



Date of Council Meeting: January 11, 2016

**TOWN OF LEESBURG
TOWN COUNCIL MEETING**

Subject: Small Cell/Distributed Antenna Systems Telecommunication Systems

Staff Contact: Chris Murphy, Zoning Administrator

Council Action Requested: Work session discussion item. No action is required by Council at this time.

Staff Recommendation: Staff does not have a recommendation at this time.

Commission Recommendation: Not applicable at this time.

Fiscal Impact: Not evaluated.

Work Plan Impact: Not applicable at this time.

Executive Summary: The Town Council initially requested information regarding the approval process for telecommunications antennas in the Town late last year. As a result, an Information Memorandum was presented by staff on September 8, 2015. That memorandum explained current regulations pertaining to antennas, monopoles/power mount, and transmission tower type facilities. In addition, the September memorandum provided information regarding the new technology of Small Cell/DAS (Distributed Antenna Systems). See Attachment 1.

On November 10, 2015, Mr. Ed Donohue of Donahue & Stearns (a law firm that specializes in land use legal issues for deployment of wireless infrastructure) made a presentation to Council proposing text amendments to the Zoning Ordinance that would allow greater distribution of telecom facilities by allowing Small Cell/DAS by right in all zoning districts including residential and planned districts, and by expanding the definition of "Structure" (Sec. 18.1.180) to include light poles and utility poles as structures on which telecommunication systems could be co-located. See Attachment 2.

Subsequent to the November 10, 2015 presentation, staff met with Mr. Donohue and representatives from telecom service providers on December 16 to further discuss Small Cell/DAS systems.

Background: According to the Pew Research Center, as of 2015, 64% of Americans own a Smartphone device which is up from 35% in 2011 or an increase of 83% in four years. With this increase in ownership of evermore powerful devices, there is also an increase in demand for data

bandwidth to service those devices. As a result, telecommunications service providers are trying to meet consumer demand by building more widespread systems. In order to help facilitate the work session discussion, staff will answer specific issues raised in Mr. Donohue's presentation from November. (Attachment 2).

The Zoning Ordinance currently allows co-location of telecommunication infrastructure by special exception application and by-right, depending on the type of telecom facility and depending on the zoning district.

The Town permits co-location installations on transmission poles (i.e., power mount facilities) by special exception in the B-2, B-3 and I-1 Districts. At present, there are approvals for two power mount facilities: 1.) Village at Leesburg Parcel D (I-1) and 2.) Westpark Golf Course (B-3).

Antenna, Small Cell/DAS systems like those depicted in Mr. Donohue's slides are currently permitted by right on buildings (with use standards) in the O-1, B-1, B-2, B-3, B-4, I-1, CD-MUR, CD-C, CD-MUO, and CD-CC Districts, or on a government-owned structure in any zoning district.



On May 1, 2015 a Zoning Permit was issued to permit a DAS antenna to be collocated on the building at 15 Catocin Circle, SE. (TLZP-2015-0184)

Telecommunication facilities are not permissible in any of the Town's Residential Districts (R-districts). However, because of the allowance to co-locate on government-owned facilities anywhere, there are presently two co-location installations approved in R-Districts: 1.) The Leesburg Hospital Water Tank zoned R-6 and 2.) The Hogback Mountain Water Tank zoned R-4.



Mr. Donohue's clients suggest broadening the opportunities to expand telecom infrastructure in Leesburg by permitting Small Cell/DAS systems in every zoning district, by right with use standards, such as the following:

1. *Small cell antennas shall not exceed 27"H x 21"W x 8"D*
2. *DAS node antennas shall not exceed six feet (6') in height or twelve inches (12") in diameter.*
3. *Any related equipment shall not exceed 30"H x 25"W x 20"D*
4. *When related equipment is installed on a rooftop, such equipment shall not occupy more than twenty-five (25%) of the rooftop.*
5. *Small cell and DAS antennas shall be fully screened or painted to match the structure on which installed.*

In addition, Mr. Donohue also suggests amending the definition of "Structure" (TLZO Sec.18.1.180) to include light poles and utility poles, as follows:

Anything constructed or built for use, occupancy, or ornamentation whether installed on, above, or below the surface of land or water including, among others, buildings, stadiums, gospel and circus tents, platforms, stagings, observation towers, telecommunications towers, radio and TV broadcasting towers, water tanks, trestles, piers, open sheds, coal bins, shelters, walls, power line towers, pipelines, railroad tracks, light poles and utility poles.

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By expanding the use into Residential and Planned districts, and including light poles and utility poles as “structures” this would effectively make every light pole in every commercial or residential development, and every utility pole on every street anywhere in Town eligible for a by-right installation of a Small Cell/DAS antenna. As a by-right use, the Town has limited ability to apply any stricter review of any application beyond checking for compliance with any applicable use standards. Provided below are some photos of Small Cell/DAS facilities that would comply with the use standards suggested by Mr. Donohue in his November presentation:

The first two photos show single antenna installations on utility poles.



When there are multiple antennas on a single pole, the installations look like the following:



| Each antenna requires its own separate equipment box. These boxes can be located on -utility and light poles or can they can be ground mounted at the base of the pole. The pictures below show both examples.





Note that telecom facilities that are located in the public right of way will require a license or franchise agreement and public right of way permits from the Town regardless of whether they are Small Cell/DAS facilities or other types of telecom facilities.

Staff offers the following questions to facilitate dialog on this topic:

- Does Council wish to make the location of all Small Cell/DAS systems by-right (ie. no special exception required) in all Non-residential districts? Residential districts? Planned districts?
- Does Council wish to have separate zoning review standards (i.e. performance use standards) for residential districts?
- Consider the performance use standards suggested in this memo. Are these standards appropriate? Are there other factors that Council wishes to include?



ATTACHMENT 1

Date of Council Meeting: September 8, 2015

Information Memo

**TOWN OF LEESBURG
TOWN COUNCIL MEETING**

Subject: Approval Process for Telecommunication Antennas in the Town

Staff Contact: Barbara Notar, Town Attorney
Chris Murphy, Zoning Administrator

Council Action Requested: None.

Staff Recommendation: None.

Commission Recommendation: Not applicable.

Fiscal Impact: Not evaluated.

Work Plan Impact: Not applicable.

Executive Summary: The Town Council has requested information regarding the approval process for telecommunication antennas in the Town.

Background: Antennas to transmit wireless communications are governed by the Telecommunications Act of 1996 (47 U.S.C.) which are federal regulations that comprehensively encourage the deployment of telecommunications services. The Act allows localities to govern site decisions through their zoning ordinances, but the Act prohibits localities from adopting regulations that prohibit or have the effect of outright prohibiting wireless services, or that unreasonably discriminate against providers. The Act requires localities to act on applications for approval of wireless facilities within a reasonable period of time, and if the locality denies a request, the denial must be in writing, and supported by substantial evidence. Most important for the Town, the Act allows localities to prohibit wireless facilities within certain zoning districts, and to allow wireless facilities through a special exception.

Zoning Ordinance Section 9.3.26, Telecommunications Facilities, governs the application process and the site selection process for telecommunication facilities within the Town.

Currently, the Town recognizes four types of wireless telecommunications facilities:

- Antennas
- Monopole/Power Mount Facilities
- Transmission Tower (lattice type)
- Temporary Mobile Land-Based Telecom Testing Facility

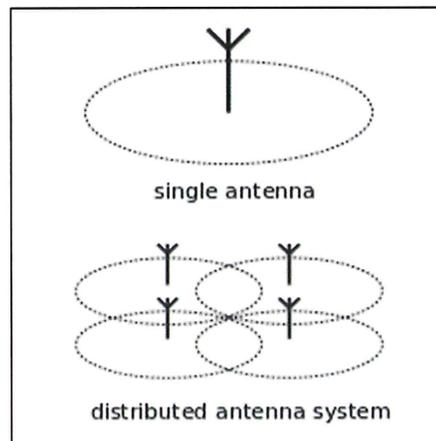
In accordance with the 1996 Telecommunications Act, the Zoning Ordinance provides for applicable use standards for each facility type referenced above. Each of these facility types provided for in the Zoning Ordinance are either co-located on existing structures, (antennas and Power Mount) or built as freestanding purpose-built facilities (Monopole, Transmission Tower, and Temporary Mobile Land-Based Telecom Testing Facility). Current zoning regulations do not provide for installation of telecommunications facilities on things that are not considered “structures” such as utility poles, parking lot light poles, signs, etc.

Recently, because of the widespread use of smart phones, telecommunications carriers are attempting to provide greater bandwidth in more locations in order to meet ever increasing voice and data demands of their customers. In order to meet these demands, telecom carriers have begun to deploy DAS or Distributed Antenna Systems.

Distributed Antenna Systems or DAS is a new technological solution for coverage enhancement of cellular systems applications for inside building coverage (iDAS), or outside areas (oDAS), such as stadiums and campuses. Town staff has been approached by consultants representing specific telecommunications carriers who wish to install outside, or oDAS at various locations within the Town.

DAS is best described as a series of smaller antennas distributed around a particular site to enhance coverage instead of relying on the main cellular communication system made up of the series of monopole and tower locations.

In an outdoor application of DAS, (oDAS) a series of antenna (and their associated equipment boxes) would be installed throughout a particular property. In recent discussions with telecommunications representatives, staff has been told that carriers wish to install oDAS antenna on light poles in parking lots at places such as the Outlet Mall, Leesburg Plaza Shopping Center, etc.



Some examples of what oDAS antennas look like are provided below:



However, because the Zoning Ordinance's Telecommunications Facilities regulations only provide for applications co-located on structures or on purpose-built structures, an oDAS installed on parking lot light poles is not a permissible telecommunications facility in Leesburg.

Some important questions about oDAS systems and their proposed applications in Leesburg have not yet been answered clearly by telecommunications representatives. From a land use standpoint, and from an aesthetic standpoint, staff feels it is important to have definitive answers to the following questions, at a minimum:

1. How much equipment is required per pole, either on the pole itself and/or ground mounted; what effect will this have on the use of the parking facility; will parking spaces be eliminated/used up for ground mounted equipment, etc.?
2. In the instance of the Outlet Mall application, how many antenna locations will be required for that oDAS?
3. If one carrier installs their oDAS on the light poles at one location, can other carriers use that same system (co-locate), or must each carrier build its own oDAS

network at each site? If that is the case, what will that look like, what affect will that have on the use of the property?

However, because the Telecommunications Facilities regulations only provide for applications co-located on structures or on purpose-built structures, an oDAS installed on parking lot light poles is not a permissible telecommunications facility.

In the right side photograph provided above we see what appears to be a single antenna with a single ground-mounted equipment box.

In the photograph provided here, we see an instance where there are two oDAS antenna on a single pole. In the next photograph, there are multiple equipment boxes on a single pole. Do these photographs represent what would be required to provide service for multiple carriers in a single location? If the current technology requires that each individual telecommunications carrier develops its own individual DAS at a single location there could be negative impacts on the Outlet Mall property from a land-use perspective and/or aesthetics perspective.



The Telecommunications Act of 1996 stipulates that a locality cannot unreasonably discriminate between telecommunications providers using the same technology. Therefore, if you allow one carrier to develop an oDAS at the Outlet Mall, you must also allow every other carrier to develop their own separate oDAS at the Outlet Mall.

Considering the major carriers (Verizon, AT&T, T-Mobile, Sprint) there exists the potential for parking lots to become a forest of telecommunications equipment if these systems cannot otherwise be consolidated and shared between carriers.

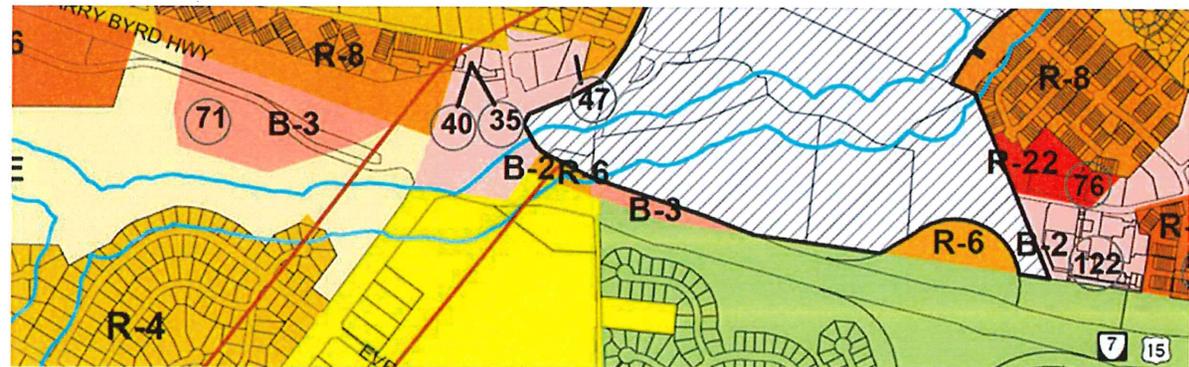
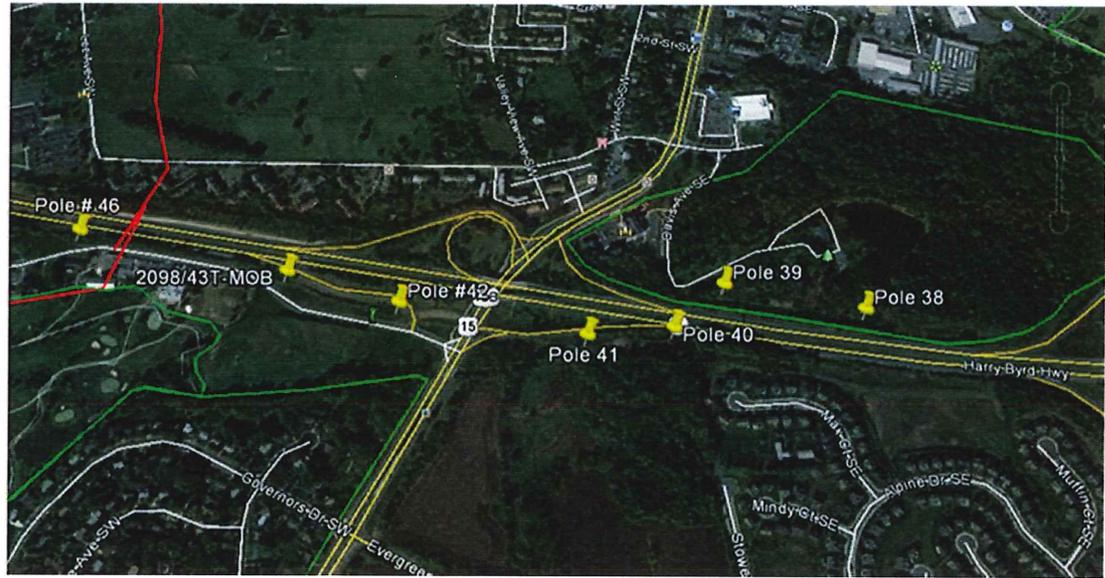
Town of Leesburg - Telecommunications Facilities

Proposed Text Amendments to
Provide for Small Cell/ DAS
installations

Town Council Meeting
November 10, 2015

This Is About Colocation Opportunities

This is primarily about existing structures that are not being utilized to enhance coverage for Town of Leesburg residents, workers and visitors and that could with minimal visual impact – for example, transmission poles.



Amendments to Address Small Cells/ DAS Are Needed in Many Jurisdictions

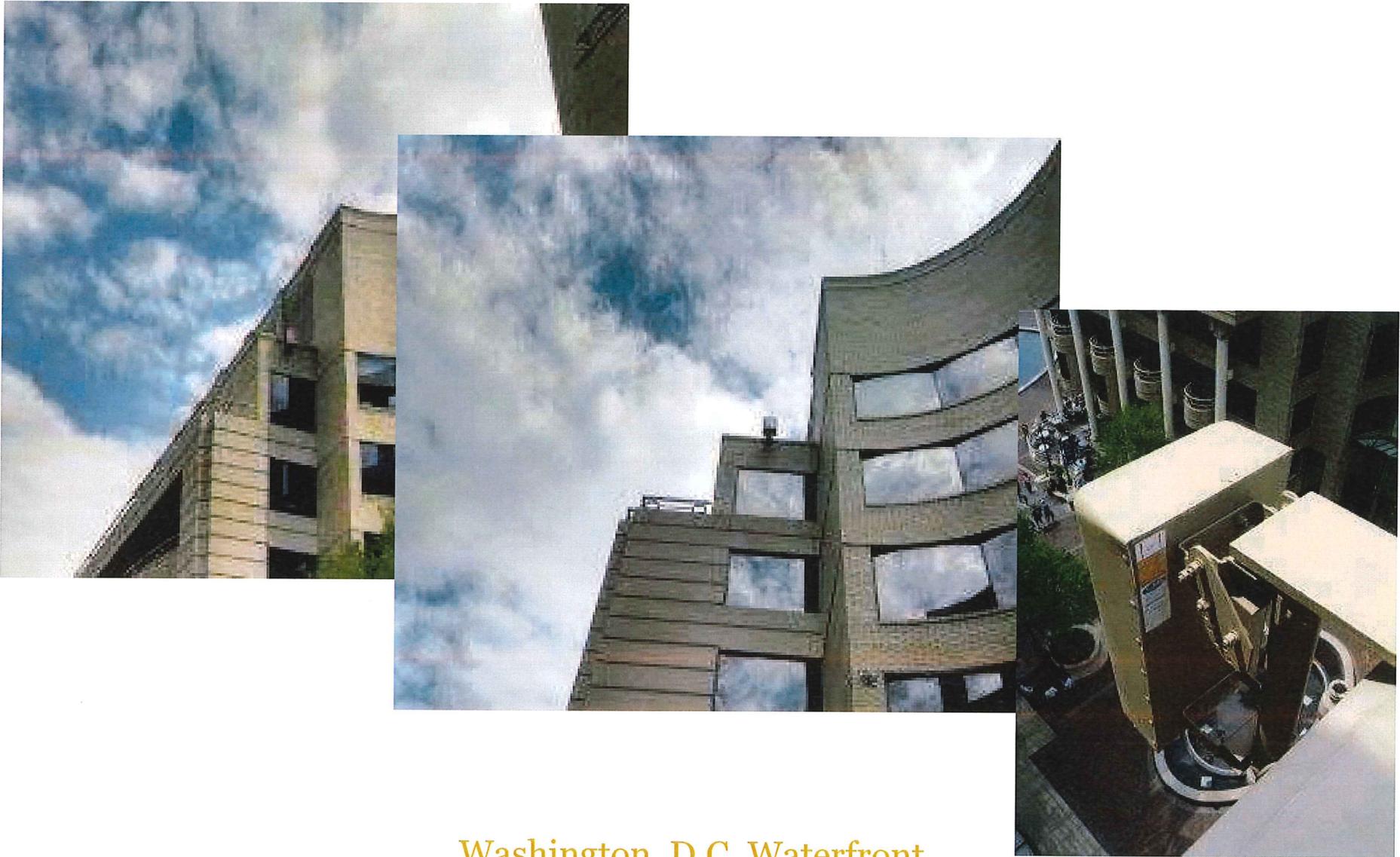
- The carriers are also working with jurisdictions like Reston, Herndon, Arlington and Alexandria to establish specifically-tailored language in the Zoning Regulations to facilitate the deployment of small cell/ DAS Technology.
- Why? Because this technology serves the interests of those living, working and doing business within their boundaries.
- If no changes are made, businesses and subscribers will suffer.

Small Cell/ DAS Offers an Elegant Solution



Exxon Station on South Washington Street in Old Town, Alexandria

Small Cell/ DAS Offers Elegant Solution



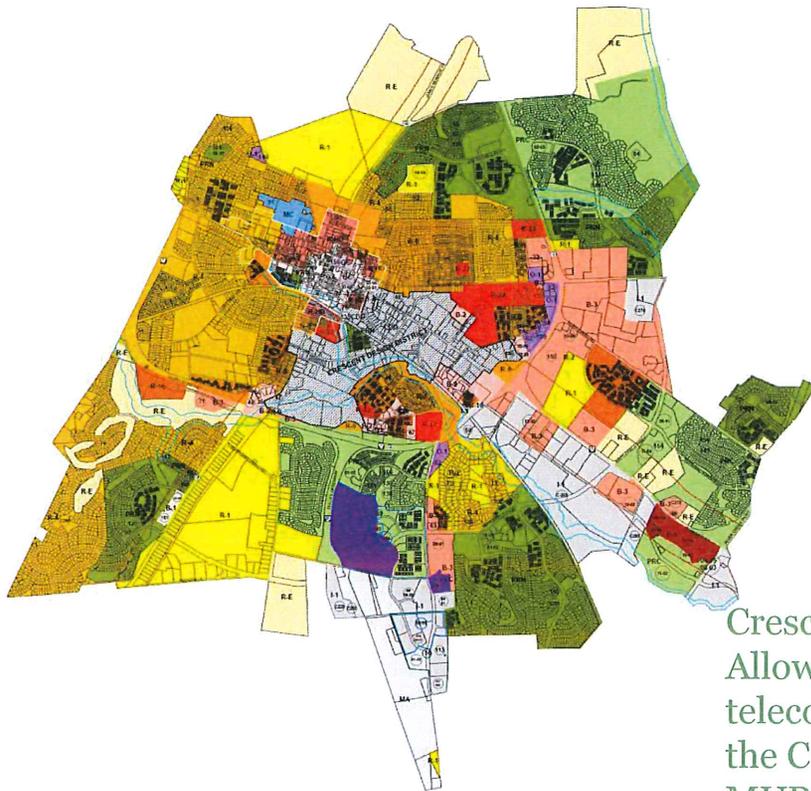
Washington, D.C. Waterfront

Residents, Visitors and Workers in the Town of Leesburg Require Improved Service

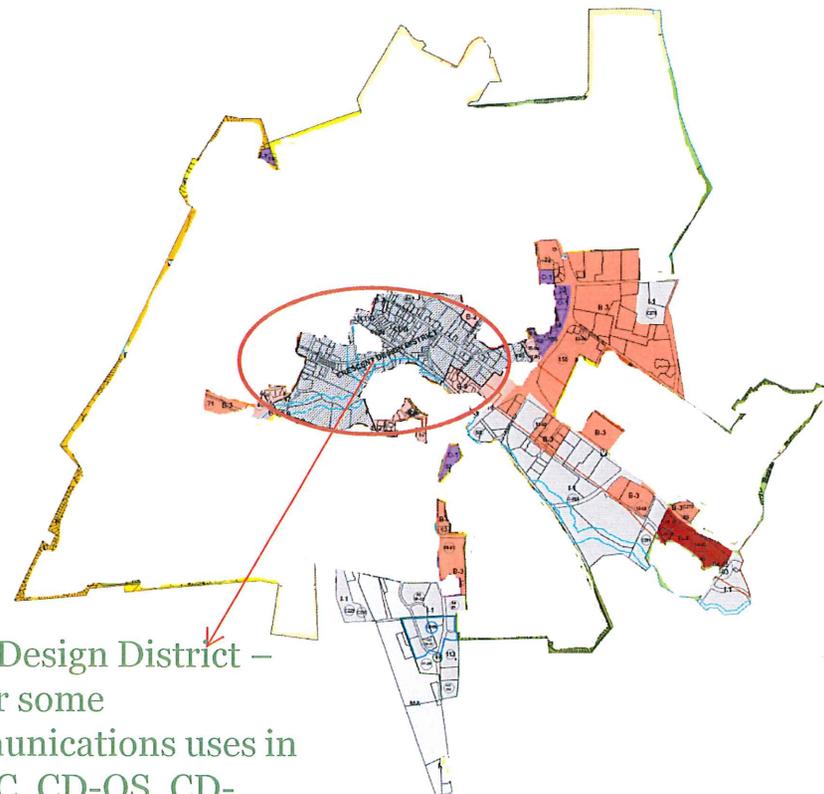
- Even the least impactful telecommunication facility design – small cell/ distributed antenna system (DAS) – is prohibited in all of the following districts: RE, R1, R2, R4, R6, RHD, R8, R16 and R22, parts of Crescent Design, PRC, PRN and PEC.
- The resulting poor coverage affects businesses, emergency response personnel, telecommuters and subscribers using their wireless devices at home.

Areas of Town Where Service Improvement Prevented

Zoning Map



Zoning Map – Available for Telecommunications Use



Crescent Design District –
Allows for some telecommunications uses in the CD-CC, CD-OS, CD-MUR, CD-C & CD-MUO Districts.

Proposed Text Amendments

- § 9.2 – Use Table

Use Type	R E	R 1	R 2	R 4	R 6	R H D	R 8	R 1 6	R 2 2	O 1	B 1	B 2	B 3	B4	I 1	P R C	P E C	P U N	Use Standard
Small Cell/ DAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Sec. 9.3.26.F

- § 9.3.26.F:

A small cell or DAS antenna node may be developed in the RE, R1, R2, R4, R6, RHD, R8, R16, R22, PRC, PEC and PUN Districts subject to the standards below with Commission Permit where permitted.

1. Small cell antennas shall not exceed 27”H x 21”W x 8”D
2. DAS node antennas shall not exceed six feet (6’) in height or twelve inches (12”) in diameter.
3. Any related equipment shall not exceed 30”H x 25”W x 20”D
4. When related equipment is installed on a rooftop, such equipment shall not occupy more than twenty-five (25%) of the rooftop.
5. Small cell and DAS antennas shall be fully screened or painted to match the structure on which installed.

- Specific use regulation sections of Articles 5 and 8 would need to be revised to reflect the changes in §9.2.

Proposed Text Amendments

- **§18.1.180 – Definition of Structure:**

Anything constructed or built for use, occupancy, or ornamentation whether installed on, above, or below the surface of land or water including, among others, buildings, stadiums, gospel and circus tents, platforms, stagings, observation towers, telecommunications towers, radio and TV broadcasting towers, water tanks, trestles, piers, open sheds, coal bins, shelters, walls, power line towers, pipelines, railroad tracks, light poles and utility poles.

- As noted by in the Staff report, this amendment is needed to allow for the installation of small cell and DAS node antennas on existing “structures” in districts that currently provide for telecommunications uses and those that will.