

Wireless Communications Initiative

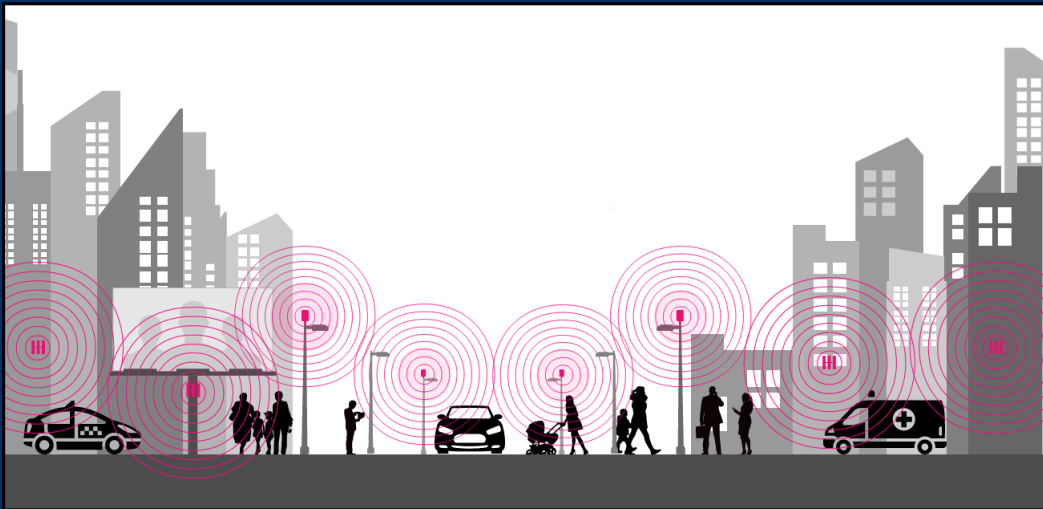


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Council Public Hearing
WCI Master Plan and Ordinance
April 18, 2018

Purpose

- Position the Town to benefit from coming improvements to wireless communications and minimize impacts
 - Develop a Wireless Master Plan, and
 - Amend LUMO with corresponding regulations



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Expanding Network Demands



DATA GROWTH

3X

Data Growth 2013–2015,
from 3.2T MB to 9.6T MB



61%

of Mobile Traffic is from
Videos. It will be 77%
by 2020



<http://www.ctle.org/your-wireless-life/how-wireless-works/annual-wireless-industry-survey>
http://www.cisco.com/c/dam/assets/sol/sp/vni/forecast_highlights_mobile/index.html#Country



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Meeting The Demands

Towers

Best for low-density populations.

Small cells

Good complement for dense areas with high capacity needs.

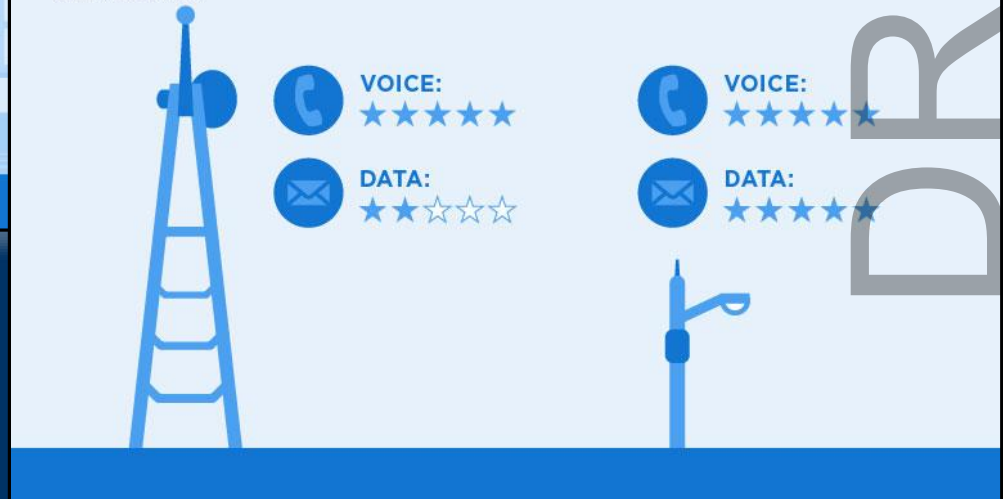


Towers

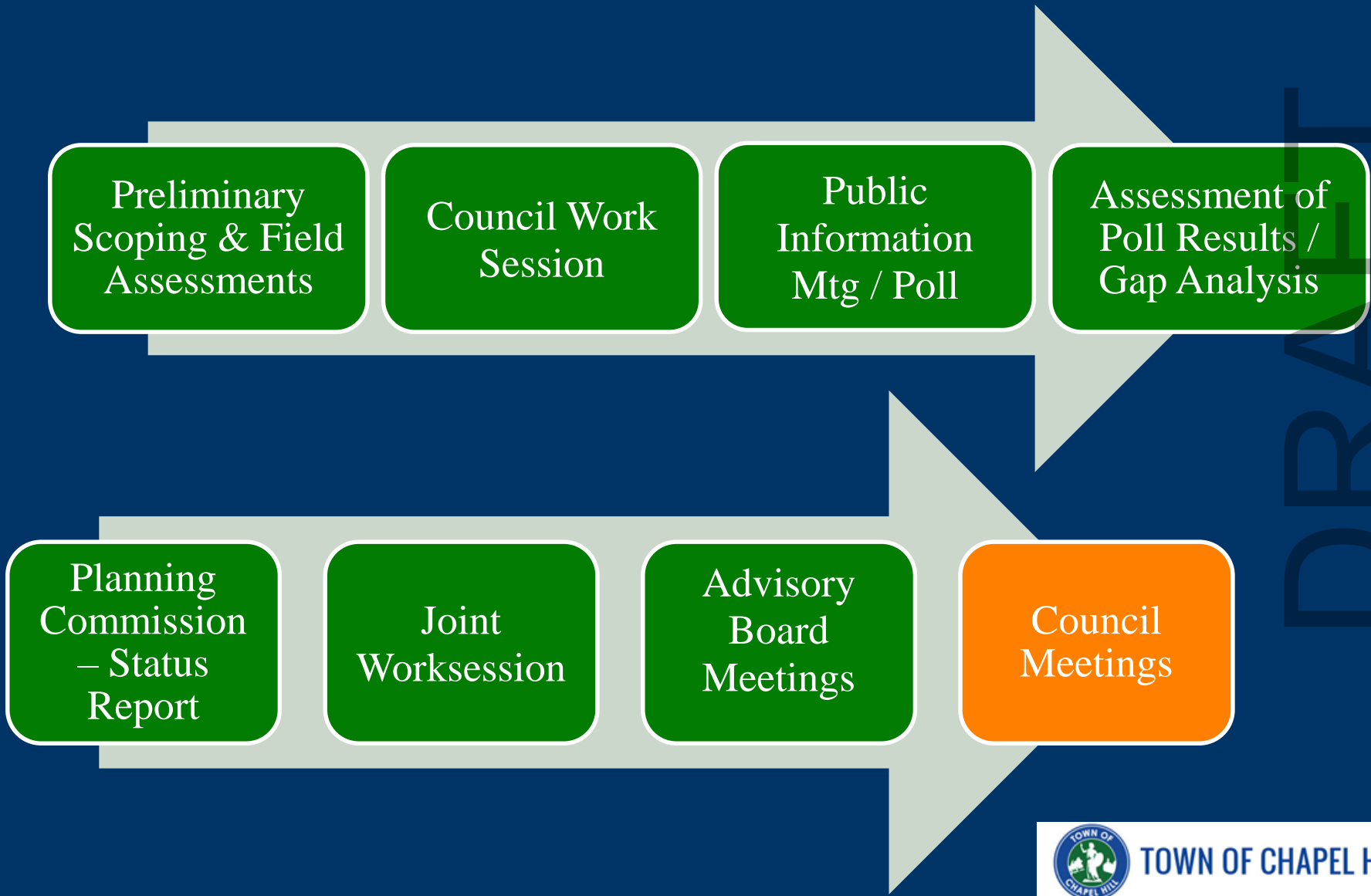
Good for voice. Data signal can degrade over distance.

Small cells

Good for voice and data.



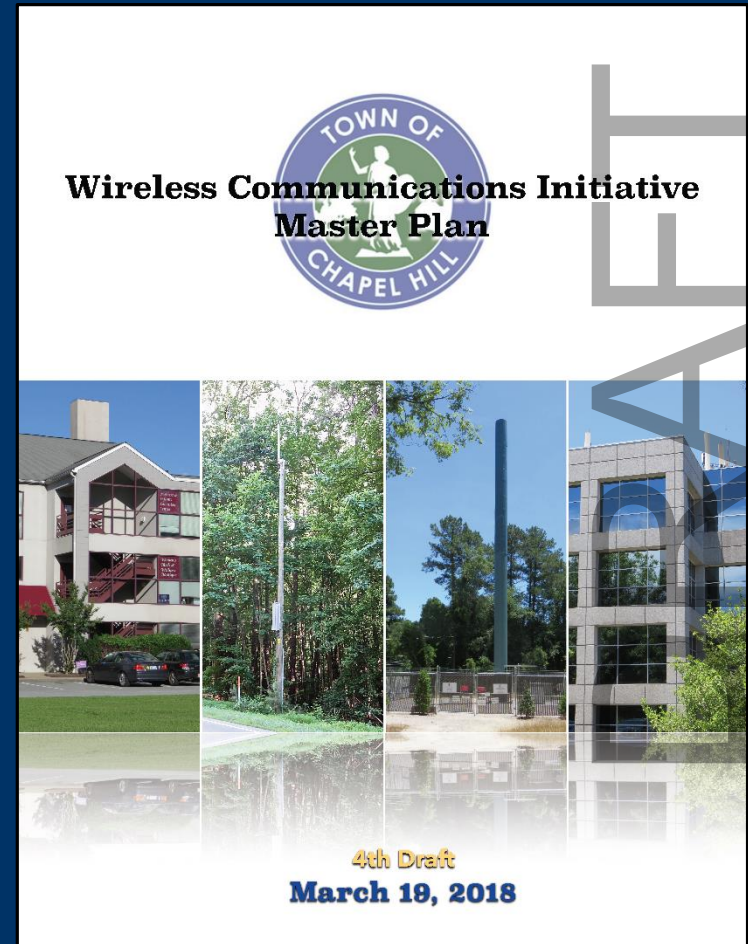
Process



Wireless Communications Initiative

Wireless Master Plan

- Identifies existing wireless infrastructure
- Identifies theoretical network Gaps and
- Estimates general location and frequency of needed future infrastructure



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Wireless Communications Initiative

Wireless Ordinance

- Regulatory framework for future infrastructure
- Guided by the 2020 Comprehensive Plan, federal & state regulations, and public participation

ORDINANCE A

(Enacting the Land Use Management Ordinance Text Amendment proposal)

AN ORDINANCE AMENDING THE CHAPEL HILL LAND USE MANAGEMENT ORDINANCE, TO CHANGE PROVISIONS PERTAINING TO WIRELESS COMMUNICATIONS FACILITIES (2018-__-__/O-)

WHEREAS, the Council of the Town of Chapel Hill has considered the proposed text amendments to the Land Use Management Ordinance to change provisions pertaining to wireless communications facilities and finds that the amendments are necessary to comply with enabling legislation and are consistent with the goals of the Chapel Hill 2020 Comprehensive Plan.

NOW, THEREFORE BE IT ORDAINED by the Council of the Town of Chapel Hill as follows:

Section 1. That Article 3, Section 3.7, Use Groups table 3.7-1, the *Use Matrix*, and Appendix A - is hereby revised as follows.

~~Radio, television or wireless transmitting and/or receiving antenna~~

Collocation on existing tower or base station

New concealed base station

New non-concealed rooftop base station

New concealed dual-purpose tower

New non-concealed base station

New non-concealed tower

Section 2. That Article 3, Section 3.8.3(b)(3) - Exceptions to Setback and Height Regulations as follows.

(3) Spires, smokestacks, water tanks, windmills, ~~radio-and-television-transmitting-towers, or-relay-towers,~~ provided such structures do not exceed in height the horizontal distance therefrom to the nearest lot line.

Section 3. That Article 3, Section 3.8.3(b)(4) - Exceptions to Setback and Height Regulations as follows.

(4) Utility transmission poles, towers, and cables.

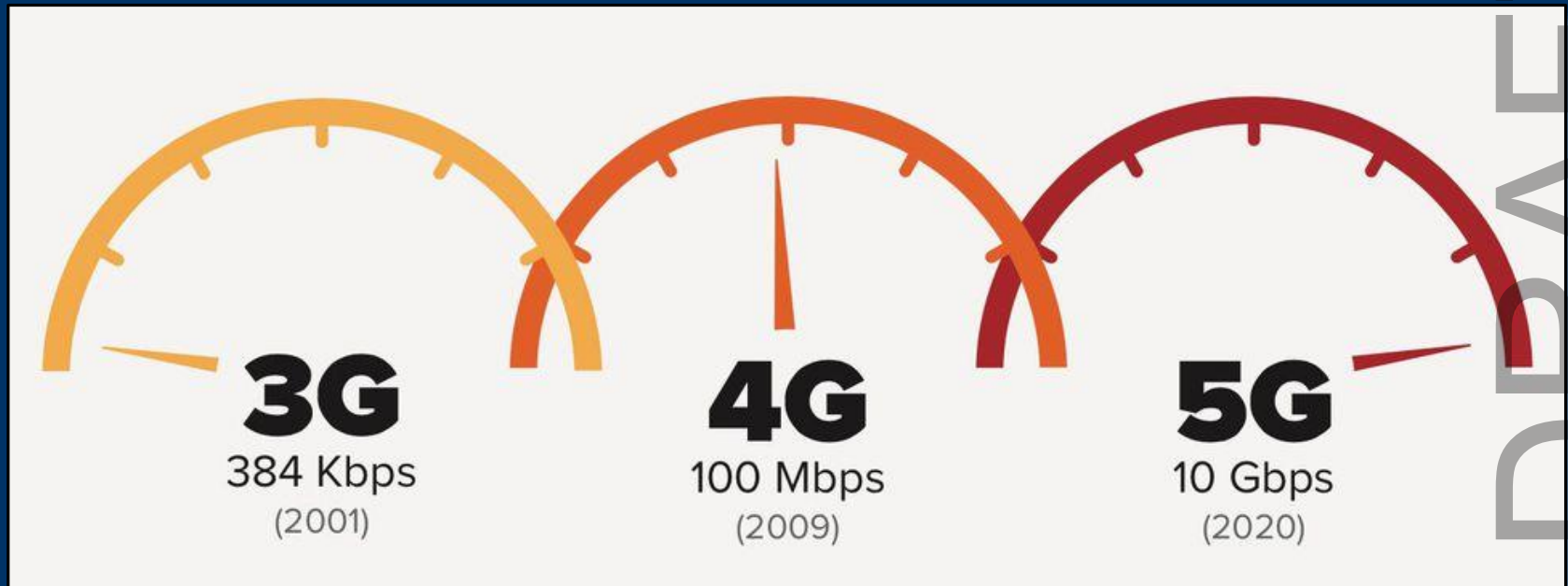
Section 4. That Article 6, Section 6.11- Radio, television or wireless transmitting and/or receiving facility as follows.



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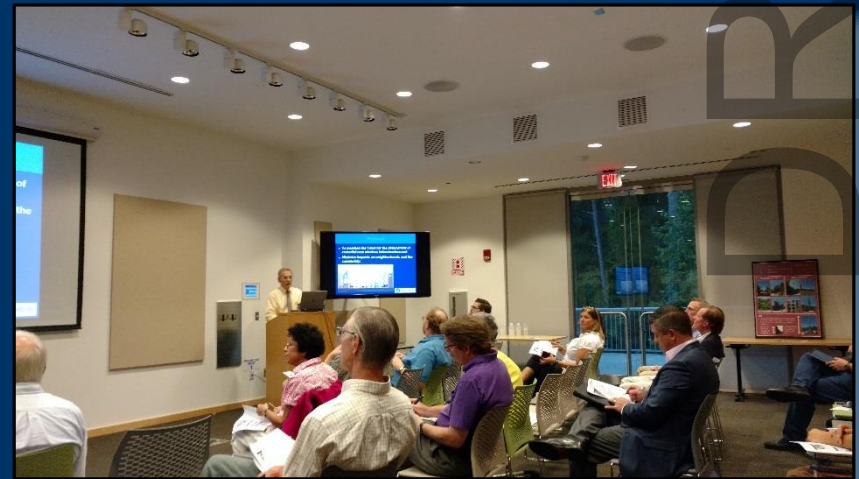
Is a Master Plan & Ordinance Needed?

Increasing Wireless Service Speeds



Poll Results & Public Meetings

- 87% Quality of wireless service is important
- 71% Rely on mobile device to great extent
- 36% Poor coverage where they live
- 44% Not willing to tolerate worse service to minimize visual impacts



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Wireless Communication Facility Types



Concealed
Dual-Purpose
Tower



Concealed Base
Station



Concealed
Small Cell



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Wireless Communication Facility Types



Non-Concealed
Mono-Pole
Tower



Non-Concealed
Base Station



Non-Concealed
Small Cell



Hierarchy of Preferences - WCFs

Future Wireless Infrastructure

1. Collocation on Existing Tower or Base Station
2. New Concealed Base Station
3. New Non-Concealed Rooftop Base-Station
4. New Concealed Dual-Purpose Tower
5. New Non-Concealed Base Station
6. New Non-Concealed Tower

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Hierarchy of Preferences - WCFs



1. Collocate on Existing Tower or Base Station



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Hierarchy of Preferences - WCFs



2. New Concealed Base Station



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Hierarchy of Preferences - WCFs

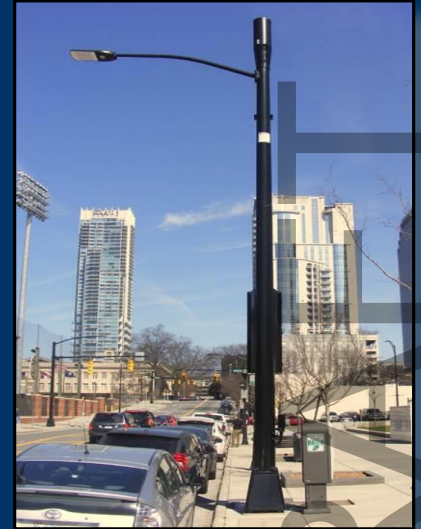


3. New Non-Concealed Roof-top Base Station



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Hierarchy of Preferences - WCFs



4. New Concealed Dual-Purpose Tower



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Hierarchy of Preferences - WCFs



5. New Non-Concealed Base Station



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Hierarchy of Preferences - WCFs



6. New Non-Concealed Tower



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Location Preferences

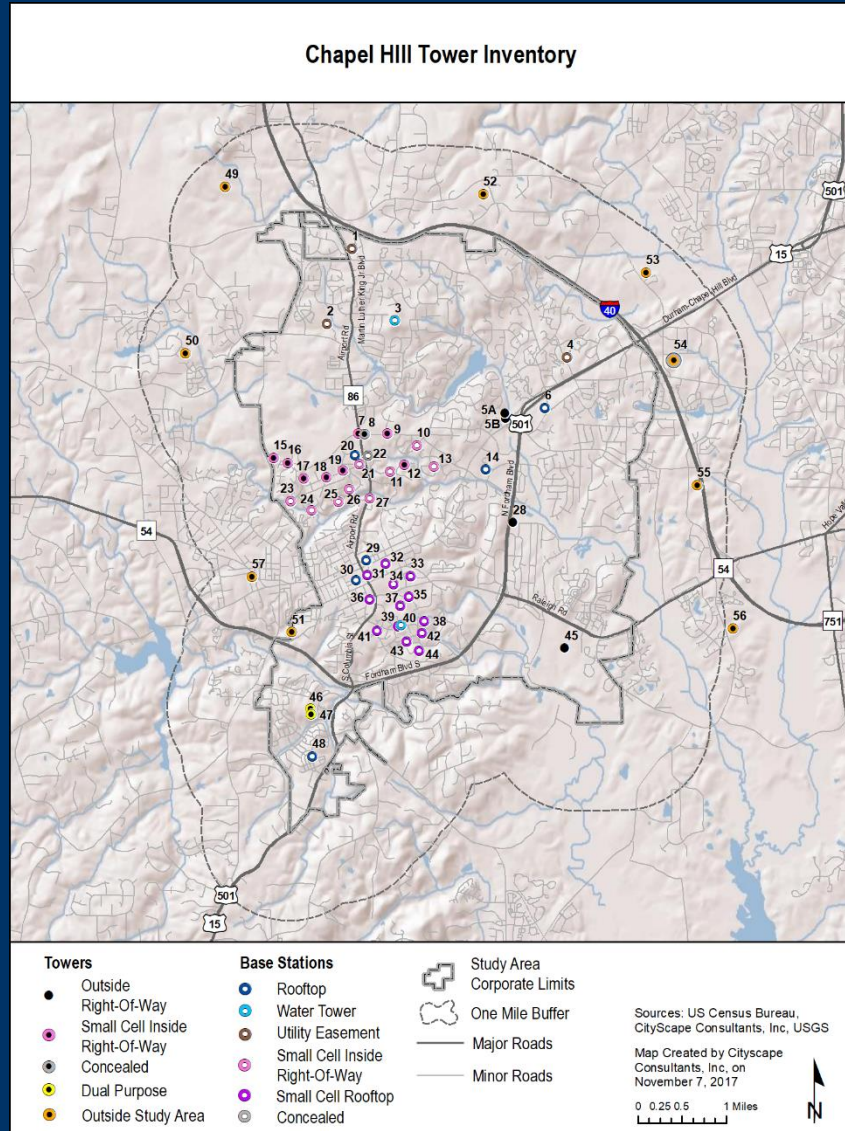
Future Wireless Infrastructure

- A. Town-owned land
- B. Other publicly owned land
- C. Private property
- D. In rights-of-way
 - 1. Non-residential districts
 - 2. Multi-family districts (where permitted)
 - 3. Single-family residential districts (where permitted)

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Wireless Communications Inventory



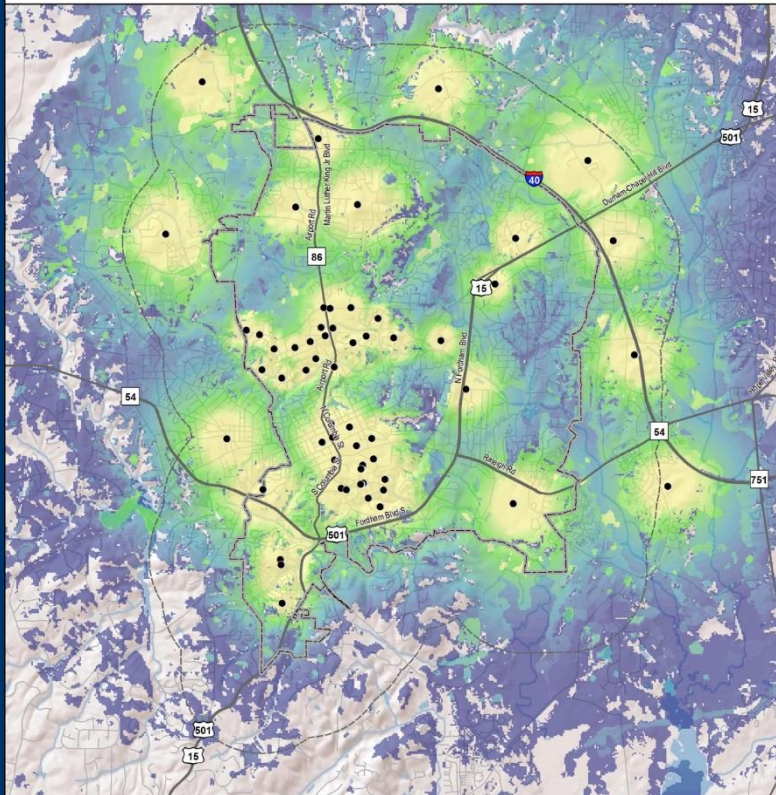
- 58 Total Facilities
 - 49 within Town limits
 - 9 outside Town limits
- More base stations than towers
- Blend of macro and small cell sites



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Gap Analysis

Theoretical High Frequency Coverage From All Potential Identified Sites Considering Topography, Vegetative Cover and Population Density



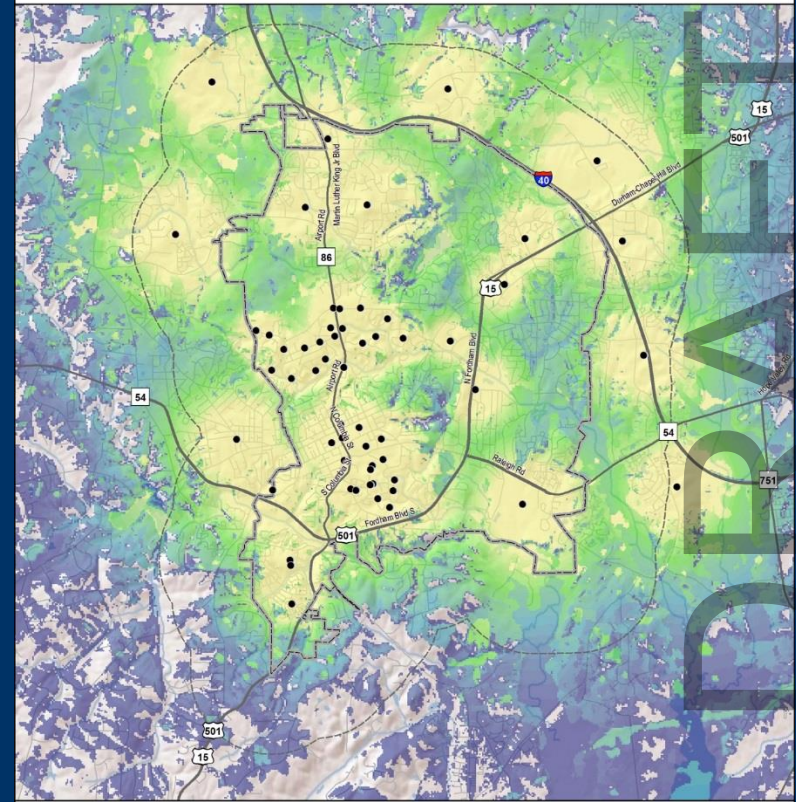
Existing Sites
● Tower or Base Station

Approximate Coverage
Indoor
In Vehicle
Outdoor

Study Area Corporate Limits
One Mile Buffer
Major Roads
Minor Roads

Sources: US Census Bureau, Chapel Hill GIS, CityScape Consultants, Inc., USGS
Map Created by CityScape Consultants, Inc. on November 8, 2017
0 0.25 0.5 1 Miles

Theoretical Low Frequency Coverage From All Potential Identified Sites Considering Topography, Vegetative Cover and Population Density



Existing Sites
● Tower or Base Station

Approximate Coverage
Indoor
In Vehicle
Outdoor

Study Area Corporate Limits
One Mile Buffer
Major Roads
Minor Roads

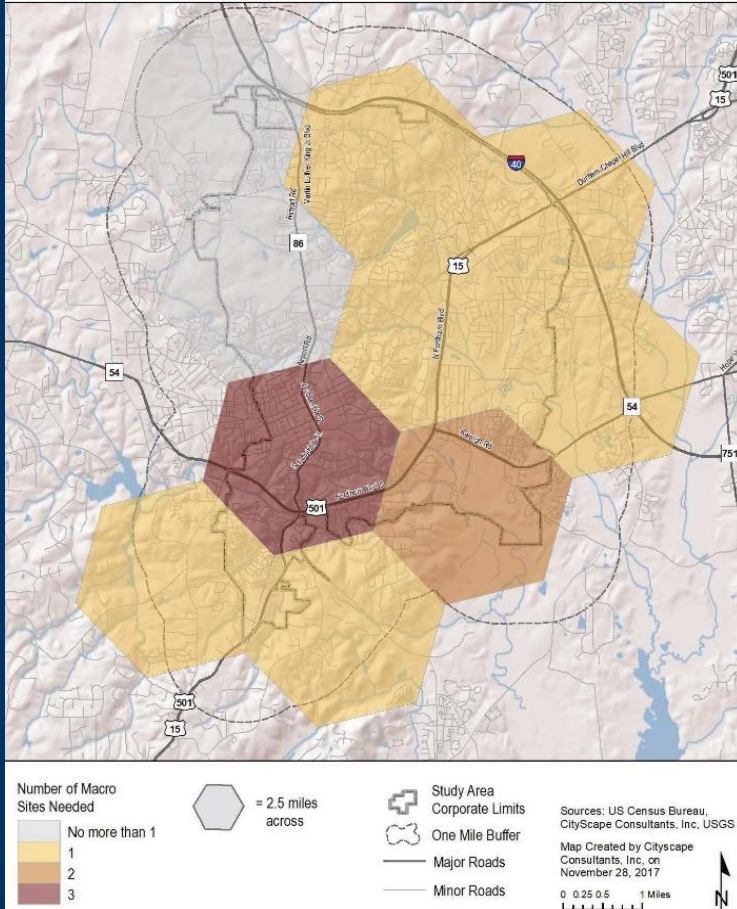
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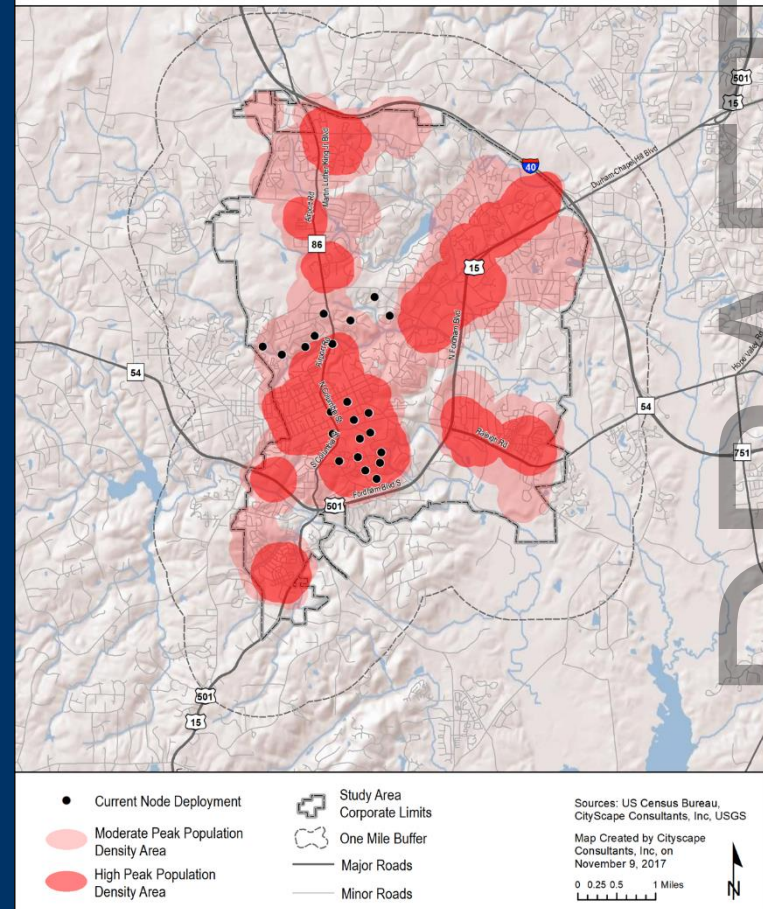
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Predicted Infrastructure

Approximate Additional Macro Sites Needed for All Providers to Accommodate Capacity at Peak using 4G, 10 Year Projection



Areas With Peak Population Density for Potential Small Cell Deployment



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Key Advisory Board Changes

- ✓ Simplify Permitted Use List
- ✓ Add Landscape Buffer Requirement
- ✓ Conceal Auxiliary Equipment
- ✓ That Town Inventory Existing Utility Poles

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Key Outcomes

- Better Wireless Service for Community
- More Predictable Permitting for WCF Types
 - Special Use Permits for larger-scale towers
 - Administrative approvals for smaller-scale facilities
 - Rules for Types and Locations of WCFs for Visual Impacts
- Congruence with Federal and State Laws



Decision Points

Continuation of Public Hearing: May 23, 2018

Wireless Communications Initiative

- Adoption of Master Plan Resolution
- Adoption of Resolution of Consistency with the 2020 Comprehensive Plan
- Enactment of Land Use Management Ordinance Text Amendment



Comments and Questions



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