

Overview

In May 2020, one of the largest telecommunication providers (Verizon Wireless) approached the Town of Waterford to enter into a Master License Agreement (MLA) to allow small cells for enhanced wireless service. Municipalities are expected to benefit from small cell technology within the next few years as companies like Verizon begin the process of laying the groundwork for an infrastructure that will support small cells for wireless communication.

What is a small cell? It is a mini cell site with a radio, antenna, power and a fiber connection that augments Verizon's network in a given area. Small cells are short range cell sites used to compliment larger macro cells (or cell towers). The antennas and radios are typically placed on existing vertical structures, including utility poles and street lights and often go unnoticed. Small cell antennas, which can be as small as a backpack, are big on capabilities such as improved 4G and 5G wireless capacity, coverage, voice quality, reliability, and data speeds to meet the growing needs of data consumption.

Verizon has been deploying small cells in their network across Upstate New York to increase capacity and improve service. Although small cells are complementary to the network, in the future, 4G and 5G networks will depend less on large cell towers, and more on a number of small cells and sensors sending and receiving data.

To facilitate the expansion of small cell technology, the Federal Communication Commission (FCC) has implemented a number of mandates that municipalities are bound by. The regulations provide criteria for approval/disapproval of the small cell towers, time limits for

approving permits, and limits on what are reasonable fees to charge for permits and annual pole attachment licenses.

Aesthetics will be an important factor in locating the small cell poles. The Town is allowed to develop an Aesthetics Design Standard to minimize the visual impacts when siting the poles. Small cells have a range from a few hundred feet up to 1000 feet depending upon topography, capacity needs, etc., which means that many small cell towers could be necessary in certain locations.

To jumpstart the creation of the necessary infrastructure, Verizon has reached out to a number of municipalities in the Capital District area, including the Town of Waterford. The purpose of the outreach is to partner with the municipalities to bring enhanced wireless services to the area. Verizon currently has MLA's in place with major utility companies (e.g. National Grid) to attach its equipment to the utility companies' poles and the next step is to enter into MLA's with the municipalities. The MLA would allow Verizon to work in the public right-of-way (ROW), set up a streamlined process for applications and establish fees to be paid to the municipality on an annual basis per pole attachment.

Going forward now with a MLA will mean that the Town will be more likely to receive small cell technology sooner than later. It is coming and those municipalities that defer action will lose out to a much later date on having enhanced service for its residents and businesses. It is to the municipality's benefit to collaborate with wireless providers in setting up the ground rules for which small cell poles can be reviewed, approved and installed where appropriate. As a result, the Town has created a task force to work with Verizon in developing a MLA that will benefit both parties.

Frequently Asked Questions - FAQ's

What is 5G?

Term commonly used for the next, aka 5th, generation of wireless cellular technology. It has the potential to provide peak download and upload speeds comparable to fiber connectivity, together with near real-time responsiveness, while connecting a multitude of devices simultaneously. In addition to keeping up with mobile video consumption, 5G is intended to support new technologies such as autonomous vehicles and other use cases that will require near real-time connectivity in addition to the ever-increasing proliferation and use of mobile devices. 5G specifications are still under development by the 3rd Generation Partnership Project, an international standards organization that develops protocols for mobile telecommunications, and will be released over the next decade for implementation into consumer devices. Early commercial 5G deployments have occurred in Sacramento, Los Angeles, Phoenix, Chicago, Minneapolis and New York, among others.

What is a small cell?

A small cell is just like the name implies: a mini cell site with a radio, antenna, power and a fiber connection that augments a network in a given area. Small cells are short range cell sites used to compliment larger macro cells (or cell towers). A small cell (or “small wireless facility” as that term is used by the FCC) means an attachment to a structure 50 feet in height or less, 10% taller than the height of an existing structure, or 10% taller than adjacent structures, whichever is greater; 28 cubic feet of accessory equipment; and any number of antennas as long as each one is 3 cubic feet or less.

The antennas and radios are typically placed on existing vertical structures, including utility poles and street lights and often go unnoticed. Small cell antennas, which can be as small as a backpack, are big on capabilities, and provide added 5G and 4G wireless capacity and coverage to meet the growing needs of data consumption.

Do small cells replace the need for macro sites?

First, a macro cell or macro site is a cell in a mobile phone network that provides radio coverage served by a high power cell site (tower, antenna or mast). Generally, macro cells provide coverage larger than microcell. The antennas for macro cells are mounted on ground-based masts, rooftops and other existing structures, at a height that provides a clear view over the surrounding buildings and terrain.

Small cells are part of a balanced approach to network coverage and capacity. Traditional macro cell sites will continue to be installed in order to expand the footprint for bandwidth and capacity. Small cells are typically designed to cover smaller areas while macro sites are still necessary to cover larger areas. Typically, it would require at least ten to fifteen small cell sites to fill the space of an urban/suburban macro site.

Why small cells?

People are using wireless devices to do more things in more places. As a result, wireless data use has grown at an explosive rate and it's showing no sign of slowing down. It's predicted that Americans will use five times more mobile data by 2021 than we use today. Telecommunication companies focus every day to stay ahead of customer demand for wireless data and to prepare for the future by increasing network capacity through multiple solutions including small cells.

Small cells add service in specific areas to improve capacity, coverage, voice quality, reliability, and data speeds for local residents, businesses, first responders and visitors.

How does it work?

A small cell uses small radios and small antennas placed on existing utility poles, transit poles, street lights, signs, signal light poles and rooftops. The coverage area can range from a few hundred feet to upwards of 1,000 ft. depending on topography, capacity needs, and more. This small focused footprint supports 5G and 4G enabled devices, meeting consumer demand for wireless services.

Where are small cells deployed?

Small cells are used to improve capacity in heavy customer usage areas, including neighborhoods, business districts and community gathering places. A small cell is typically placed on existing utility poles, transit poles, street lights, signs, signal light poles in the typical ROW area and also on rooftops. These small cells will equip a municipality with the necessary infrastructure that 5G and 4G wireless applications rely on.

Small cells are not specifically limited by frequency – 4G small cells generally operate in sub-3 GHz frequencies and 5G small cells can operate in millimeter wave frequencies (30 GHz to 300 GHz) – but small cells generally operate at lower power levels with lower emitted power density.

Are small cells subject to regulation like a traditional/macro cell site?

The approval process for small cells varies from jurisdiction to jurisdiction. Telecommunication companies will work with each local jurisdiction on small cells placement including right-of-way regulations and more. Federal, state and local agencies each regulate different and sometimes overlapping aspects of 5G and wireless communications.

The Federal Communications Commission (FCC) regulates interstate and international communications by radio, television, wire, satellite and cable in all 50 states, the District of Columbia and U.S. territories.

The FCC is the primary authority for communications law and regulation and preempts state and local governments from regulating key aspects of infrastructure deployment. For instance, state and local governments cannot regulate the environmental effects of radiofrequency exposure to the extent the emissions comply with FCC guidelines. At the state level, New York grants authorized telephone corporations to access the public rights-of-way to provide services. Subject to federal and state limitations, local governments regulate the design, placement, operation and maintenance of wireless infrastructure within their respective jurisdictions.

Are small cells safe?

No matter which generation of technology we use, all telecommunication equipment must comply with federal government safety standards. Those standards have wide safety margins and are designed to protect everyone, including children. The FCC limit for the general population incorporate a 50 times safety margin, meaning that the limit is set at 2% of the point at which exposure causes a measurable response in human tissue. Multiple federal agencies supported and adopted the standards after examining the RF research that scientists in the US and around the world conducted for decades. The research continues to this day, and agencies continue to monitor it.

Based on all the research, federal agencies have concluded that equipment that complies with the safety standards poses no known health risks. And advisers to the World Health Organization have specifically concluded that the same goes for 5G equipment. In fact, the RF safety standards adopted by the United States Federal

Communications Commission (FCC) are even more conservative than the levels adopted by some international standards bodies.

Can these devices be installed within the public rights-of-way in residential areas, commercial areas, and near schools?

Yes. State and local governments cannot effectively prohibit the provision of wireless services. FCC regulations require local aesthetic regulations to be (1) reasonable, (2) no more burdensome than those imposed on other infrastructure deployments, (3) objective and (4) published in advance. New York state law gives the carriers the right to access the public right-of-way in all of these areas to the extent necessary to provide services and in such a manner that would not incommode the public use of the right-of-way. Taken together, localities may establish aesthetic-based location criteria but cannot prohibit deployment in residential, commercial and school areas in all cases.

Why are these devices being allowed in residential areas and on streetlights and communication towers?

In September 2018, the FCC issued a “Declaratory Ruling and Third Report and Order” titled “Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment”, which introduced new rules that limit the ability of municipalities to control where small cells may be installed and operated. 5G is expected to provide the speeds consumers require for the applications and technologies they use every day, which make it an alternative and competing solution to traditional means of wired communication, such as broadband and DSL, typically found in residential communities.

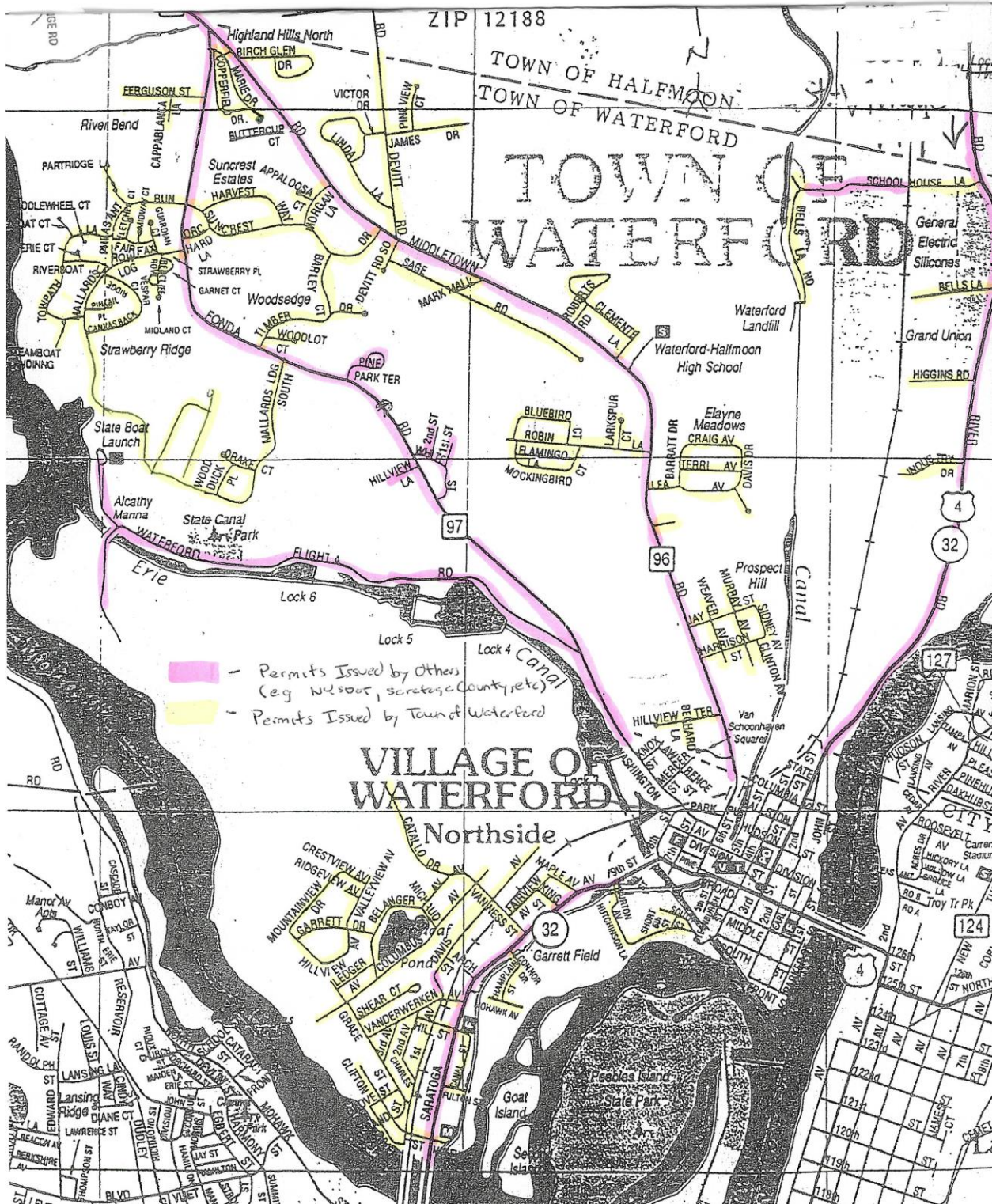
Does the Town have a policy regarding Small Wireless Facilities (a.k.a. 5G cell sites)?

The Waterford Town Board is expected to vote sometime in the Spring

to adopt a policy for the approval and deployment of small cellular facilities within the Town's public right-of-way. It excludes ROW's owned by the Village of Waterford, the New York State Department of Transportation (NYSDOT), the New York State Canal Corporation, and Saratoga County. Those agencies will be responsible for approval of any small wireless facility in their highway ROW within the Town of Waterford. The following page shows where a small wireless facility can be sited in the Town and who is responsible for issuing the permit.

Town of Waterford Map – Jurisdictions Responsible for Issuing Permits for Small Wireless Facilities

4/7/21



The Town has developed an aesthetic and design standards document that outlines how and where small wireless facilities will be implemented. Aesthetics is expected to be a major concern of many homeowners. As a result, small wireless facilities will not be installed directly in front of a residence. They may be installed on a pole at a boundary line separating two properties. Also, in neighborhoods where there are underground utilities, small wireless facilities may be encased in a pseudo street light pole at an intersection

By working responsibly with communities and elected officials to deliver small cells now, telecommunication companies are putting into place a key building block to deliver 5G wireless in the coming months and years. Forward thinking municipalities, cities and states that can streamline their siting and permitting processes and make them consistent will be among the first to market with next gen wireless technology for their residents, and will play a major role in shaping the future of our national economy.

Have there been legal challenges to the FCC ruling and if so, what is the outcome?

Yes, a number of states and cities filed legal challenges to the regulations issued by FCC. The various legal challenges were consolidated into one matter before the 9th Circuit Court of Appeals and was decided on August 12, 2020. *City of Portland v. U.S.*, 969 F3d 1020 (2020). With minor exception, the 9th Circuit affirmed the orders, finding that the FCC acted within the scope of its congressionally delegated authority and that its conclusions were reasonable.

Other References of Possible Interest

New Jersey State League of Municipalities - [5G and Its Impact on Municipalities \(njlm.org\)](https://www.njlm.org/5G-and-Its-Impact-on-Municipalities)

Dutchess County Planning Federation - Understanding the Rollout of 5G Wireless - Aug/Sept 2020



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9th Circuit Upholds FCC's 2018 Small Cell, Local Moratoria, and One-Touch Make-Ready Orders

<https://www.jdsupra.com/legalnews/9th-circuit-upholds-fcc-s-2018-small-22947/>

Acknowledgment

The material provided for the Overview and FAQs is a compilation of information from a variety of sources including the following:

Davis Wright Tremaine, LLC (DWT.com)

Dutchess County Planning Federation

New Jersey State League of Municipalities

Santa Clarita, CA Small Cell and 5G – Frequently Asked Questions

Verizon Wireless

Information for this website was compiled and developed by the Town of Waterford 5G Task Force consisting of:

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