

**City of Roanoke Wireless Telecommunications Facilities  
Policy and Regulations Background Information  
and General Recommendations**



**Prepared by the staff of the Roanoke Valley-Alleghany  
Regional Commission**

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**Attachments**

- Distributed Antenna Systems (DAS) and Small Cell Technologies
- Albemarle County, VA Analysis of Wireless Telecommunication Trends and Policies (DRAFT)
- Bedford County Strategic Plan for Commercial Wireless Telecommunications Facilities
- Town of Morrisville Wireless Telecommunications Facilities Master Plan

## **Background**

The City of Roanoke’s Wireless Telecommunications Plan was adopted as part of the Comprehensive Plan by City Council in 2004. This policy was the basis for regulations for wireless facilities adopted in the City’s Zoning Ordinance in 2005. Both documents have remained largely unchanged since that time. Meanwhile, the proliferation of smart phones and other wireless, data streaming devices is changing how wireless providers service their customers (need for more system capacity).

The City of Roanoke asked the Roanoke Valley-Alleghany Regional Commission to document market conditions and model ordinances to generate background material for an expected update to the City’s wireless facility policy. Regional Commission staff does not have the expertise to analyze projected demand for wireless services, nor the technology issues related to the deployment of wireless facilities. Thus, the primary recommendation will be to engage a qualified, independent consultant to assist the City in the updating of their policy.

## **Technology and Market Conditions**

Cell tower analysts at Moodys Investments expect the need for cell towers to continue to increase as people utilize broadband and video services through smart devices. While smartphones are still the predominant device, other smart devices integrated into home automation, transportation and public utility delivery are increasingly using wireless networks. Gregory Fraser, with Moodys, estimates that “By 2018, mobile video is expected to account for nearly 70% of total mobile-data traffic, compared with around 53% today.” More antenna, spectrum, equipment and towers will be needed to meet this



*Small cell antenna. Source: Fibertech Networks*

increasing demand. As wireless data needs increase and competition makes wireless plans more affordable, more people adopt the technology as well, and consider it a necessity rather than a luxury. Cisco’s Visual Networking Index (VNI) predicts that 75 percent of mobile data traffic will be delivered over traditional large towers, while 25 percent will be handled by small cell technologies. Without a detailed technical analysis, it is unclear how projected growth and population density will impact wireless service deployments in the Roanoke Valley.

Distributed antenna systems (DAS) and “small cells” are becoming more acceptable for high density areas that need supplemental coverage. A DAS is a series of small towers or antennas that replace one large tall antenna. They are more densely spaced and can be placed on buildings, light poles, in shopping malls, in stadiums and other locations to provide the same wireless services as one large, more visible tower. Typically, a DAS is suited for large venues such as a civic center, hospital, airport or conference center. DAS technology allows for multiple carriers but it can be difficult to design and install. For example, Carilion Roanoke Memorial Hospital has worked with

a provider to increase cell coverage in the hospital by placing multiple small cell antennae throughout the facility.

Likewise, “small cells” also known as femtocells, picocells (metrocells), and microcells provide small footprint coverage to supplement large wireless networks when service areas need to be expanded or capacity needs to be increased. Small cells provide an increasing role in the design and upgrading of modern wireless networks, but are more suitable for high traffic areas or buildings. Small cells are typically used by only one carrier. There are challenges to both DAS and small cell solutions because of mounting challenges, backhaul availability, interference and maintenance.

Beyond technology and demand changes, the federal government also adds dynamics to the industry through its control over broadcast frequencies. The FCC has started a process to auction off parts of TV spectrum to wireless carriers. This spectrum allows longer ranges and more penetration into buildings and through trees, which makes deployment of higher speed services like 4G LTE more cost effective. Many carriers are already upgrading networks based on the availability of new spectrum. The FCC has carefully regulated the future auctions to make sure large corporations and collusional partnerships do not dominate the market share of these low-frequency airwaves to encourage more competition. TV stations, through the National Association of Broadcasters, have recently challenged the 2015 auction through a petition to the FCC.

As technology changes, there are very dynamic forces that affect both the demand of service and the deployment of personal wireless services. It is crucial than any ordinance is written to encompass these changes, while local governments and providers work closely to establish efficient networks that serve the public while preserving the integrity and safety of each community.

Furthermore, there are also a number of regulatory issues that the FCC has recently ruled on (October 21, 2014) that relate to cell tower deployment. In September 2013, the Commission released a Notice of Proposed Rulemaking (NPRM) and sought public comment through June 2014. The ruling now allows for an expediting the federal environmental review process (NEPA), including review for effects on historic properties as they relate to deployments of small cells, DAS, and other small-scale wireless technologies, as well as certain collocations. The ruling went on to define many terms from previous rulings that were ambiguous or poorly worded. As a result, some definitions such as “tower” and “base station” now have a broader meaning and should be addressed by updating local ordinances, according to Elizabeth Herington-Smith with City Scope Consultants. There are other, more detailed items and definitions in the FCC order that should be reviewed before updating an ordinance.

## **Ordinance Case Studies**

In order to better understand trends in tower regulation, staff examined the following ordinances from other localities.

### **Morrisville, North Carolina**

Morrisville, North Carolina has a newly adopted Wireless Telecommunication Facilities ordinance. They started their process by developing a telecommunications master plan. The master plan, created by CityScape Consulting, addresses a wide range of technological and policy issues and provides the Town with a sound basis to develop telecommunications policy.

The application process lists an order of preference for antenna placement and the applicant must provide an affidavit by a radio frequency engineer demonstrating why higher preferences are not feasible. The hierarchy is as follows:

1. Concealed attached antenna.
2. Collocation or combination antenna on existing telecommunication towers.
3. Non-concealed attached antenna in private utility easement (on an existing transmission tower structure).
4. Telecommunication facilities on town-owned property in non-residential area/district.
  - (A) Concealed (e.g. faux tree, flagpole, banner pole, etc.).
  - (B) Other.
5. Dual-function telecommunication facilities in private utility easement in non-residential area/district (within an existing transmission tower structure).
6. New telecommunication facilities on private property in non-residential area/district.
  - (A) Concealed (e.g. faux tree, flagpole, banner pole, etc.).
  - (B) Monopole.
  - (C) Other.
7. Concealed telecommunication facilities in residential area/district.
  - (A) On town-owned property.
  - (B) On private property.
8. Dual-function telecommunication facilities in private utility easement in residential area/district (within an existing transmission tower structure).

Rather than have blanket code for all facilities, different types of facilities have different requirements and code sections as follows:



*Monopole Tower in Morrisville-Source: Wikimedia*

1. Tower Inspections
2. Existing Antenna Modification, Replacement or Upgrade.
3. Telecommunication Tower Replacement or Mitigation
4. Antenna Collocation and Combination on Existing Telecommunication Facilities
5. Concealed Attached Antenna
6. Non-Concealed Attached Antenna
7. Non-Concealed Dual-Function Tower (Private Utility Easement)
8. Concealed and Non-Concealed Telecommunication Towers
9. Distributed Antenna System (DAS) Nodes
10. Distributed Antennae System (DAS) Wired Hub

Each type of Tower or Antenna has detailed height, setback, landscaping, signage, lighting and other requirements. Co-location on towers is defined by height. For example, all towers greater than 140 feet shall be engineered and constructed to accommodate at least five antenna arrays. The following table lists the types of facilities permitted in each district.

**Table 4.2.4: Principal Use Table**

P = Permitted as exempt from Site Plan Approval or with Minor Site Plan Approval by Town staff

P\* = Permitted with Major Site Plan Approval by Town Council

(unless qualifying for Minor Site Plan Approval in accordance with Section 2.5.7.A.5)

S = Allowed as a Special Use

C = Allowed as an additional use in the parallel Conditional Zoning District

A = Allowed subject to a PD Plan/Agreement

Blank Cell = Prohibited (except Overlay Districts) X = Prohibited (Overlay Districts only)

Use Category	Use Type	Base/Conditional Districts																Overlay Districts				Use-Specific Standard					
		PGO	VLDR	LDR	MDR	HDR	NAC	BAC	CAC	RAC	TOD	HCV	MS	TCC	TCR	RT	RNP	CC	OI	IM	MUPD		AO-A	AO-B	FO	TCCO	
Tele-communication Uses	Antenna collocation or combination on existing tower	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A					4.2.5.D.4.a
	Concealed attached antenna				S	P	P	P	P	P	P		S	P				P	P	P	P	A					4.2.5.D.4.b
	Non-concealed attached antenna (private utility easement)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A					4.2.5.D.4.c
	Non-concealed dual-function tower (private utility easement)				P	P	P	P	P	P	P			P				P	P	P	P	A					4.2.5.D.4.d
	Concealed towers (town-owned property)	S	S	S	S	P	P	P	P	P	P	S	S	P	S	S	S	P	P	P	P	A					4.2.5.D.4.e
	Non-concealed towers (town-owned property)					S	S	S	S	S	S			S				S	S	S	S	A					4.2.5.D.4.e
	Concealed towers (private property)					p*	p*	p*	p*	p*	p*		S	p*				p*	p*	p*	p*	A					4.2.5.D.4.e
	Non-concealed towers (private property)						S	S	S	S	S			S				S	S	S	S	A					4.2.5.D.4.e
	DAS Node		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A					4.2.5.D.4.f
	DAS Wired Hub		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A					4.2.5.D.4.g
	Broadcasting Station																		P	P	P	A					
Broadcast Studio								P	P	P	P		P	P				P	P	P	A						

**Buncombe County, North Carolina (Asheville)**

In Buncombe County, the burden is put on the applicant by “demonstrating by substantial evidence in a written record that a bona fide need exists for the proposed wireless communication facility and that no reasonable combination of locations, techniques, or technologies will eliminate the need for, or mitigate the height or visual impact of, the proposed facility. “

Government owned land is given first priority for siting a tower. Co-location is required if the tower is over 100 feet. Towers over 150 feet must be designed to permit three or more antennae arrays. Very specific fence and landscaping criteria are defined in the ordinance.

In regards to height and distance standards, towers may not be more than 200 feet. Attached wireless communication facilities (attached to a building or structure) are not allowed to add more than 20 feet to the height of that structure. Similarly, a tower on a ridge may not be more than 20 feet higher than

the vegetation canopy. The ordinance states that new towers cannot be constructed within 1320 feet of each other unless co-location is not feasible, or three or more towers already exist within 20 feet of the proposed site.

The most interesting aspect of the Buncombe County ordinance is a requirement that all planned wireless communication facilities be reported on or before November 15<sup>th</sup> of each year. This allows county staff to coordinate all applications in a more comprehensive attempt to better address co-location.

### **Albemarle County, Virginia**

Albemarle County hired CityScape Consulting Inc. to conduct an analysis of wireless telecommunications trends and policy in 2012. The report outlines different types of technologies, and comes to the conclusion that the “industry will continue to need more and more infrastructure” and “antenna elements will need to be closer together and above tree lines and rooftops”. The report also summarizes federal regulations and court cases that have defined the local government control over telecommunication tower deployments. Albemarle County was involved in litigation that is also highlighted in the CityScape report. The report states that those localities should have “clear and definable standards in its regulations” and that those standards should be consistently applied to all applicants. The report alludes to a need to increase co-locations. This is also likely why Morrisville, NC adopted an inspection program for existing towers used in future co-locations.



*Camouflaged tower above tree canopy.*

The CityScape report then provides an analysis of the existing ordinance and provides recommendations for improving the local regulation. Many of the comments relate to strengthening definitions to industry standards and bringing the ordinance up-to-date in regards to federal legislation since the adoption of their 2000 ordinance.

The Albemarle ordinance, updated in 2013, divides communications into three tiers and has detailed requirements for each.

**Tier1**-Concealed or camouflaged facilities requiring only administrative approval

**Tier2**-Treetop facilities requiring planning commission approval

**Tier3**-Other types of facilities requiring a special use permit

The policy was recently updated with assistance from Kreines & Kreines, who also helped draft the ordinance in 2000. There was concern expressed that the treetop facilities, allowing a height only 7 feet above the tree canopy, did not allow for co-locations and antenna separation, which is more important for new technologies. The ordinance was recently modified to allow a monopole height of 10 feet above



the tree canopy. Furthermore, the approval process was streamlined to allow for faster permitting. The goal of the ordinance is to limit tall structures and encourage small towers that are within 10 feet of the canopy. The application process and requirements appear to be the same for all three tiers.

### **Bedford County, Virginia**

In 2012, the Atlantic Group of Companies prepared a Strategic Plan for Commercial Wireless Telecommunication Facilities for Bedford County. The primary purpose of the study is to address gaps in service with recommended deployment strategies. The previous plan, from 2002, was updated to address “new technology and the rapid deployment of wireless broadband services.” A community survey was completed with some interesting results. Seventy-two percent of people do not find cell towers unsightly and 75% said that they would prefer taller cell towers as opposed to more short ones. The report documents current coverage areas and provides a need assessment for future communication towers, particularly in regard to 4G services. The study recommended 11 tower sites and smaller “fill in” solutions using four classes of towers.

Class 1 –less than 40 feet

Class 2-between 40 and 80 feet

Class 3-between 80 and 120 feet

Class 4-between 120 and 200 feet

The Atlantic Group report also outlines the type of restrictions and review process for each class. The new ordinance lists several types of applications that require only an administrative review. A DAS (Distributed Antenna System), colocations and towers on public property are included in this category to encourage these types of applications. The ordinance has different application criteria based on the type of application. Towers under 10 feet above the tree canopy in certain zoning districts are subject to only an administrative review. Most other towers require a special use permit. The ordinance was last approved in 2013.

### **City of Salem, Virginia**

The City of Salem has a rather straightforward ordinance. Heights are limited to 199 feet and no tower is permitted within 500 feet of a residential district. Towers are permitted in only four zoning districts or land owned by the City of Salem through a special exception permit. No new towers are permitted unless the applicant clearly demonstrates that they cannot use existing structures or towers as outlined in five criteria:

1. No existing towers, or structures are located within the geographic area required to meet the applicant's engineering requirements.

2. Existing towers, or structures are not of sufficient height to meet the applicant's engineering requirements.
3. Existing towers, or structures are not of sufficient structural strength to support the applicant's proposed antenna or related equipment.
4. The applicant's proposed antenna would cause electromagnetic interference with existing antenna, or the antenna on the existing towers, or structures would cause interference with the applicants proposed antenna.
5. The applicant demonstrates that there are other limiting factors that render existing towers, or structures unsuitable.

The City reserves the right to hire an outside consultant, at cost to the applicant, to verify the application. There is only one application process. The City of Salem feels their application process and ordinance is working well. Due to the small size of the City, the need for additional towers may be limited. The City's ordinance was last updated in 2005.

### **County of Roanoke, Virginia**

The County of Roanoke's Ordinance was adopted in 1998 with a goal to achieve a "reduction in the height of existing broadcasting towers throughout the county, with special emphasis on towers located along or near the ridge tops of major mountains and land forms." Furthermore, the ordinance seeks to "encourage and promote the collocation of antennas on existing public and private structures within the county." The County's regulations seem to focus on the tower, or support structure, rather than the antenna. The County refers to support towers as "Broadcast Towers".

Towers located in a commercial or industrial zone and less than 30 feet in height are generally allowed with only an administrative review. Likewise, administrative approval is given to an antenna without a tower, which is mounted to another structure, provided it does not raise the height more than 10 feet and the other requirements of the zoning district are met.

The county has a single application process that requires information on why co-locations are not possible. Furthermore, photo simulations, terrain analysis and balloon test are required. New towers are required to accommodate a minimum of three other co-locations. Monopole towers are recommended and no towers are permitted "within the critical viewsheds of the Blue Ridge Parkway or Appalachian Trail as shown on any official map designating these viewsheds and pre-approved by the board of supervisors. In addition, no towers shall be proposed within any other designated area of local scenic, historical, ecological and cultural importance as designated and approved by the board of supervisors."

## City of Roanoke, VA

The purpose of the City of Roanoke code is to promote the health, safety, and general welfare of the public by establishing standards for the location and construction of wireless telecommunication facilities and broadcast towers.

Further guidance is provided in the Wireless Telecommunications Facilities section of the “Vision 2001-2020” Comprehensive Plan. Several policies are outlined, including preference for placement on existing buildings and structures as well as co-location. The Plan provides a hierarchy of categories of lands on which to construct wireless telecommunication towers, from the most to least preferable:

1. Industrial zoned lands
2. Commercially zoned lands
3. Downtown District zoned lands
4. High density residential zoned lands
5. Institutionally zoned lands
6. Medium density residential zoned lands
7. Agricultural or Recreation and Open Space zoned lands
8. Low density residential zoned lands

Besides location, the plan also outlines siting, height and design preferences. Furthermore, the plan recognizes the need to review for “potential effects on surrounding jurisdictions as well as the City.” The Plan goes on to state “A regional approach to the regulation of wireless communications facilities should be taken; therefore, such regulations should be consistent with those of surrounding jurisdictions.”

The Plan gives further guidance and makes recommendations to amend zoning regulations. It is unclear if the recommendations and policy in the Comprehensive Plan are reflected in the current ordinance.

The code exempts co-locations and “stealth” facilities if they do not change the height more than 10 feet. Stealth facilities also include any antenna less than 10 feet in height. Overall, heights are limited to 199 feet. A monopole design is desired, as outlined in the City code. All potential applicants are required consult with the zoning administrator to review the City’s policies and standards for wireless telecommunication facilities and broadcast towers. The goal of the consultation is to seek possible alternatives to tower construction and minimize impact to the community based on current policy. Applicants are asked to provide detailed evidence on why existing towers and co-locations are not feasible based on technical, legal and other reasons.

Besides an administrative review for co-locations, there are two tracks for applications: standard macro towers, and stealth towers. The application requirements are outlined in the following table.

**City of Roanoke-Cell Tower Code and Permitting Process**

<b>Purpose</b>	x	
<b>Applicability</b>	x	
<b>Definitions</b>	x	
<b>Consult zoning administrator prior to application:</b>	x	
objectives	x	
coverage area	x	
alternate sites	x	
<b>Application:</b>	<b>General</b>	<b>Stealth</b>
location of sites and rejected sites and reasons for rejection	x	
Location of collocation sites considered and rejected and reasons	x	
Description of tower design and sample photo	x	x
elevation drawing showing tower and antennae height	x	x
scale photographic simulations of site/area/defined by ZA	x	x
computerized terrain analysis showing visibility	x	x
how the tower site fits into the existing network system and other tower locations	x	
results of on-site "balloon" test /defined in ZA consultation	x	
structural engineering report on collocation with 1-3 other providers	x	
engineer report on structural integrity		x
copy of applicant's co-location policy	x	
ASAC Obstruction Evaluation report-Federal Aviation Regulations (FAR) Part 77	x	x
Documentation of filing of FAA Form 7460-1	x	x
Documentation from medical helicopter patient transportation providers	x	x
landscaping plan	x	x
<b>Requirements:</b>		
Height (except I-2) limited to 199 feet	x	x
I-2 (1 foot for each foot setback from residential lot)	x	x
Yard requirements of zoning district and no closer than 50ft/40% height to residential	x	x
Other structures must conform to yard requirements of district	x	x
No lighting unless required by FAA or FCC. Security lighting allowed	x	x
1-3 colocations required in structure design except for stealth/roof/surface towers	x	
Monopole design unless lattice blends better or is required. Cost not considered	x	x
tower removal in 90 days if no longer in use	x	x
antennas shall be flush mounted unless otherwise approved and flat matte finish	x	x
No business or sign on tower unless for safety or required by FCC or FAA	x	x
mature tree growth shall be preserved where possible	x	x
no outdoor storage	x	x
<b>Review Policies:</b>		
Availability of other structures, height, design, location-independent review		x
elevation of tower relative to surrounding natural land forms		x
visibility of tower based on terrain analysis and balloon test		x
degree of site design is compatible with adjacent properties		x

There seems to be no code references to tower construction related to residential and historic areas, although there is an order of zoning preference stated in the in the Comprehensive Plan. There appears

to be some inconsistencies in the use of terms: facilities, supporting structure, broadcast tower, tower and antenna. Co-locations seem to be limited to three, beyond the original antenna. Antennas and support structures greater than 10 feet in height have to follow the same criteria and evaluation as a 199 foot tower. There appears to be no requirement to require justification for tower design (macro-tower) vs other technologies such as small cell or DAS. General review policies could be expanded to include a broader range of criteria and considerations.

### **Lessons learned from recent news coverage in other localities**

A review of recent news coverage on cell tower ordinances was conducted to identify issues faced by other localities. The following recommendations are gleaned from news coverage and reports made over the last year from various news sources.

1. Consider hiring a consultant to conduct a telecommunications infrastructure plan that identifies future tower needs in the Roanoke Valley based on a variety of factors such as projected demand, distributed antenna systems (DAS), micro antennas, spectrum changes and other issues.
2. Be sure site standards are set for all possible zoning categories. For example, don't list setbacks for M1 and leave out setbacks for other zoning categories where cell towers might be allowed. (Juneau, AK)
3. Have lighting only when required by FAA. (Juneau, AK)
4. In some localities, permits have been issued by staff for camouflaged or stealth towers, avoiding planning commission review or public input. Consider having all permits go to the planning commission and public process or at least those close to residential zoning. (Durham, NC)
5. Allow five or more carriers on pole, provided the pole or tower is engineered for support.
6. For staff-review only applications, make sure neighbors are notified about the application (Durham, NC)
7. In the application, ask the company to specify why small or micro towers are not feasible for their application.
8. In the application, ask the company to provide the projected lifespan for the tower and how long it will meet the needs of the tower service area.
9. Some localities have set up a buffer of 1,500 from schools, not as a health issue, but as a quality of life and property value issue. (Bar Harbor, ME, Hempstead, NY)
10. Allow fast-track permitting (administrative permitting) for co-locations on an existing tower (Albemarle Co., Va)

11. Focus on visual impact, not visibility of a site. For example, an antennae may be more visible if placed higher on a tower, but if it is smaller or painted a light color, the visual impact may be less. (Albemarle Co., Va)
12. There are new Federal requirements for localities and applicants from 2009 and 2012 legislation that are outlined in a CityScapes policy paper for Albemarle County, VA. These should be addressed in any new local policies. (See Appendix)
13. Have clear policies that are applied equally. (Albemarle Co., Va)
14. Consider weight and change in aesthetics for colocations. (Albemarle Co., Va)
15. The owner/builder of the facility is often not the provider of the wireless service. Make sure this is not confused in any policies. (Albemarle Co., Va)
16. Make sure language about lighting distinguishes between facilities at base and the tower itself. (Albemarle Co., Va)
17. Allow towers in public rights-of-way if feasible.
18. Consider keeping an independent consulting engineer on retainer to review applications and offer alternatives.
19. Make sure definitions are consistent with FCC or other standard definitions.
20. Update code references.

## **General Recommendations for the City of Roanoke**

1. Contact neighboring jurisdictions in the urbanized area, especially Roanoke County, about the possibility of joint update and joint wireless facilities master plan. A regional approach is suggested in the City's Comprehensive Plan
2. Hire an independent consultant to prepare a wireless facilities master plan, regionally if feasible. Such a master plan will provide the City with the guidance it needs to develop meaningful wireless facilities policy backed by legal and technological expertise.
3. Engage the public throughout the process to identify needs from increased coverage and capacity to the development of new wireless facilities in the community, and how these facilities should be regulated.
4. Engage wireless providers to identify issues related to the maintenance of existing facilities and deployment of new facilities.
5. As part of the master plan process, identify public properties and structures that might be suitable for antennae deployment. Such facilities can serve as a revenue stream and should be promoted through the permitting process. Consult with such entities as the Western Virginia Water Authority and Roanoke Valley Broadband Authority.
6. Consider increasing the number of wireless facilities categories based on type of technology, height of structure/antenna and type of camouflage to ease the permitting of lower impact facilities. Such a mechanism should ease the permitting for DAS and small cell technologies.
7. Consider stricter regulation of high impact facilities in or adjacent to residential and historic neighborhoods and structures and prominent view sheds and natural areas.
8. Increase co-locations allowed in the code to encourage the need for new tower development.
9. Consider reserving a co-location on certain facilities for public use.
10. Be consistent in the use of terms: wireless facilities, supporting structure, broadcast tower, tower and antenna.
11. Focus on visual impact rather than visibility.
12. Consider incorporating the tree canopy as an aspect of permitting or evaluation.
13. Streamline the application process and make sure it conforms to regulated approval deadlines.
14. Make sure the regulations (municipal code) are consistent with the policy (Comprehensive Plan)
15. Update code references and definitions based on current FCC definitions.

16. Incorporate recent and expected rulings by the FCC, as well as recent legal rulings that have clarified federal legislation. (For example, the FCC’s clarification of “substantial change” as it relates to the required approval of applications that don’t result in “substantial change” to the wireless facility as approved by congress in 2012.)

17. Make sure the new code is written to incorporate changing technology.

18. Revise the general review policies for applications based on the development of new policy and regulation.