

Staff Memorandum

Advisory Boards – 2/27 and 3/6/2018

Overview: The Town’s wireless communications network and the underlying regulations need to be updated to better serve the community. This coincides with a time when the telecommunications industry is about expand the scope and capacity of the wireless communications network. The purpose of the Chapel Hill Wireless Communications Initiative is intended to address these conditions by developing a framework for the efficient deployment of wireless communications facilities, to support the community’s day-to-day domestic, commercial, and institutional activities. To achieve this, CityScape Consultants, Inc. has worked with the Town to develop the proposed Wireless Master Plan and corresponding Wireless Ordinance. These will set the stage for future wireless communications infrastructure for better service while protecting community interests.

The Wireless Communication Initiative commenced in spring of 2017 in response to forthcoming wireless technology changes, new inquiries from the wireless industry, Federal and State regulatory changes and community concerns. The proposed Master Plan and Ordinance for wireless communications facilities will position the Town to benefit from coming changes as well as guard against unwanted impacts.



Recommendations:

Staff Recommendation: That the Community Design Commission and Planning Commission make recommendations that the Council adopt the proposed Wireless Communication Master Plan and enact the Wireless Communication Ordinance, scheduled for Council Public Hearing on April 18, 2018.

Advisory Board/Commission Recommendations:

Key: ✓: Approval recommended X: Denial recommended  : Comments		
Advisory Board/Commission	Support Staff Recommendation?	Notes/Edits
Community Design Commission		The Community Design Commission will consider the Wireless Master Plan and Ordinance on February 27, 2018
Planning Commission		The Planning Commission will consider the Wireless Master Plan and Ordinance on March 6, 2018

Key Issues:

- Does the preference ranking of Wireless Communications Facilities (WCFs) match what you believe is in the best interest of the community?
- Are maximum macro tower heights of 70 feet and 120 feet in residential and non-residential districts appropriate?
- Are the WCF types that require Special Use Permits appropriate?

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Overview of Master Plan and Ordinance

The use of smart wireless devices, including mobile phones and the like, continues to be integral to the communications of residents, students, businesses and emergency services. The Town of Chapel Hill's wireless communications infrastructure is the backbone for needed future network expansion to meet growing wireless usage demands. In the interest of improving the quality of Chapel Hill's wireless communications facilities the CityScape has developed the proposed Wireless Master Plan and Ordinance with community input. Key outcomes of the Master Plan and Ordinance are:

- Inventory existing Wireless Communications Facilities (WCFs);
- Map signal strength for the community;
- Project future WCF needs;
- Identify Town-owned property as potentially WCF sites;
- Recommend for 10-year deployment objectives; and
- Develop a Wireless Ordinance that provides corresponding policies, guidance, and protections to operationalize the Master Plan.

Process

The overall steps in the process to develop the proposed Wireless Master Plan and Ordinance are indicated below.

- Initial public meetings and Council Work session;
- Public poll;
- Inventory of existing wireless infrastructure throughout Town;
- Theoretical propagation mapping showing approximate signal coverage for wireless communication facilities¹;
- Public open house and status report to the Planning Commission;
- Projection maps of potential future network deployment patterns;
- Identification of Town-owned properties that could potentially be part of a network deployment solution for the community and wireless industry;
- Recommendations designed to meet ten-year network deployment objectives;
- Joint Advisory Board Work Session;
- Advisory Board and Council public meetings; and
- Council enactment of Wireless Communication Facility Master Plan and Ordinance;
- Ongoing Consultant support includes technical review of Wireless Communication Facility (WCF) applications as well as negotiating wireless lease agreements on Town property.

Wireless Communications Master Plan

Based on the wireless inventory catalog in the Master Plan, the following needs have been identified to supplement the existing 58 facilities (Master Plan pp. 32-33) that currently service Chapel Hill, to increase network capacity and meet increased network demands:

- Ten to twelve new macro towers, or base stations mounted on existing structures, within the Town limits over the next decade;

¹ Computer modeling to show the level of signal saturation in a given geographical area.

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- Significant number of small cell facilities, located on poles in rights-of-way, buildings, and other vertical structures, working in conjunction with the macro towers. We anticipate that these facilities will be gradually expanded over the next five-years, starting in higher-density, high traffic areas;
- Public properties identified for possible consideration for tower siting (Master Plan p. 44-45);

Wireless Communications Ordinance

The following standards are in the wireless ordinance to meet Federal and State law, and to balance the technical requirements of the telecommunications industry with minimizing unwanted impacts of wireless communications facilities²:

- Tower heights:
 - Outside public rights-of-way 120-foot limit in non-residential districts / 70-foot limit in residential districts; and
 - Inside public rights-of-way (typically poles): 50-foot limit by NC statute.
- Preference hierarchy for wireless communication facilities, in descending order:
 - Collocation on existing tower or base station;
 - New concealed base station;
 - New concealed dual-purpose tower;
 - New non-concealed base station; and
 - New non-concealed tower.
- Allowance for wireless communication facilities in residential districts:
 - Small cell facilities are allowed in public rights of way per NC statute; and
 - Concealed, dual-purpose base stations are allowed.

Table 1: Principal Differences - Existing and Proposed Wireless Ordinance

Existing Ordinance and Policy	Proposed Ordinance
General telecommunications standards, last amended in 1997, requiring Special Use Permits for wireless equipment, supplemented by the 1999 Telecommunication Tower Administrative Policy, allowing administrative approvals of some collocations.	Detailed, current standards, including for example, development standards for different wireless communication facility types (concealed and non-concealed base stations, macro towers, small cells, broadcast facilities, etc.)
Two definitions: 1) Radio or Television Transmitting and/or Receiving Facility and 2) <i>Accessory</i> Radio or Television Transmitting and/or Receiving Facility	Sixty-six detailed definitions, including for example, Base Station, Collocation, Concealed, Dual Purpose, Small Cell Facility, Substantial Change, Temporary WCF, etc.
Very limited allowance for facilities in residential districts.	Limited wireless communication facilities allowed in residential districts, including small cells in public rights-of-way.

² See Definitions, Section 5.20.3 in Wireless Communications Ordinance.

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Relationship to Chapel Hill 2020 Comprehensive Plan

The Wireless Telecommunications Initiative supports several themes and goals from the Town of Chapel Hill 2020 Comprehensive Plan, including:

- A Place for Everyone:
 - A welcoming and friendly community that provides all people with access to opportunities;
 - A community of high civic engagement and participation;
- Community Prosperity and Engagement:
 - Foster success of local businesses;
 - Promote a safe, vibrant, and connected (physical and person) community;
- Getting Around:
 - Create a comprehensive transportation system that provides everybody safe and reasonable access to all the community offers (in anticipation of a future with autonomous vehicles); and
- Good Spaces, New Spaces:
 - A community that welcomes and supports change and creativity.

Public Participation

Public participation is an important element of the proposed Wireless Master Plan and Ordinance process. During plan development, feedback is obtained from residents, elected and appointed officials, the wireless industry, and other stakeholders regarding current and future wireless deployment practices in Town. Stakeholder feedback has offered guidance to the Town staff and its consultants to build a plan that provides a framework for good mobile phone and wireless service coverage, while minimizing visual impacts from communications facilities. To be as inclusive as possible, a public participation process was included outreach at the following events:



- **September 18, 2017** - Town Council Work Session, with an introduction to Council about the Wireless Communications Initiative and its goals;

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- **September 21, 2017** – Kickoff public information meeting introducing the Wireless Communications Initiative project;
- **November 21, 2017** - Open house and status report to the Planning Commission, including a second draft of the wireless infrastructure inventory map, discussion of network gap analysis and ten-year estimations of needed infrastructure throughout Town, and discussion of poll results;
- **February 12, 2018** – Joint Advisory Board Work Session to review the proposed Wireless Master Plan and Ordinance;



- **February 27, 2018** – Community Design Commission hearing to obtain public feedback and make recommendations to Council for the proposed Wireless Master Plan and Ordinance;
- **March 6, 2018** – Planning Commission hearing to obtain public feedback and make recommendations to Council for Wireless Master Plan and Ordinance;
- **April 18, 2018** – Council public hearing to consider the proposed Wireless Master Plan and Ordinance and obtain public feedback; and
- **May 23, 2018** - Council business meeting to consider adopting the proposed Wireless Master Plan and enacting Ordinance.

Based on the wireless facility inventory and gap analysis produced by CityScape Consultants, there is an estimated need for ten to twelve new macro towers, between 70 and 120 feet tall, within the Town over the next decade. In addition, significant numbers of small cell facilities, mounted in the 35 to 40-foot height range, on poles in rights-of-way, as well as rooftops, would work in conjunction with the macro towers. These new wireless communications facilities will supplement the existing 58 facilities in the inventory that currently service Chapel Hill and increase network capacity to meet the large increases in network demand (see Master Plan pp. 32-33).

Poll results indicated a strong preference for improvements to service, especially in residential neighborhoods, with concealed facilities where possible, but not at the expense of providing service improvements. Based on this feedback, identified service gaps, and necessary compliance with

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Federal and State wireless communications regulations, CityScape consultants and Town staff identified the following goals:

- Provide robust wireless connectivity for residents, businesses, visitors and emergency management personnel;
- Protect community aesthetics by planning for well sited, well designed, concealed facilities so that the infrastructure aesthetically fits into the community;
- Manage the number and placement of infrastructure and associated equipment to include buildings, compound areas and ancillary equipment, to promote efficient wireless voice, broadband and public safety service delivery;
- Address safety of telecommunication facilities to minimize possible risk;
- Minimize the placement, frequency and density of new WCFs in the ROW for public safety considerations;
- Provisions to support an organized and efficient means for the wireless communication service industry and public infrastructure to reach residents and subscriber base Town-wide; and
- Maximize Town-owned and other publicly owned assets in order to set design standards and to create revenue opportunities for the overall benefit of the residents.

Summary

CityScape Consultants and Chapel Hill Town staff have worked with the public, industry, appointed and elected officials to allow for improvements to the Town's wireless communications network needed by the community for day-to-day business and domestic activities. To achieve this, we are proposing the attached Wireless Communications Facilities (WCF) Master Plan to provide the necessary road map and corresponding Ordinance to operationalize the Master Plan, to improve wireless capacity and service while minimizing impacts to the community. Please refer to the attached Wireless Communications Master Plan and Ordinance for more detail.

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Table 2: Wireless Communications Initiative Poll Results Summary

STATEMENTS	TOP THREE RESPONSES
Which best describes you:	93% Resident; 5% Telecommunications Industry Representative; 2% Business Owner
My service provider is:	47% Verizon; 29% AT&T; 9% Other
Network coverage where I live is:	36% Poor; 29% Good; 19% Acceptable
When I travel in and around Town, my network coverage is:	38% Good; 34% Acceptable; 14% Poor
I rely on my mobile device and corresponding services to a great extent:	71% Agree Entirely; 19% Agree Somewhat; 4% Neutral
The quality of wireless telecommunications service is important to me:	87% Agree Entirely; 9% Agree Somewhat; 2% Neutral
I would be willing to tolerate worse wireless telecommunications service to minimize visual impacts associated with the technology:	44% Disagree Entirely; 29% Disagree Somewhat; 12% Neutral
Choose the non-concealed tower you prefer: Monopole, Lattice or Guy with Support*	53% Monopole; 25% No Preference; 10% None of These
Choose the non-concealed tower you prefer: Light Stanchion, Wrapped Pole or Painted Pole*	27% Painted Pole; 22% Light Stanchion; 21% No Preference
Choose the concealed tower you prefer: Flag Pole, Slick Stick, or 3 Legged Pole*	38% Flag Pole; 24% Slick Stick; 16% No Preference
Choose the concealed tower you prefer: Clock Tower, Banner Pole, or Faux Dormer*	48% Clock Tower; 20% Banner Pole; 15% No Preference
Choose the concealed tower you prefer: Bell Tower; Tower as Art; or Monopine*	58% Tower as Art; 19% Monopine; 9% Bell Tower tied with 9% No Preference
Choose the non-concealed base station you prefer: Additional Pole in Utility Easement; Attachment in Utility Easement; or Water Tank*	32% Water Tank; 22% Attachment in Utility Easement tied with 22% No Preference; 14% Additional Pole in Utility Easement
Choose the base station do you prefer: Non-Concealed Rooftop; Non-concealed Below Roof Line; or Concealed Above the Roof top*	39% Concealed Above Roof Top; 25% No Preference; 19% Non-Concealed Rooftop
Choose the small cell facility you prefer: Non-Concealed; Semi-Concealed; or Concealed*	44% Concealed; 24% No Preference; 19% Semi- Concealed

*For examples of various types of wireless facilities and installations, see Wireless Master Plan pp. 52-53.