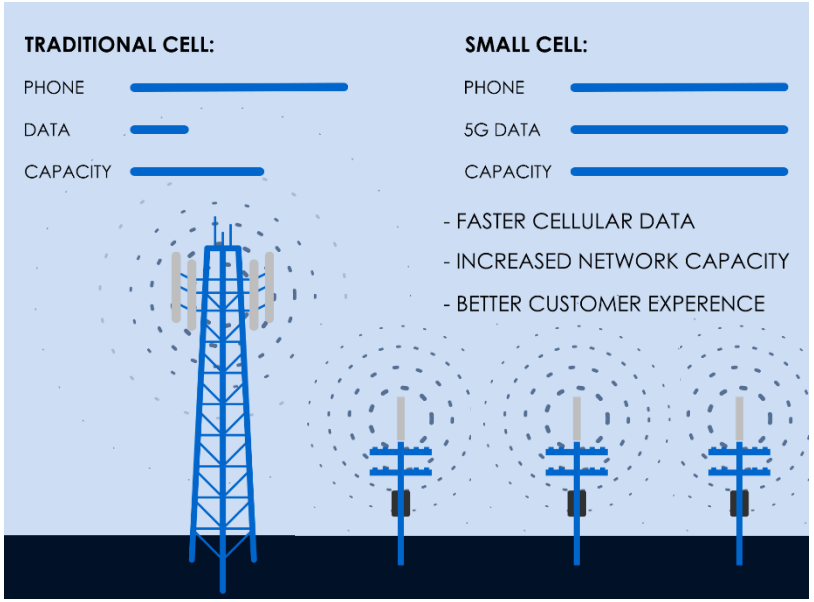
Small Cell Facilities

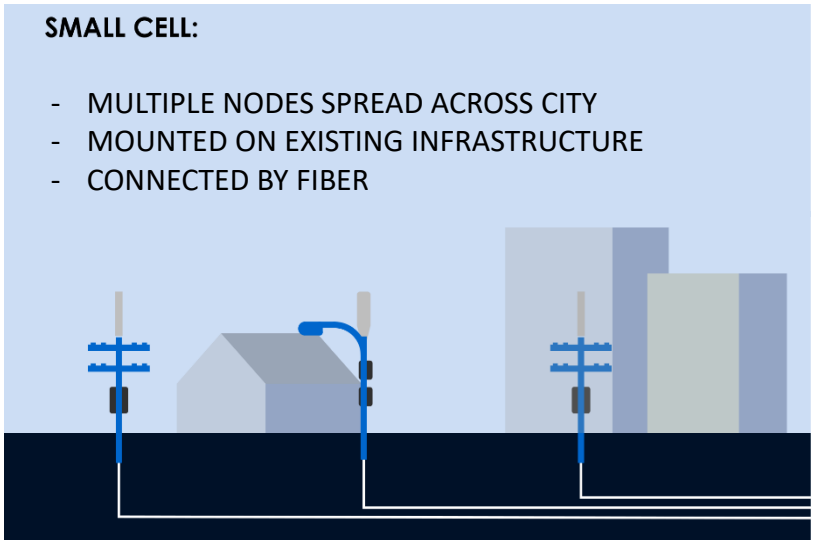
City Council Legislative Meeting

February 26, 2019

What are Small Cells?

- Small cells are low power wireless installations.
- Data is transferred from small cells to large antennas/towers.
- Small cell antennas and associated equipment can fit on existing utility or streetlight poles.
- Small cell antennas needed to support existing 4G networks.





SOURCE: THE CBR GROUP

The Need, Benefits, & Concerns

Why Small Cells are Needed?

- Increasing usage of wireless devices and data; increased demand requires reliable high-speed wireless service

Potential Benefits

- Increases mobile broadband network service and capacity for the community
- Economic competitiveness
- Increases opportunities to deploy smart city and IoT (Internet of Things) technology
- Robust wireless networks are critical to public safety as 80% of national 911 calls are placed via wireless phones.

Concerns

- Pressure to greatly increase number of equipment mounted on poles
- Pole density for 5G will likely be substantially more than 4G+
- Carriers may prefer to own and operate their own poles and not "piggyback" on existing utility poles.

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Deployment of "SMALL CELL" WIRELESS Technology in the City of Alexandria

Before the City Council
City of Alexandria
February 26, 2019
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Introduction

- What is a “small cell?”
- How will small cell deployment affect Alexandria?
- What is 5G?
- What does small cell equipment look like?
- How have the General Assembly and the FCC changed the law to promote deployment?
- How is staff addressing legal changes?

What Is A "Small Cell"?

- "Small cells" are low power wireless installations with a typical range of a few hundred yards.
- Antennas and associated equipment can fit on standard utility pole or street light pole.
- Small cell deployments are needed to support existing 4G networks in dense areas.
- Current small cell construction should not be confused with future 5G.

How Will Small Cell Deployment Affect Alexandria?

- Carriers are currently building "4G and ½;" 5G will come later, facilities are very similar.
- Not just carriers: Infrastructure providers serving multiple carriers have approached the City.
- Each carrier and infrastructure provider has independent right to install facilities under Virginia law and FCC rules.
- Overall, both current (still 4G) and future (5G) equipment will supplement rather than replace existing networks.

How Will Small Cells Affect Alexandria?

- Key points for the City:
  - Current “4G and a half” deployments are aimed at increasing capacity in high-use areas.
  - Carriers need more antennas at lower heights.
  - 5G uses short range frequencies with poor penetration, so future 5G deployment will be more extensive.
  - Network is not truly wireless: Carriers need ROW access for fiber backhaul.
  - Antennas are small enough to place on utility pole, but ancillary equipment is by no means invisible.
  - Over long term, each carrier may need one set of antennas per block, at or below rooftop level.

What is "5G"?

- 5G is the successor to current "4G" wireless technology; common "5G NR" technical standard was released in December 2018.
- Carrier roll-out claims are largely based on testing and marketing efforts.
- 5G smartphones available in 2019, but carrier networks won't be able to deliver new services until at least 2020 – assuming network in an area has been built.

What is 5G?

- Designed to improve connection speeds and reduce latency (Internet response time).
- Lower latency is essential for advanced services , such as driverless cars.
- 5G network can support a larger number of devices than current networks – as reliance on smartphone apps increases, carriers will deploy 5G to support current services in high use areas as well as new services.

What Do Small Cells Look Like?

Source: https://whatis5g.info/photo-gallery-of-small-cells/

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What Small Cells Could Look Like.

Source: www.nytimes.com/2018/03/02/technology/5g-cellular-service.html

Changes in Federal and State Law

- Virginia General Assembly enacted new statutes governing small cell zoning in 2017 and 2018.
- FCC issued two orders preempting local authority over wireless facilities in 2018.
- Special rules now apply to facilities to be installed at or below 50 feet in height (and sometimes higher); these are deemed “small cell” or “small wireless facilities.”

Changes in Federal and State Law

- Under both federal and Virginia law, City is now subject to new rules governing:
  - Deadlines for evaluating applications for siting wireless facilities, both in and out of the City's rights-of-way.
  - Permitting fees.
  - Aesthetic standards that may be applied to a facility.
  - Undergrounding requirements.
- In some cases, these may conflict.

Changes in Federal and State Law

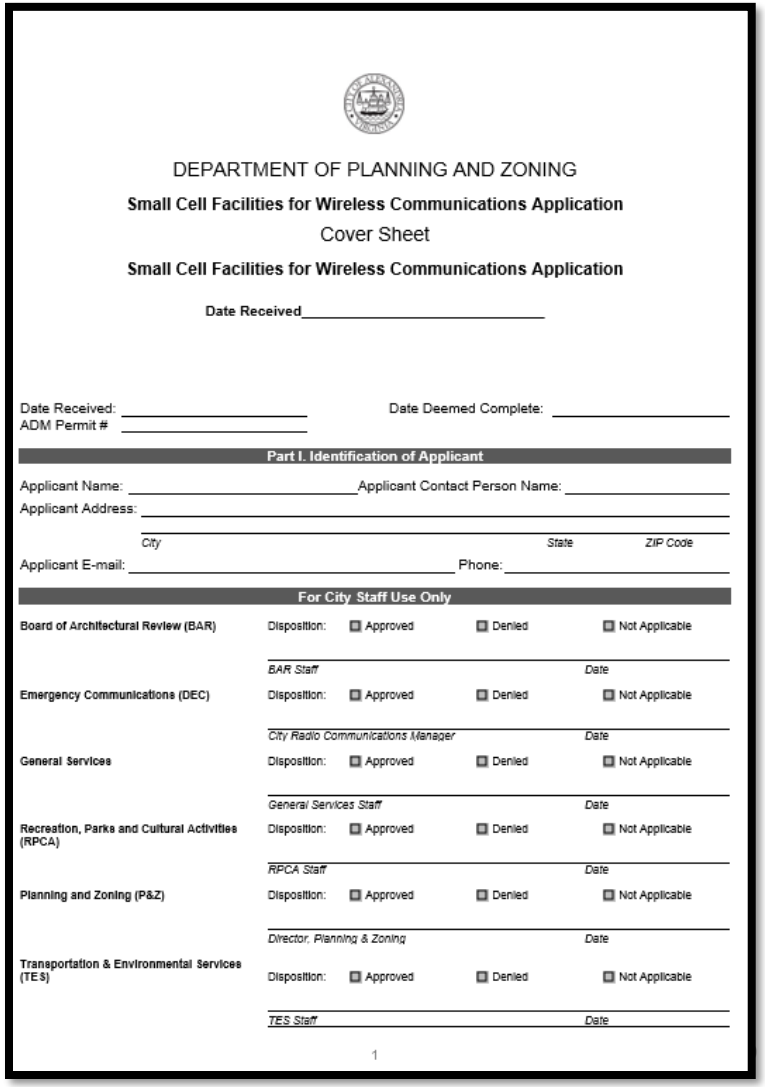
- Under FCC Orders:
  - Carriers may challenge <u>any</u> City requirement, in court or at the FCC, alleging the requirement violates new "material impairment" standard.
    - Example: Height restriction that prevents installation of an antenna that carrier says is necessary to provide satisfactory service.
  - Carriers may claim that policies that delay processing or restrict placement of wireless facilities in or to particular areas are invalid as unlawful "moratoria."

Effect of Legal Changes on City

- City prohibits installation of new poles in ROW.
- City requires pole replacement to be "like-for-like."
- Zoning Ordinance regulations of the technology will need to be updated to conform with the state laws & FCC rules.
- Undergrounding policy limits installation of stand-alone poles.
- Wireless carriers still need to obtain franchises authorizing placement of fiber and equipment in City ROW.

Zoning Review Process

- Guided by state law
- 60-day review period upon submission
  - Routed to multiple city departments and agencies
- Deemed approved if final decision not rendered within 60-day review period (per state law).



DEPARTMENT OF PLANNING AND ZONING

Small Cell Facilities for Wireless Communications Application

Cover Sheet

Small Cell Facilities for Wireless Communications Application

Date Received_____

Date Received: _____ Date Deemed Complete: _____
ADM Permit # _____

Part I. Identification of Applicant

Applicant Name: _____ Applicant Contact Person Name: _____
Applicant Address: _____
_____
City *State* *ZIP Code*
Applicant E-mail: _____ Phone: _____

For City Staff Use Only

Board of Architectural Review (BAR)	Disposition:	☐ Approved	☐ Denied	☐ Not Applicable
	BAR Staff			*Date*
Emergency Communications (DEC)	Disposition:	☐ Approved	☐ Denied	☐ Not Applicable
	City Radio Communications Manager			*Date*
General Services	Disposition:	☐ Approved	☐ Denied	☐ Not Applicable
	General Services Staff			*Date*
Recreation, Parks and Cultural Activities (RPCA)	Disposition:	☐ Approved	☐ Denied	☐ Not Applicable
	RPCA Staff			*Date*
Planning and Zoning (P&Z)	Disposition:	☐ Approved	☐ Denied	☐ Not Applicable
	Director, Planning & Zoning			*Date*
Transportation & Environmental Services (TES)	Disposition:	☐ Approved	☐ Denied	☐ Not Applicable
	TES Staff			*Date*

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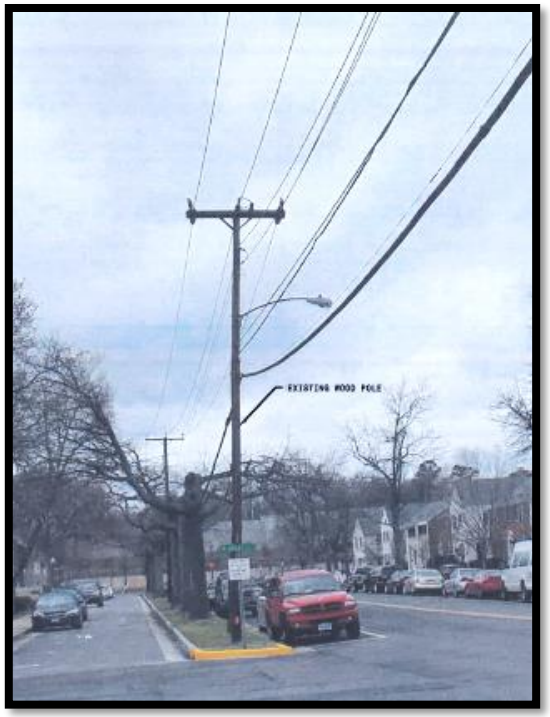
Applications to Date

- City has received 21 applications since state law enacted.
- 3 applications have received zoning approval.



How Is Staff Addressing the Legal Changes?

- Staff is drafting proposed amendments to Zoning Ordinance. This may include incorporation of new aesthetic standards for wireless facilities.
- Staff is evaluating the need for changes in current policies governing undergrounding, new poles, and "like-for-like" replacement: How can existing poles be used most efficiently?
- Citywide Smart Technology Policy will need to be amended.
- Various internal staff guidance documents will need to be developed or revised.

QUESTIONS?