



Land Use

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.org

BOULDER COUNTY
BOARD OF COUNTY COMMISSIONERS AND PLANNING COMMISSION
STUDY SESSION ON TELECOMMUNICATIONS

Tuesday, October 15, 2019, at 2:00 p.m.

Commissioners' Hearing Room, Third Floor
Boulder County Courthouse, 1325 Pearl Street, Boulder, CO

Staff: Kathy Sandoval, Planner II, Land Use
Jacey R. Cerda, Assistant County Attorney
Nicole Wobus, Long Range Planning Manager

AGENDA

1. Introduction and background, presentation by staff
2. 10-minute presentation from panelists on topics/questions pertinent to their expertise
3. Q/A between panelists and PC and BOCC
4. Wrap up with discussion on Design Requirements and Guidelines

INTRODUCTION

Recent telecommunications dockets and a review of proposed small cell wireless-related Land Use Code updates spurred questions from the Planning Commission (PC) regarding: (1) the interrelationship between height, density, and emissions; (2) the feasibility and appropriateness of co-location; (3) third party verification; and (4) appropriate design requirements and guidelines for SCWF. This study session will address these questions through presentations from expert panelists and a question/answer period between the PC/BOCC and panelists.

This document includes background information and context for the study session focus questions, as well as an overview of the study session format.

ACTION REQUESTED

No action is requested. This is a discussion study session only.

CONTENTS

Section	Description	Page
Section I	Objectives and Scope of Study Session	2
Section II	Background	3
Section III	Action Requested	8
Section IV	Hyperlinks to Related Content	8
Appendix A	Legal Fact Sheet	9

I. OBJECTIVES AND SCOPE OF STUDY SESSION

The objectives of the study session are to:

- Gain a better understanding of the interrelationship between telecommunication-related topics (e.g., tower height, co-location and density of infrastructure) to inform decision making and to determine whether potential additional Land Use Code changes may be warranted.
- Provide Planning Commission and Board of County Commissioners with an opportunity to jointly discuss how to address challenging topics related to telecommunications infrastructure decision making, and the proposed Design Requirements and Guidelines for the small cell wireless-related Code update.
- Determine what, if any, role third-party verification can play in review of telecommunications infrastructure decision making.

The scope of the study session was determined based on Planning Commission discussion that occurred as part of their July 2019 meeting, as well as additional consideration by staff and the Board of County Commissioners.

Panelists:

Panelists for this Study Session include Jacey Cerda, Assistant County Attorney, who will briefly lay out the legal landscape for regulating telecommunication facilities. Mike Cotton, a staff representative from the Institute of Telecom Sciences, the research and engineering arm of the National Telecommunications and Information Administration of the United States Department of Commerce. And, Dr. Kevin Gifford, PhD, a scholar in residence at the University of Colorado Boulder's Technology, Cybersecurity, and Policy program. Staff also contacted several potential panelists in the field of third-party verification and public health but were unable to schedule panelists specific to those fields. However, Dr. Jonathan Samet, MD, who is the Dean of the Colorado School of Public Health will submit reference comments.

Focus Topics and Questions:

- Interrelationship between height, density, and emissions
 - Does encouraging colocation or consolidation of towers inappropriately increase RF emissions in terms of FCC rules and potential health or environmental impacts?
 - How does the relationship between height, density, and emissions change for macro-towers versus small cell towers?
 - How do carriers monitor their RF emissions?
 - What can the County do make sure emissions are meeting FCC requirements?
- Co-location: feasibility, analysis guidelines, incentives
 - Should the County be encouraging/requiring silo (or other similar) structures for co-location, particularly for macro-towers?

- What guidelines should the County use for analyzing and requiring/encouraging co-location?
- Third Party Verification
 - Is it feasible for the County to use third party verification for every tower application?
 - What types of third-party verification services are available?
 - Are third party verifiers able to acquire and analyze data presented by carriers to determine whether carriers' alternative sites analysis is adequate and accurate?
- Design Requirements and Guidelines
 - How should the PC and BOCC weigh the different requirements of the BCCP?
 - Based on the discussion today, should the DRG change in any manner?

II. BACKGROUND

To facilitate a deeper discussion of the focus topics for this study session, this section includes a summary of the last ten years of Telecommunication Facility applications in unincorporated Boulder County, as well as an overview of the small cell wireless-related Land Use Code update.

A. Existing Telecommunications Infrastructure in Boulder County

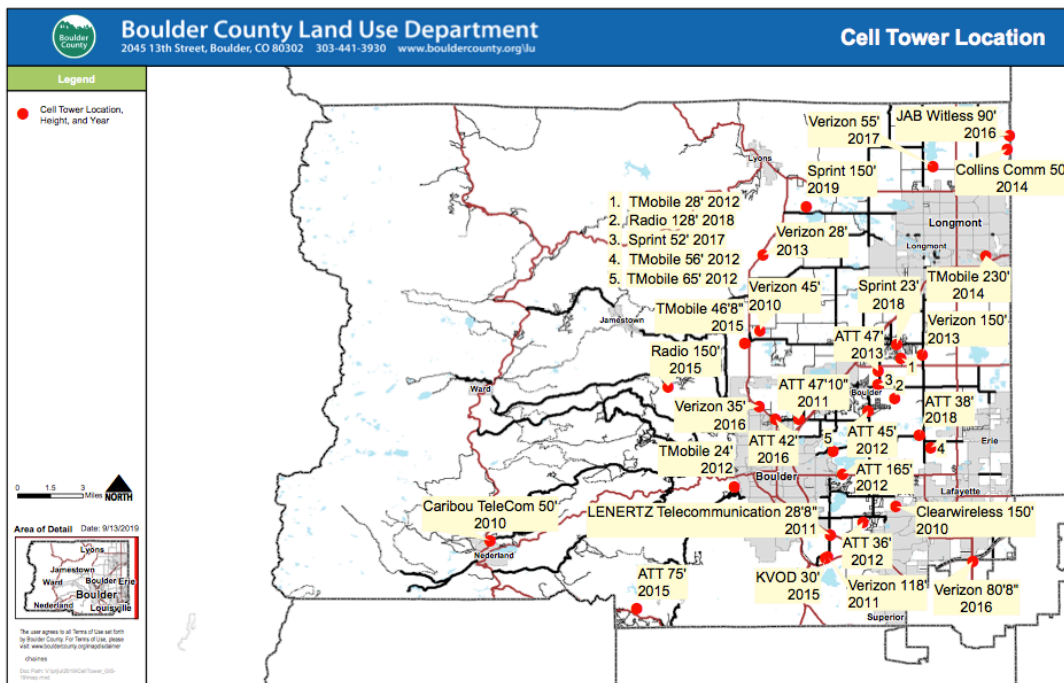
Table 1 presents a summary of the number of approved applications per year, and whether those applications occurred through (1) a Site Plan Review (SPR) process, indicating that the telecommunications facility was a new facility that would use an already existing structure that met the height requirements for the zoning district of its location; or (2) through a Special Review (SU) process, indicating the facility was a new facility and structure that exceeded the height of the zoning district of its proposed location. Table 1 also outlines the number of building permits issued in total for telecommunication facilities during the sample period. Building permits are required regardless of whether a land use process is required as described above, or if the facility is only undergoing replacement. Thus, of the 63 building permits issued, 48 of them were related to upgrades; 9 were new facilities on existing structures; and 13 were completely new facilities on new structures. The upgrades include antenna and equipment improvements. Many of the existing facilities are on structures like silos or buildings. New facilities are on stand-alone towers, structures or monopines.

Table 1. Ten Year Sample Telecommunications Facility permits and applications.

Year	Building	SPR	SU
2010	3	1	4
2011	4	6	2
2012	10	8	1
2013	5		
2014	2	1	1
2015	10	1	
2016	12		1
2017	6		1
2018	9		3
2019	2		
Grand Total	63	17	13

Figure 1 is a map of the total number of telecommunication facilities that were approved within Boulder County during the sample period. Each dot represents one or more towers and indicates the operator, height, and approval year. Most of the facilities are closer to the denser part of the County by adjacent incorporated towns. The tallest facility is 230 ft. and located on the silo of the old Western Sugar Company property adjacent to the City of Longmont.

Figure 1. Map of approved telecommunication facilities from 2010 through 2019.



The following figures demonstrate the typical types of telecommunication facilities currently present in Boulder County.

Figure 2. Antenna on water tank at 6542 Somerset Drive

6452 SOMERSET DR



Figure 3. Antenna Structures on Building and separate structure at 7493 Old Mill Trail



**Figure 4. Monopole Macro-Cell Facility at 6589 95th Street
6589 95TH ST**



Figure 5. Monopine Macro-Cell Facility at 32897 Coal Creek Canyon Drive.

32897 COAL CREEK CANYON DR



Telecommunication facilities are also placed on silos and other existing structure, and “stealth silos” where multiple facilities may be co-located are also present within the County. In addition to these private carrier telecommunication facilities, the County also has several Public Safety Telecommunications Towers.

B. Small Cell Telecommunications-Related Land Use Code Update

On February 14, 2019, the Board of County Commissioners (BOCC) authorized staff to pursue text amendments to the Land Use Code. The Code needs amendment to streamline and clarify Code provisions, and provide for appropriate Land Use review of telecommunications facilities, including Small Cell Wireless Facilities (SCWF). The amendment is timely and necessary because the Federal Communications Commission (FCC) recently updated its interpretation of the Telecommunications Act of 1996 with regards to local government regulation of all types of telecommunication facilities, and issued new orders regarding SCWF that restricted the following: (1) the allowed timeline for local government review and approval of SCWF; (2) the amount of fees local governments may require for approval, siting, and permitting processes; and, (3) the type of aesthetic and design requirements local governments may place on SCWF. Furthermore, relevant Colorado statutes were revised in April 2017 in anticipation of the future deployment of SCWF, and those statutes substantially reflect the FCC’s interpretations and orders restricting local government regulation of SCWF.

The proposed Code amendments will ensure compliance with the FCC’s September 26, 2018 Declaratory Ruling and Third Report and Order (“Order”) interpreting the Telecommunications Act of 1996 and providing rules for streamlining state and local review of SCWF siting applications. The Order limits local authority regarding the placement, construction, and modification of wireless telecommunication facilities, thus requiring an update to the county’s Code regarding all telecommunication facilities. The Code amendments will thus streamline and clarify existing Code provisions related to telecommunication facilities overall and provide for Land Use review processes applicable to the development of SCWF.

Staff from Boulder County Land Use, Transportation, and the County Attorney’s office identified key topics and priorities for the Code update and related regulations. The proposed Code language is informed by a literature review of FCC and state requirements, sample code examples from the National League of Cities/National Association of Telecommunications Officers and Advisors, and from other County and City jurisdictions. Staff met with telecommunication industry representatives (“carriers”) to better understand SCWF and the carriers’ intentions for deployment of SCWF, technological requirements, and carriers’ suggested Code language. Staff also hosted a local planner meeting with representatives from the Cities of Boulder, Longmont, and Lafayette, and the Town of Nederland to better understand those jurisdictions’ processes and requirements for SCWF.

In contrast to macro-cell telecommunication facilities (i.e. towers greater than 50 feet tall with large accessory buildings and structures) that provide overall coverage for wireless telecommunications, SCWF enhances the capacity for and speed of data usage. SCWF are therefore typically deployed in areas with heavy demand for data (e.g. public squares,

downtown pedestrian areas, campuses, sport stadiums, etc.). SCWF will likely need to be on new towers or existing vertical infrastructure (e.g. utility poles) every 200 to 600 feet and will primarily be located in the county's ROWs. Federal and state law preempts the county's ability to regulate SCWF, other than regarding aesthetic, fee, and permitting requirements that are reasonable, objective, and published in advance (Appendix A).

Scope of Proposed Text Amendments

- Revisions to the structure of the existing Code provisions related to telecommunications.
- Clarification of the Telecommunication Facility definition and addition of a definition for Small Cell Wireless Facility.
- Creation of Land Use process for Small Cell Wireless Facility applications and delineation of required application materials and processes.
- Addition of a new Administrative Review process in the Code.

III. ACTION REQUESTED

Staff requests input and guidance from PC and BOCC related to the study session focus questions.

IV. Hyperlinks to Related Content

- [Small Cell Wireless Code Update July 2019 Planning Commission Staff Report](#)
- [Design Requirements and Guidelines for Small Cell Wireless Code Update](#)

APPENDIX A

Small Cell Wireless Facilities Fact Sheet **For Informational Purposes Only**

Federal Definition

- Facilities mounted on **towers less than 50 feet** high.
- **Antennas** are no bigger than **3 cubic feet**.
- **Base** structure is no bigger than **28 cubic feet** in volume (Colorado state law defines as less than 17 cubic feet in volume).

Purpose

- **Capacity** for data bandwidth.
- Tall towers are still necessary for coverage, small cell towers are necessary to densify the network such that there is enough bandwidth for the exponential growth in data usage.
- They are not solely for 5G. For example, Verizon is putting in small cell towers in City of Boulder now, for enhancing their 4G capacity; however, their poles will allow for 5G antennas to be mounted above the 4G antennas, when they are ready to roll out 5G.

Deployment

- The poles will likely all be in the ROW because they need 360 degrees.
- Some carriers (Verizon & AT&T) working with Xcel to replace light and other poles with their small cell poles.
- Carriers state that they need poles every 200 to 600 feet to provide the necessary density for data capacity.
- Poles must be connected to fiber and power.
- Carriers indicate they are not willing to collocate with each other at the moment due to interference, but they are willing to collocate on Xcel poles and other such infrastructure.
- Will “bundle” multiple poles into a single application – typically 5-20 per app.

Telecommunications Act of 1996

- Sections 253(a) - "No State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service."
- Section 332(c)(7) - "The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof:
 - (I) shall not unreasonably discriminate among providers of functionally equivalent wireless services; and
 - (II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services."

- Section 332(c)(7)(B)(ii) - "A state or local government or instrumentality thereof shall act on any request for authorization to place, construct, or modify personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request."

FCC Third Declaratory Order

- Effective prohibition – may occur from restricting entry of a new provider, materially inhibiting new services, or materially inhibiting existing services.
 - Essentially anything that impedes the provision of telecommunication service.
- Fees may be considered an effective prohibition unless:
 - The following are presumptively reasonable:
 - (a) \$500 for non-recurring fees, including a single up-front application that includes up to five Small Wireless Facilities, with an additional \$100 for each Small Wireless Facility beyond five, or \$1,000 for non-recurring fees for a new pole (i.e. not a collocation) intended to support one or more Small Wireless Facilities; and
 - (b) \$270 per Small Wireless Facility per year for all recurring fees, including any possible ROW access fee or fee for attachment to municipally-owned structures in the ROW.
 - Additional fees allowed only if the local government can show:
 - Fees are a reasonable approximation of costs;
 - Those costs themselves are inherently reasonable; and
 - Are non-discriminatory
- Aesthetic requirements may also be considered an effective prohibition if too onerous; however, they are allowed under the following conditions:
 - They are reasonable – technically feasible and reasonably directed to avoiding or remedying the intangible public harm of unsightly or out of character deployments.
 - They are no more burdensome than those applied to other infrastructure deployments; and
 - They are objective – must incorporate clearly-defined and ascertainable standards, applied in a principled manner – and must be published in advance.
- Shot Clocks
 - Full review – including pre-app (if mandatory) all the way through to issuing all necessary permits
 - 60 days for collocation on pre-existing structures (Colorado law states 90 currently, but was enacted before FCC weighed in).
 - 90 days for new structure (Colorado law states 150 currently, but was enacted before FCC weighed in).
 - Shot clocks start when application submitted, local government has 10 days (Colorado law currently says 30 days) to state it is incomplete and restart clock, or the clock continues.

Colorado Law

- Local entity shall allow bundling of poles in application.
- CRS 29-27-404(3) - “The siting, mounting, placement, construction, and operation of a small cell facility or a small cell network is a permitted use by right in any zone.”
- CRS 38-5.5-103
 - (2) A political subdivision shall not discriminate among or grant a preference to competing telecommunications providers or broadband providers in the issuance of permits or the passage of any ordinance for the use of its rights-of-way, nor create or erect any unreasonable requirements for entry to the rights-of-way for the providers.
 - (3) A political subdivision shall not regulate a telecommunications provider or a broadband provider based upon the content or type of signals that are carried or capable of being carried over the provider's facilities; except that nothing in this subsection (3) prevents regulation by a political subdivision when the authority to regulate has been granted to the political subdivision under federal law.
- CRS 38-5.5-104
 - Any domestic or foreign telecommunications provider or broadband provider authorized to do business under the laws of this state has the right to construct, maintain, and operate lines of communication, switches, and related facilities, and communications and broadband facilities, including small cell facilities and small cell networks, and obtain a permanent right-of-way for the facilities over, upon, under, and across all public lands owned by or under the control of the state, upon the payment of just compensation and upon compliance with reasonable conditions as the state board of land commissioners may require.
- CRS 38-5.5-104.5
 - Except as provided in subsection (2) of this section and subject to the requirements and limitations of this article 5.5, [sections 29-27-403](#) and [29-27-404](#), and a local government entity's police powers, a telecommunications provider or a broadband provider has the right to locate or collocate small cell facilities or small cell networks on the light poles, light standards, traffic signals, or utility poles in the rights-of-way owned by the local government entity; except that, a small cell facility or a small cell network shall not be located or mounted on any apparatus, pole, or signal with tolling collection or enforcement equipment attached.