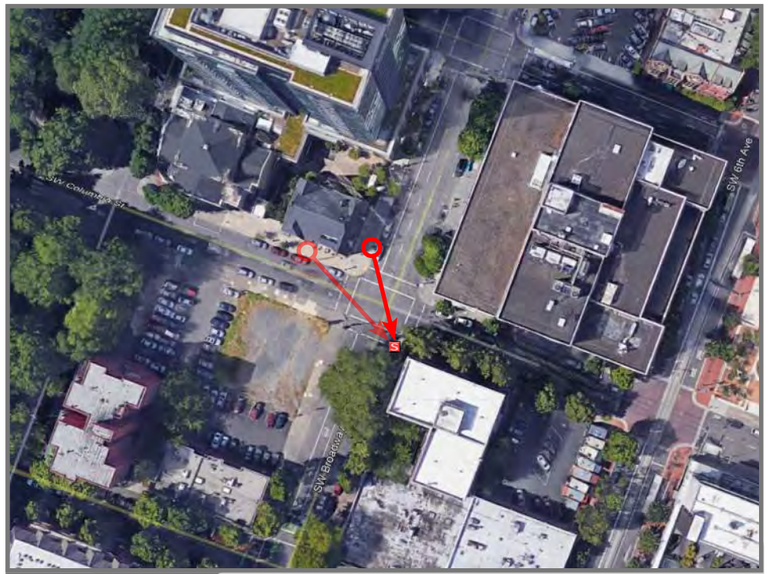
Glotel

# WPG Dual Mast Arm Pole (No SL)

SW Columbia St & SW Broadway Portland OR 97201

ARTISTIC engineering
AEsims.com
877.9AE.sims

View 1




Location ©2018 Google Maps

Existing


Proposed Looking southeast from SW Broadway



Accuracy of photo simulation based upon information provided by project applicant.

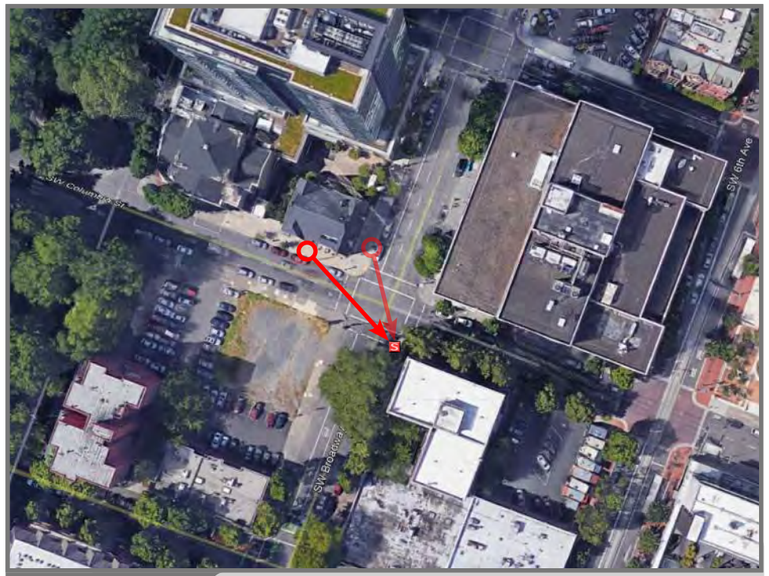
Glotel.

# WPG Dual Mast Arm Pole (No SL)

SW Columbia St & SW Broadway Portland OR 97201

ARTISTIC engineering
AEsims.com
877.9AE.sims

View 2




Location ©2018 Google Maps

Existing


Proposed Looking southeast from SW Columbia Street



Accuracy of photo simulation based upon information provided by project applicant.

***Thank you!***

# Federal Communication Commission (FCC)

## 1996 – 2009 – 2012 – 2014 - 2018

- Telecommunications heavily regulated by the Federal Communication Commission (FCC)
- 1996 Telecommunication Act
  - Citation: 47 USC 151 et seq.
  - Sweeping regulations aimed to open up the industry
  - 47 USC 332 (c)(7) "preservation of local authority"
    - regulations cannot "unreasonably discriminate" and decisions for permit requests must occur "within a reasonable amount of time"
  - 47 USC 253 "removal of barriers to entry"
    - 47 USC 253 (a) regulations cannot effectively prohibit a business from providing telecom services
    - 47 USC 253 (c) managing right-of-way, non-discriminatory fees published in advance
- Result: local governments have less authority to regulate

# Federal Communication Commission (FCC)

## 1996 – 2009 – 2012 – 2014 - 2018

2009 “Shot Clock Order”
(permit review time):

- Citation:  FCC 09-99
- Wireless facility applications must be decided
  - within 150 days of application being filed for new facilities
  - within 90 days of application being filed for “collocated” facilities
- Permit review presumptively reasonable and can be rebutted

# Federal Communication Commission (FCC)

## 1998 – 2009 – **2012** – 2014 - 2018

2012 “Middle Class Tax Relief and Job Creation Act”

- Citation: 47 USC 1455 (a)
- County must approve a request to install eligible facilities on an existing tower/base station that doesn’t substantially change the dimensions

# Federal Communication Commission (FCC)

## 1998 – 2009 – 2012 – 2014 - 2018

2014: adopted clarifications for 2012

- Citation: FCC 14-153
- Definitions
  - Existing tower/base station
  - Substantial change
  - Collocation
- New permit review timeframes for non-substantial changes
  - 60 day permit review presumed reasonable
  - Day 1 is date of application, not date of completed application
  - Limited tolling (Stopping the clock)
  - Clock does not restart
- No decision in the required timeframe = approved

# Federal Communication Commission (FCC)

## 1998 – 2009 – 2012 – 2014 - 2018

2018 “small wireless facilities”
(roll out for 5G technology)

- Citation:  FCC 18-133
- Defines a “small wireless facility”
- New shot clock
  - New small wireless facility, 90 days
  - Collocated small wireless facility, 60 days
  - Day 1 is date of application, not date of completed application
  - Limited tolling (Stopping the clock)
  - Clock restarts (once)
  - Batching allowed (multiple applications in one permit)
- No decision in the required timeframe = 30 days to appeal

# Federal Communication Commission (FCC)

## 1998 – 2009 – 2012 – 2014 - 2018

2018 “small wireless facilities”
(roll out for 5G technology):

- Fees
  - Published in advance
  - non-discriminatory
  - objectively reasonable approximation of actual cost
  - Restricts one time fees (e.g. permit, street closure)
  - Restricts recurring fees (e.g. rental fees for facilities)

# Federal Communication Commission (FCC)

## 1998 – 2009 – 2012 – 2014 - 2018

2018 “small wireless facilities” (roll out for 5G technology):

- Aesthetics and other regulations
  (e.g. stealth technology, undergrounding, spacing)
  - published in advance
  - non-discriminatory
  - objectively reasonable
  - no more burdensome than other wireless infrastructure

# Example permissibility table

| Table 1 Wireless Communication Facility (facility) Permit Review Summary | | | | |
|---|---|---|---|---|
| Type of Facility | Number of Days for Decision 17.530.030 (H) | Land Use Permit | | |
| | | Letter of Exemption | ACUP | CUP |
| Replacement of wireless support structure with an identical support structure | 60 | X | | |
| Collocation: | | | | |
| New or replacement non-tower facility that does not substantially change existing facility | 60 | X | | |
| New or replacement non-tower facility that substantially changes an existing facility | 90 | | X | |
| A new non-tower facility on a structure not previously approved for facility use | 90 | | X | |
| Small wireless facility on any existing structure. | 60 | X | | |
| New facility and support structure: | | | | |
| Small wireless facility on a new structure | 90 | | X | |
| Tower-based facility | 150 | | | X |

# Planning Commission Public Process: Next Meeting

- December 18, 2018: Work Study

  Workplan, Small Cell Introduction, Federal Standards

  Recorded by BKAT, link available on project website

  https://www.kitsapgov.com/dcd/Pages/Code-Updates.aspx
- January 8, 2019: Work Study

  Staff Report, Proposed Code
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# Kitsap County Code Update

## 17.530 ‘Wireless Communication Facilities’

Next Meeting:

Planning Commission Work Study on January 8, 2019

# QUESTIONS?


Website: https://www.kitsapgov.com/dcd/Pages/Code-Updates.aspx

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