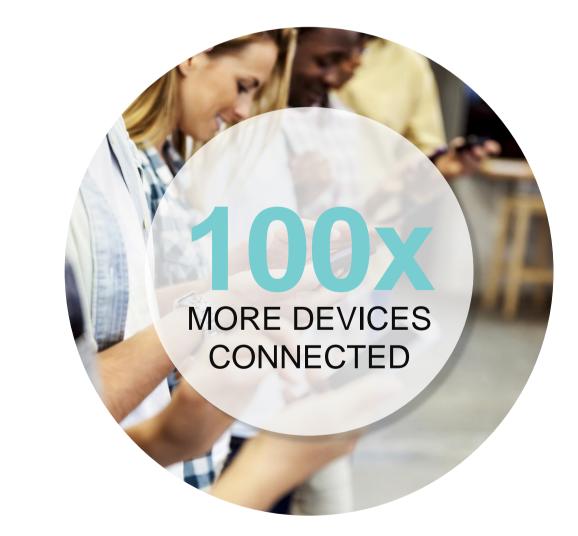
5G is the Answer to Our Growing Data Needs 4G MADE OUR NETWORKS FASTER AND OUR LIVES EASIER 5G WILL BE A MASSIVE LEAP







5G Benefits And Wireless Network Investment IMPROVE COMMUNITIES ACROSS AMERICA



"How 5G Can Help Municipalities Become Vibrant Smart Cities," Accenture Strategy, Jan 12, 2017, available at: <u>https://newsroom.accenture.com/content/1101/files/Accenture_5G-Municipalities-Become-Smart-Cities.pdf</u>





\$275B NEW WIRELESS INVESTMENT \$160B SMART CITY BENEFITS AND SAVINGS

> ctic Everything™ Wireless

Small Cells What's Next

 NEW OPPORTUNITIES. Network can now be extended on common structures like municipal street lights and utility poles

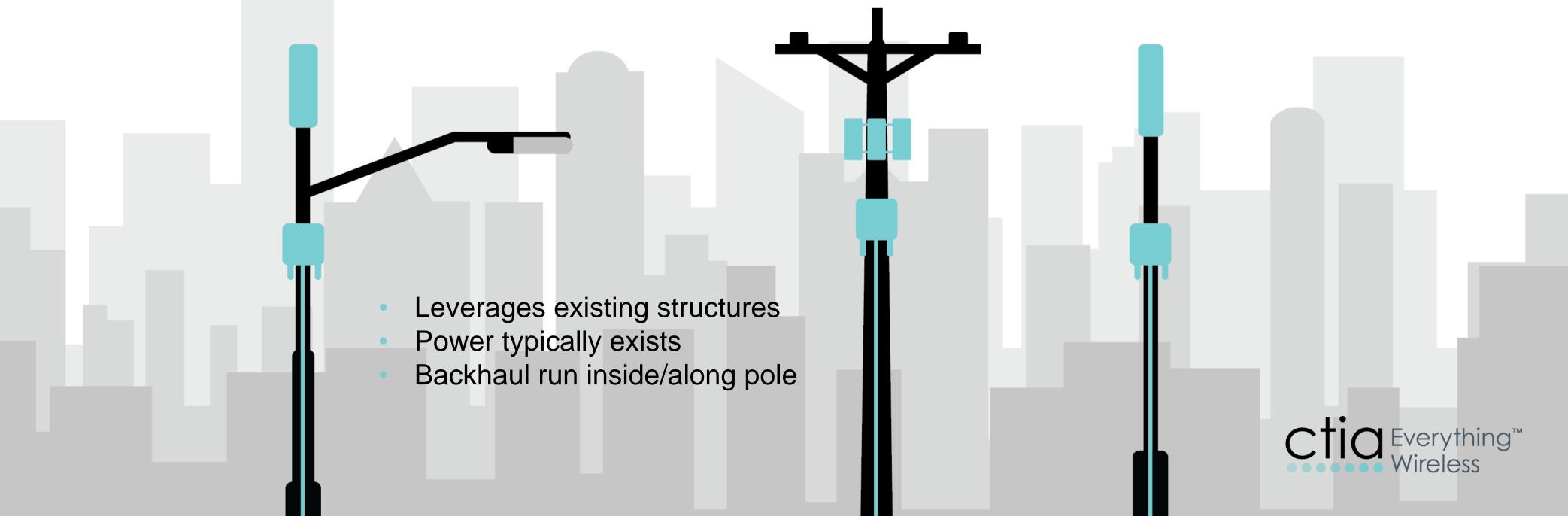
••• ~300K. Number of small cells needed in next 3-4 years



9280

Small Cells

Small cells are wireless antennas, typically no more than six cubic feet in volume that can be placed on an existing structure such as a streetlight, rooftop, utility pole.



Small Cell Benefits

••• INCREASED CAPACITY. Small cells are the key way to densify the network and serve growing usage

••• ENABLES 5G. Future services will require small cells due to the propagation characteristics of 5G spectrum

••• EFFICIENCY & RESILIENCY. Small cells can be deployed on existing structures; underlay network provides for additional capacity layer



Small Cells









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Small Cells The challenges

- DENIED ACCESS. Rules do not contemplate small cells
- DELAY. 2+ year process to site a single small cell
- COST. Fees that do not correspond to actual cost



Supply and demand: City asks T-Mobile for \$7,500 after Verizon paid \$600

by Frederick Melo February 2017

"T-Mobile is looking to install 40 pole-top antennas in St. Paul, but the city's consultants are quoting prices that are more than 10 times higher than what Verizon agreed to three years ago."





New Networks, New Rules

- ••• GREATER ACCESS. Improved access to municipal facilities and rights of way
- REDUCED COSTS. Reasonable costbased fees for new 5G deployments
- MODERNIZED PROCEDURES. Improved timelines and more uniform standards

Cities and towns which are first to facilitate the wireless infrastructure evolution will see the greatest benefit.

Accenture Strategy JANUARY 2017



Municipalities' Key Role

Cities and towns retain local oversight over the permitting process, and have the right to deny an application that does not meet objective requirements

Municipalities retain requirements for building, electrical and public way use permits

