



# VILLAGE/TOWN OF MOUNT KISCO

## WIRELESS TELECOMMUNICATION INFRASTRUCTURE ANALYSIS





# OVERVIEW

Smartphones and smart wireless devices are a fixture of every-day life for millions of people. In 2021, the number of unique mobile internet users globally was 4.32 billion with over 90% using a wireless device to connect.<sup>1</sup> Consumers using these devices expect fast and uninterrupted network connections to the internet, maps, files, videos, news, music, along with the myriad of available applications. For these devices to function optimally a lot of bandwidth is required. To facilitate the device demands, antennas mounted on towers or other elevated infrastructure is necessary.

Functionality is best when the signal transmits directly from the antenna to the consumer's wireless device(s) without obstruction from buildings, trees and/or ridgelines. Macro cell wireless facilities provide the greatest flexibility and coverages for wireless service providers. Without obstructions these facilities can generally cover a two-mile geographic radius in more densely populated areas and about a four-mile radius in suburban and rural areas. Small wireless facilities can be utilized in more populated areas to provide additional services where capacity overloads may be an issue or in areas with viewshed sensitivities. These small wireless facilities typically have approximately a quarter mile service radius.

Coverage gaps result from having facilities with a lot of obstructions, too few antennas within a particular service area or in areas where network capacity overloads occur. Capacity overloads are when the number of wireless subscribers using their devices simultaneously exceeds the performance capability of the wireless facility. Additional antenna infrastructure would be necessary to improve these coverage and/or capacity concerns.

Understanding, evaluating and planning for a well-designed wireless system begins with identifying all existing towers and base stations.

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<sup>1</sup> Statista, October 18, 2022



# WIRELESS INFRASTRUCTURE INVENTORY

The existing wireless facilities in Mount Kisco have been assessed, mapped and analyzed in order to estimate the new wireless facilities anticipated in the Village/Town over the next ten years.

The Mount Kisco Study Area is defined as the Mount Kisco jurisdictional boundary and a one-mile perimeter surrounding the Village/Town. As of January 1, 2023 there are a total of 11 facilities verified within the Mount Kisco Study Area. The facilities consist of eight towers and three base stations. Of these towers and base stations, there are six sites outside of the Village/Town within the one-mile perimeter. Two facilities are approved but not constructed yet, one is proposed and under review and there is one inquiry.

Five sites are located within the Mount Kisco jurisdictional boundary consisting of two existing towers, Sites M2 and M4, one existing base station, Site M1, one approved but not built base station, Site M3 and one proposed tower that is under review, Site M5.

The existing, approved and proposed sites in the Village/Town are generally distributed evenly throughout Mount Kisco's jurisdictional boundary.

The following *Table M1* summarizes the total number of sites and identifies the inventory by structure type, antenna type, location and design. The inventory of facilities are further depicted on corresponding maps as follows: *Figure M1* Structure Type, *Figure M2* All Antenna Type, *Figure M3* PWSF Antenna Type, *Figure M4* Location and *Figure M5* Design Type.

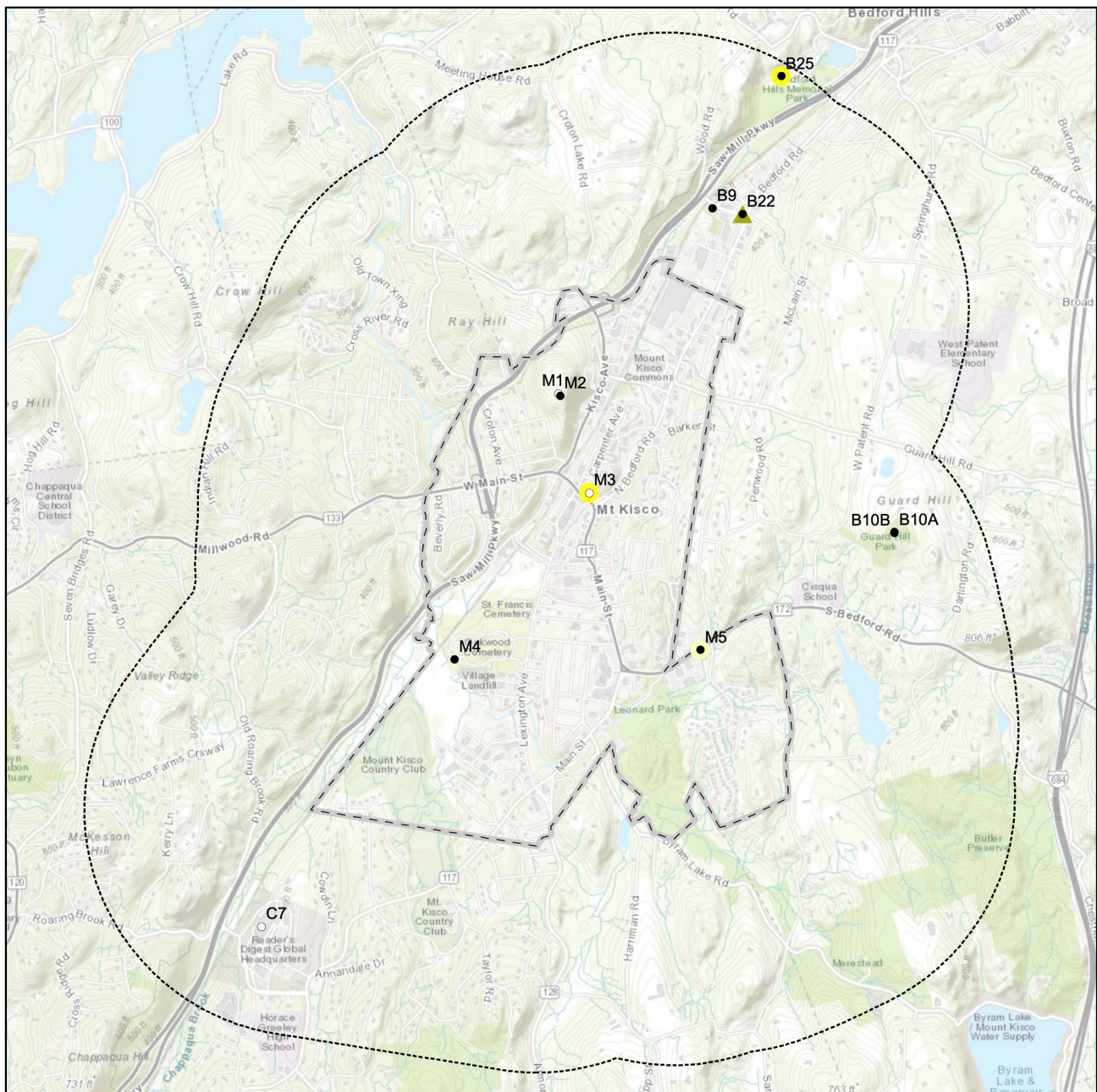
Greater site detail including facility picture, location map, ownership, providers, type of facility along with any other pertinent individual site information can be found in the Mount Kisco Wireless Inventory Catalog in *Appendix D1*.



Mount Kisco Study Area		INSIDE JURISDICTION				ONE-MILE PERIMETER			
TOTAL 11		Existing	Approved Not Built	Proposed Under Review	Inquiry	Existing	Approved Not Built	Proposed Under Review	Inquiry
STRUCTURE TYPE									
Towers	8	2	0	1	0	3	1	0	1
Base Stations	3	1	1	0	0	1	0	0	0
ANTENNA TYPE									
Macro Wireless	6	2	1	1	0	2	0	0	0
Small Wireless	1	0	0	0	0	0	0	0	1
Public Safety/Macro	1	0	0	0	0	0	1	0	0
Public Safety	3	1	0	0	0	2	0	0	0
Other	0	0	0	0	0	0	0	0	0
LOCATION									
Private Property	3	1	1	0	0	1	0	0	0
Public Property	8	2	0	1	0	3	1	0	1
Utility Easement	0	0	0	0	0	0	0	0	0
ROW	0	0	0	0	0	0	0	0	0
DESIGN TYPE									
Concealed	3	0	1	1	0	0	0	0	1
Semi-Concealed	3	1	0	0	0	2	0	0	0
Non-Concealed	5	2	0	0	0	2	1	0	0

Table M1: Inventory by Structure Type





# Northern Westchester County Inventory by: **Mount Kisco**

## **Cataloged Structure Type**

- Tower (8)
- Base Station (3)
- Approved but Not Yet Built (2)
- Proposed and Under Review (1)
- ▲ Inquiry (1)
- ▬ City Boundary
- ⋯ 1 Mile Buffer

Sources: US Census Bureau,  
Cityscape Consultants, Inc, USGS

Map Created by Cityscape  
Consultants, Inc. on

Date: 6/8/2023

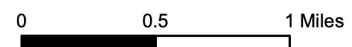
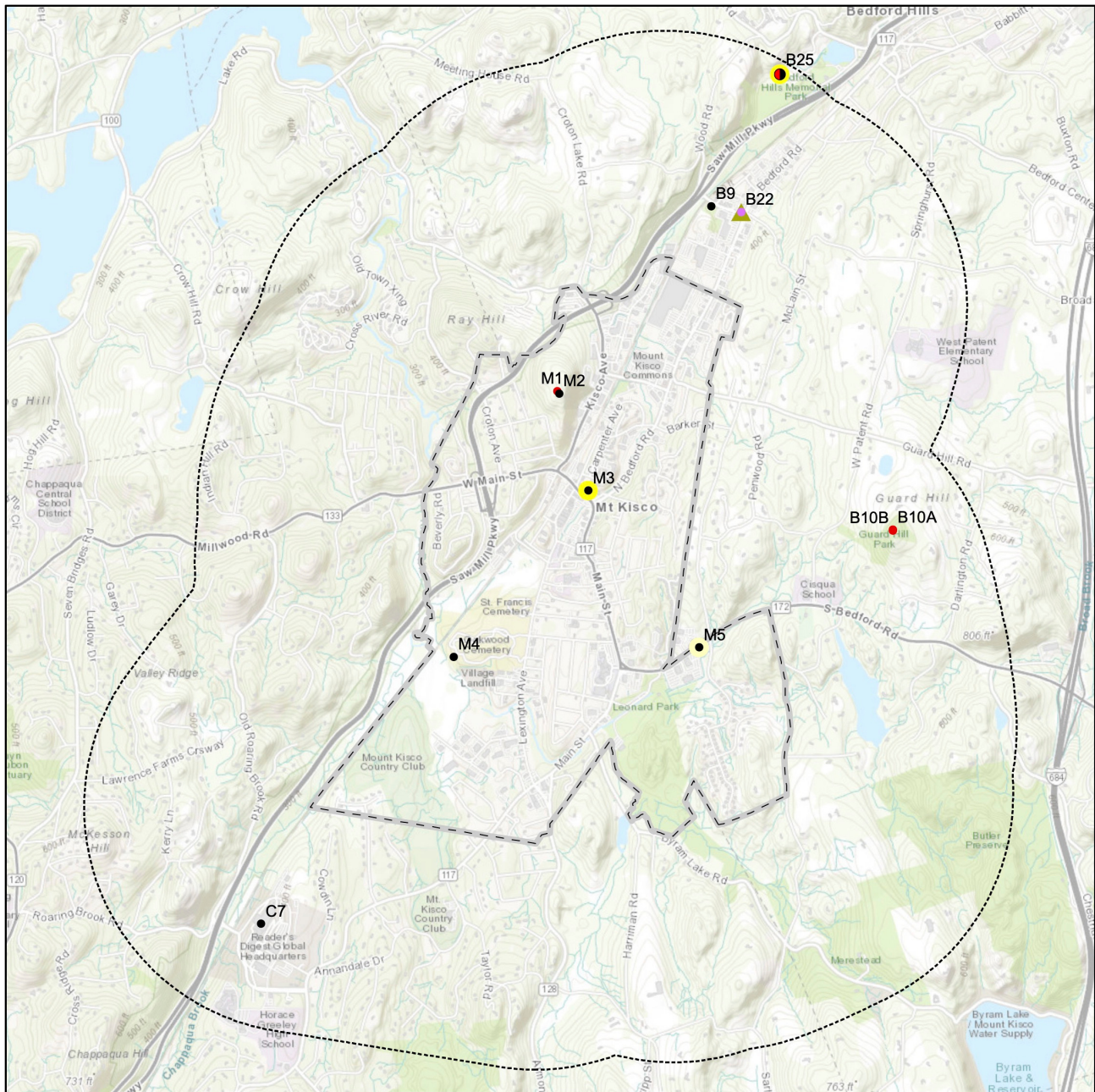


Figure M1: Map of Existing Inventory by Structure Type





Northern Westchester County Inventory by: **Mount Kisco**

**Cataloged Antenna Type**

- Macrocell Facility (6)
- Small Wireless Facility (1)
- Public Safety (3)
- Macrocell Facility and Public Safety (1)
- Draft Green Field Options (0)
- Other (0)
- Approved but Not Yet Built (2)
- Proposed and Under Review (1)
- ▲ Inquiry (1)

- ▭ City Boundary
- - - 1 Mile Buffer

Sources: US Census Bureau,  
Cityscape Consultants, Inc, USGS

Map Created by Cityscape  
Consultants, Inc. on

Date: 6/8/2023

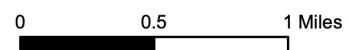
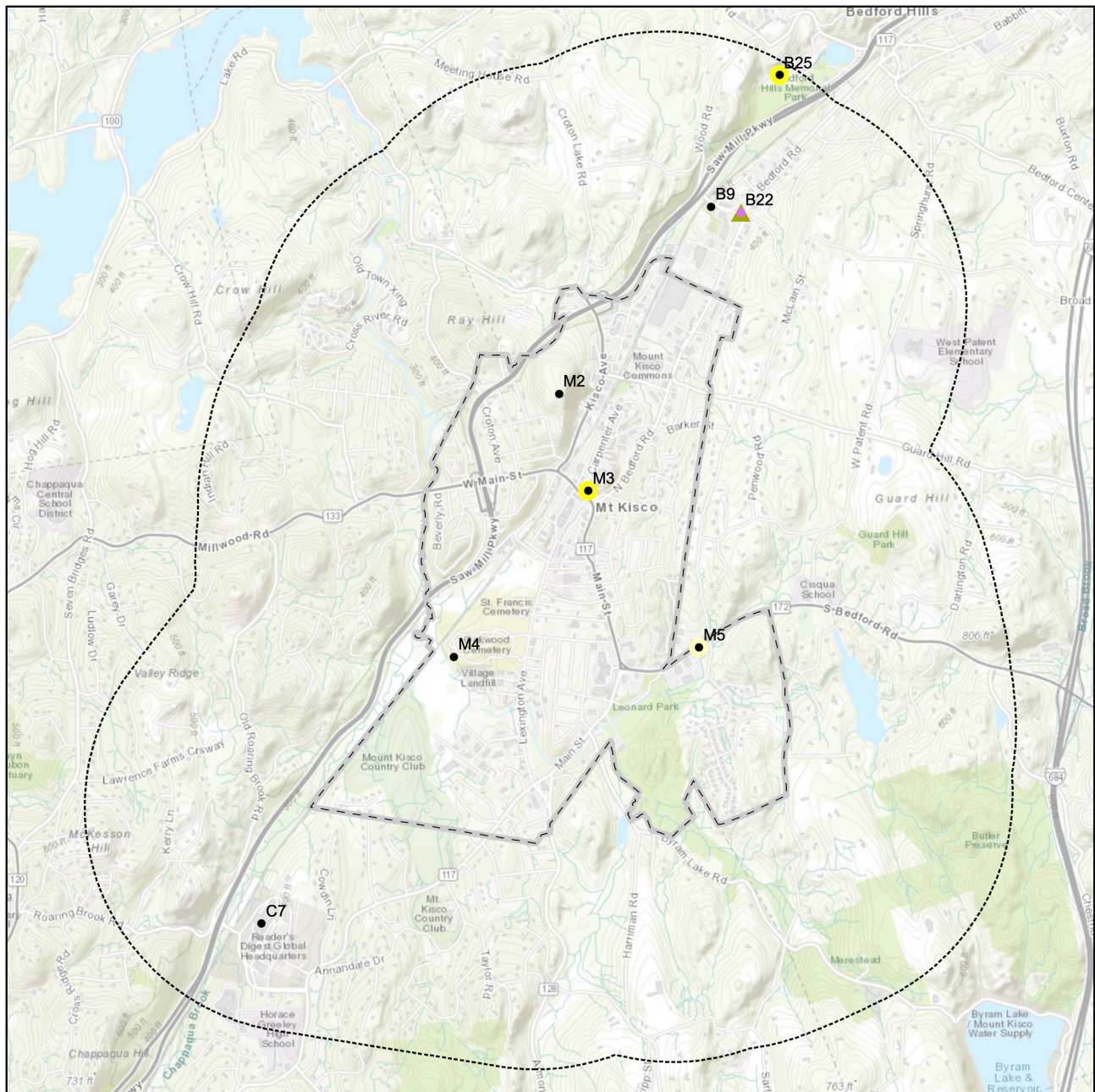


Figure M2: Map of Existing Inventory by All Antenna Type





# Northern Westchester County Inventory by: **Mount Kisco**

## **Cataloged PWSF Antenna Type**

- Macrocell Facility (7)
- Small Wireless Facility (1)
- Approved but Not Yet Built (2)
- Proposed and Under Review (1)
- ▲ Inquiry (1)
- ▭ City Boundary
- ▭ 1 Mile Buffer

Sources: US Census Bureau,  
Cityscape Consultants, Inc, USGS

Map Created by Cityscape  
Consultants, Inc. on

Date: 6/8/2023

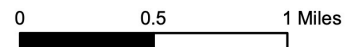
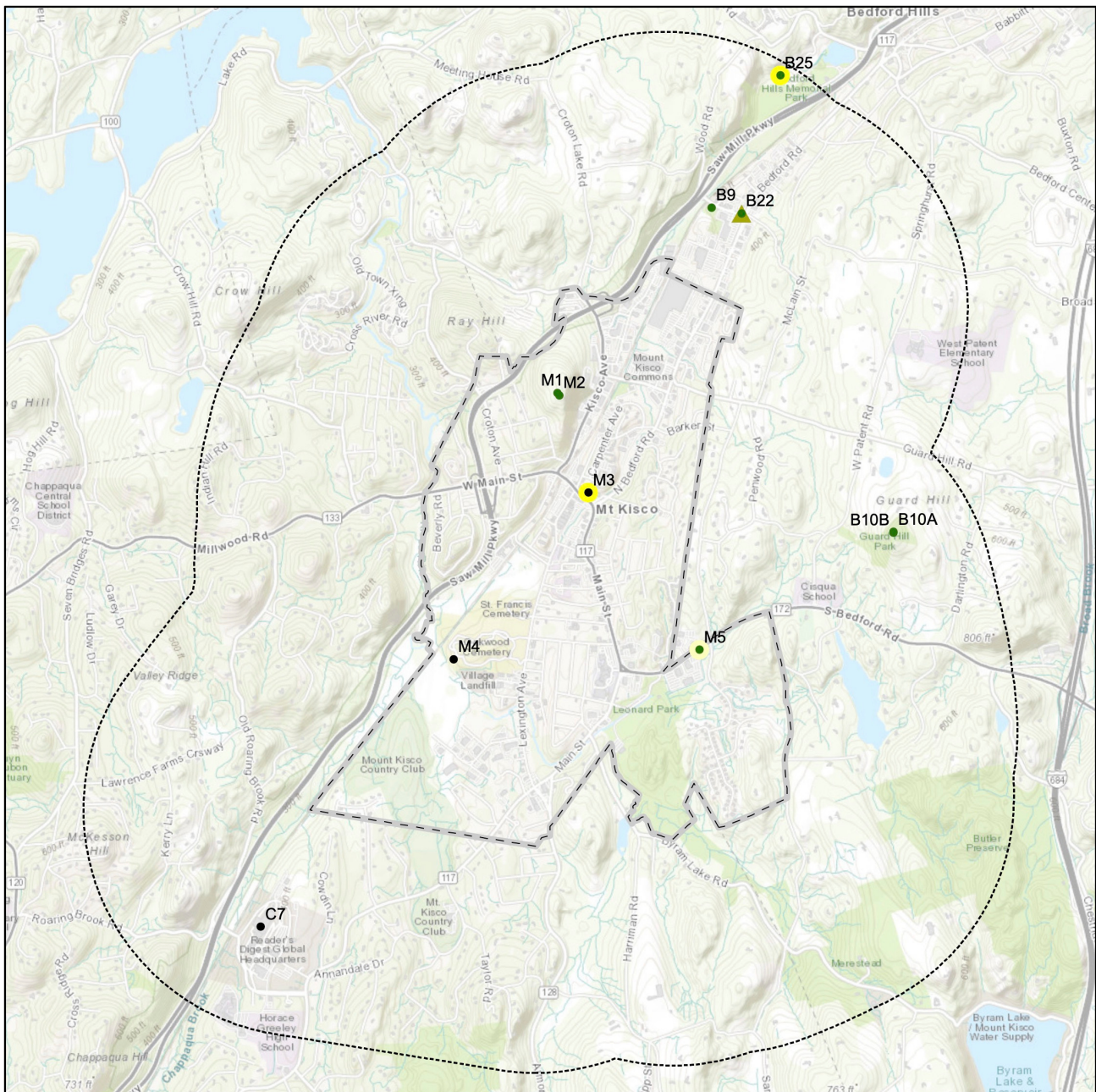


Figure M3: Map of Existing Inventory by PWSF Antenna Type





## Northern Westchester County Inventory by: **Mount Kisco**

### Cataloged Location

- Private Property (3)
- Inside Right-of-Way (0)
- Publicly Owned (8)
- Utility Easement (0)
- Approved but Not Yet Built (2)
- Proposed and Under Review (1)
- ▲ Inquiry (1)
- ▭ City Boundary
- ⋯ 1 Mile Buffer

Sources: US Census Bureau,  
Cityscape Consultants, Inc, USGS

Map Created by Cityscape  
Consultants, Inc. on

Date: 6/8/2023

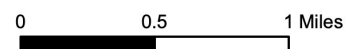
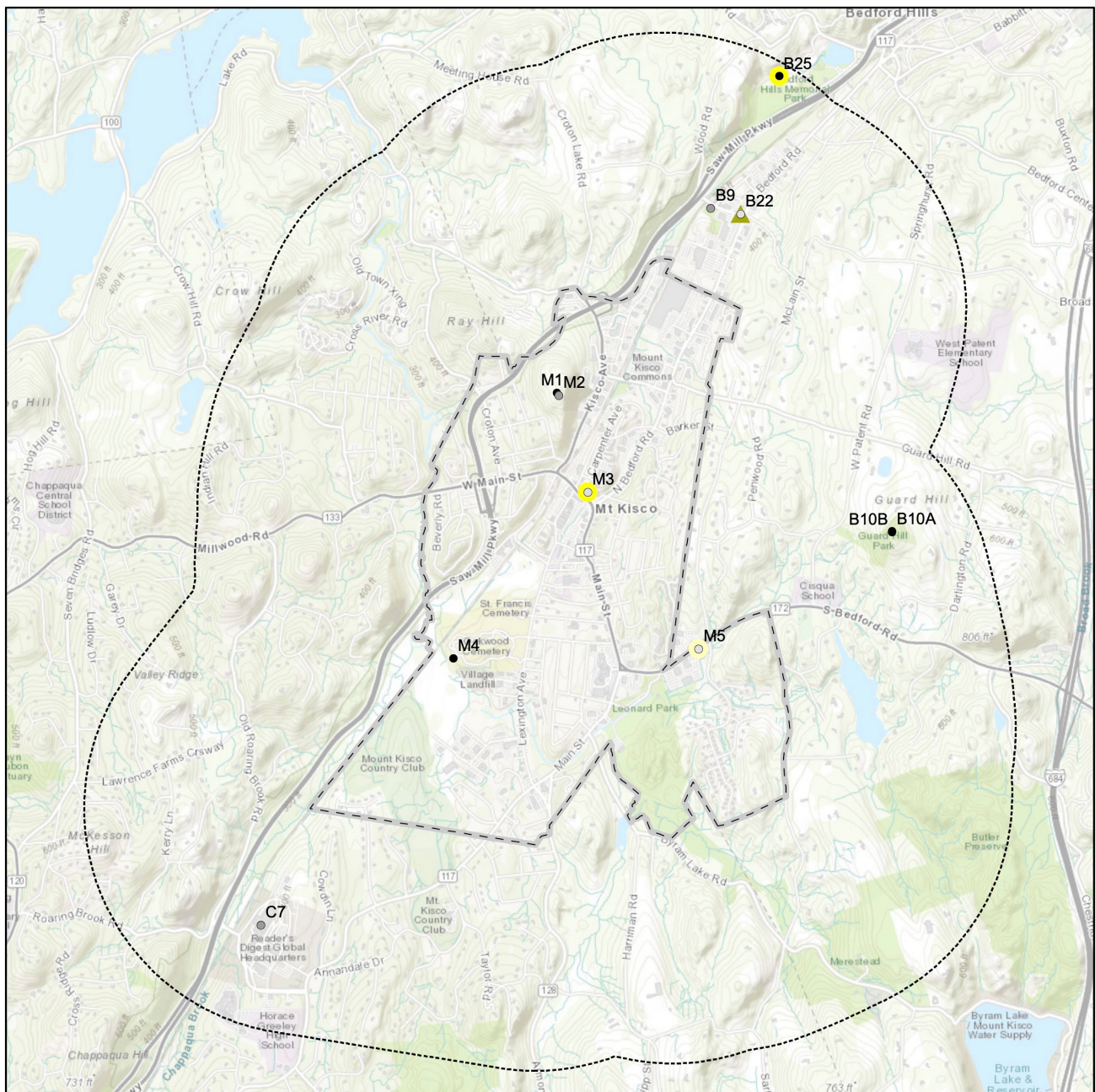


Figure M4: Map of Existing Inventory by Location





**Northern Westchester County Inventory by: Mount Kisco**

**Cataloged Design Type**

- Concealed Tower or Base Station (3)
- Semi-Concealed Tower or Base Station (3)
- Non-concealed Tower or Base Station (5)
- Approved but Not Yet Built (2)
- Proposed and Under Review (1)
- ▲ Inquiry (1)
- ▭ City Boundary
- ⋯ 1 Mile Buffer

Sources: US Census Bureau,  
Cityscape Consultants, Inc, USGS

Map Created by Cityscape  
Consultants, Inc. on

Date: 6/8/2023

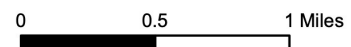


Figure M5: Map of Existing Inventory by Design Type

# PROPAGATION MAPPING AND SIGNAL STRENGTH

Propagation mapping is a tool used to simulate antenna signal strength. Signal strength is a term used to describe the level and operability of a wireless device. The stronger the signal between the elevated antenna and the wireless handset device the more likely the device and all the built-in features will work as expected. As a wireless device approaches the outer edge of the antenna's service area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen.

A reduced signal causes unsatisfactory service, results in slow download or upload speeds and can cause dropped calls. Other factors affecting signal strength are any natural or man-made obstructions such as location of buildings, type of building materials, vegetation, humidity or weather that comes between the antenna and devices. The use of devices indoors or outdoors is also a factor when determining signal strength. Consider this much like a light bulb in a lamp; the further away you are from the lamp, the dimmer the light becomes. Any obstructions in between you and the lamp dims or obscures the light, just like signal strength.

The following propagation map provided in *Figure M6* illustrates simulated predicted coverage from the existing and approved but not built personal wireless service facility (PWSF) sites for wireless service providers operating in the Village/Town. The map is generated using mid-band frequency spectrum 1700-2400 MHz assuming maximum operating power from each of the towers or base stations. This simulated propagation considers a generic antenna model similar to those used by wireless service providers and assumes each provider is located at the highest mounting height on each facility represented.

The gradation of colors from yellow to blue represents the signal strength emanating from each personal wireless service facility. The geographic areas in yellow identify superior outdoor and indoor signal strength, green equates to areas with average in vehicle signal strength and shades of blue symbolize acceptable or poor outdoor signal strength. Areas with no shades show marginal, spotty or no signal. A quick reference of the shades and descriptions are as follows in *Table M2*.



SIGNAL STRENGTH COLOR	dBm	SIGNAL STRENGTH DESCRIPTION
Yellow	> -75	In Building
Green	-95	In Vehicle
Blue	-105	Outdoor
Gray or White		Marginal or No Service

Table M2: Signal Strength Description

This modeling assumption gives an estimation of the wireless coverages in the Village/Town if each service provider was located on each facility. It is noted that not all service providers are on every tower or base station but the goal is to maximize the existing infrastructure already in place to accommodate the other providers.

There are two towers within Mount Kisco's jurisdictional boundary, and both facilities have antennas used for commercial wireless communication purposes. These sites are identified as M2 and M4. Both of these sites are on higher ground elevations and provide a wide range of coverage throughout the Village/Town. Site B9 in Bedford is located within the one-mile perimeter providing wireless coverage in the northern portion of Mount Kisco.

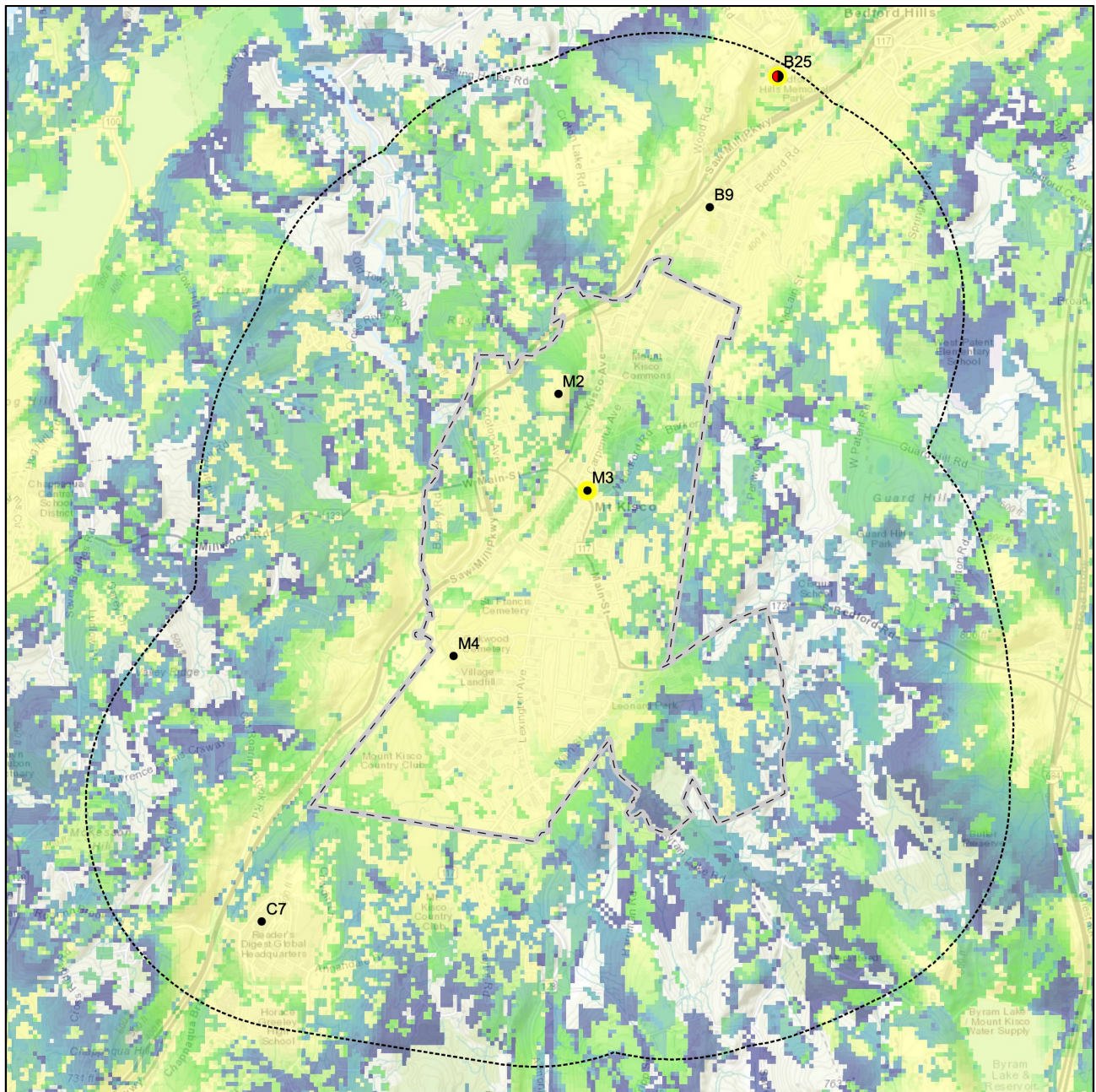


Site M2



Site M4





Northern Westchester County Inventory by: **Mount Kisco**

**Cataloged PWSF Antenna Type**

- Macrocell Facility (5)
- Small Wireless Facility (0)
- Public Safety (0)
- Macrocell Facility and Public Safety (1)
- Draft Green Field Options (0)
- Other (0)
- Approved but Not Yet Built (2)
- Proposed and Under Review (0)
- Inquiry (0)
- ▭ City Boundary
- ⋯ 1 Mile Buffer

**Mid-band Frequency PWSF Sites**

Approximate Coverage

- Indoor (-75)
- In Vehicle (-95)
- Outdoor (-105)

Sources: US Census Bureau,  
Cityscape Consultants, Inc, USGS

Map Created by Cityscape  
Consultants, Inc. on

Date: 6/8/2023

0 0.5 1 Miles



Figure M6: Simulated Coverage Map from PWSF Sites



# POPULATION DENSITY AND LAND CLASSIFICATION

Population density is a variable affecting wireless networks. Wireless service providers want to deploy as close to their subscriber base as possible which is why residential areas, employment centers, recreational facilities and along major highways/thoroughfares are ideal locations for infrastructure. Examining population density is a key component in determining where there is likely to be the greater demand of wireless networks.

*Figure M7* is a map of the Village/Town's population density by US Census Block Group and overlaid with existing and approved but not built macro and small wireless facilities. The darkest shades of brown represent US Census Block Groups with over 3,000 people per square mile and are the highest population densities in the Village/Town. This indicates the areas with the most potential wireless network consumers.

*Figure M8* is the Village/Town's Land Classification map also with the existing and approved but not built wireless facilities as an overlay.

When comparing *Figure M6* (propagation map) to *Figure M7* (population density map) and *Figure M8* (land classification map) the notable wireless facility deployment pattern indicates the two existing facilities are parallel the Saw Mill Parkway and passenger railroad, both major transportation corridors. Approved but not built Site M3 is along the Main Street corridor near commercial land use zones and densely populated areas of Town. Site M5 is proposed and under review at Leonard Park on public park property at 180 S. Bedford Road.

Coverage and capacity will be greatly improved in the southern and southeastern part of the Village/Town if the proposed macro cell site at M5 is approved, constructed and operable. Until then, that portion of Mount Kisco will continue to have issues related to coverage and capacity during peak network usage.

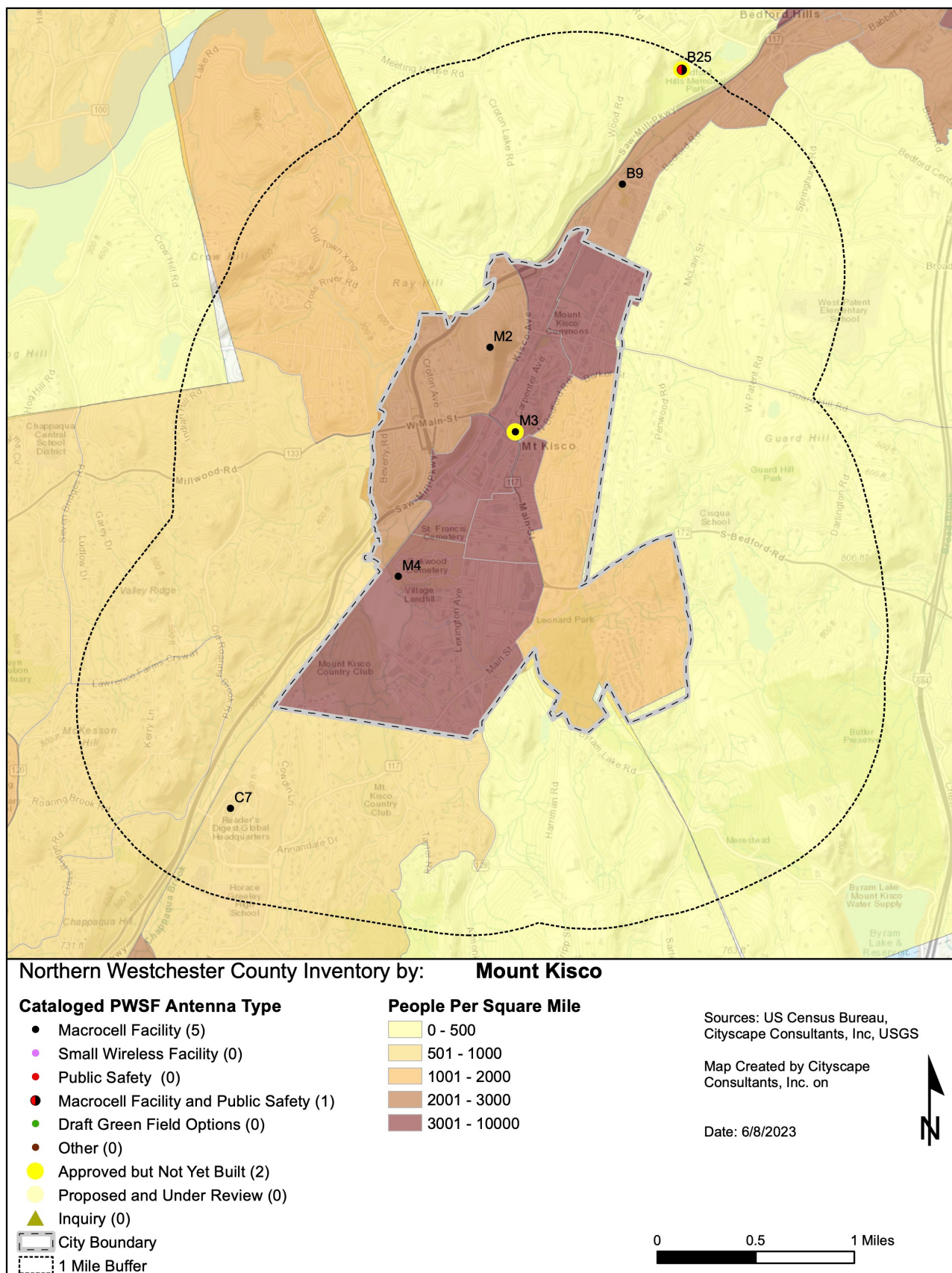
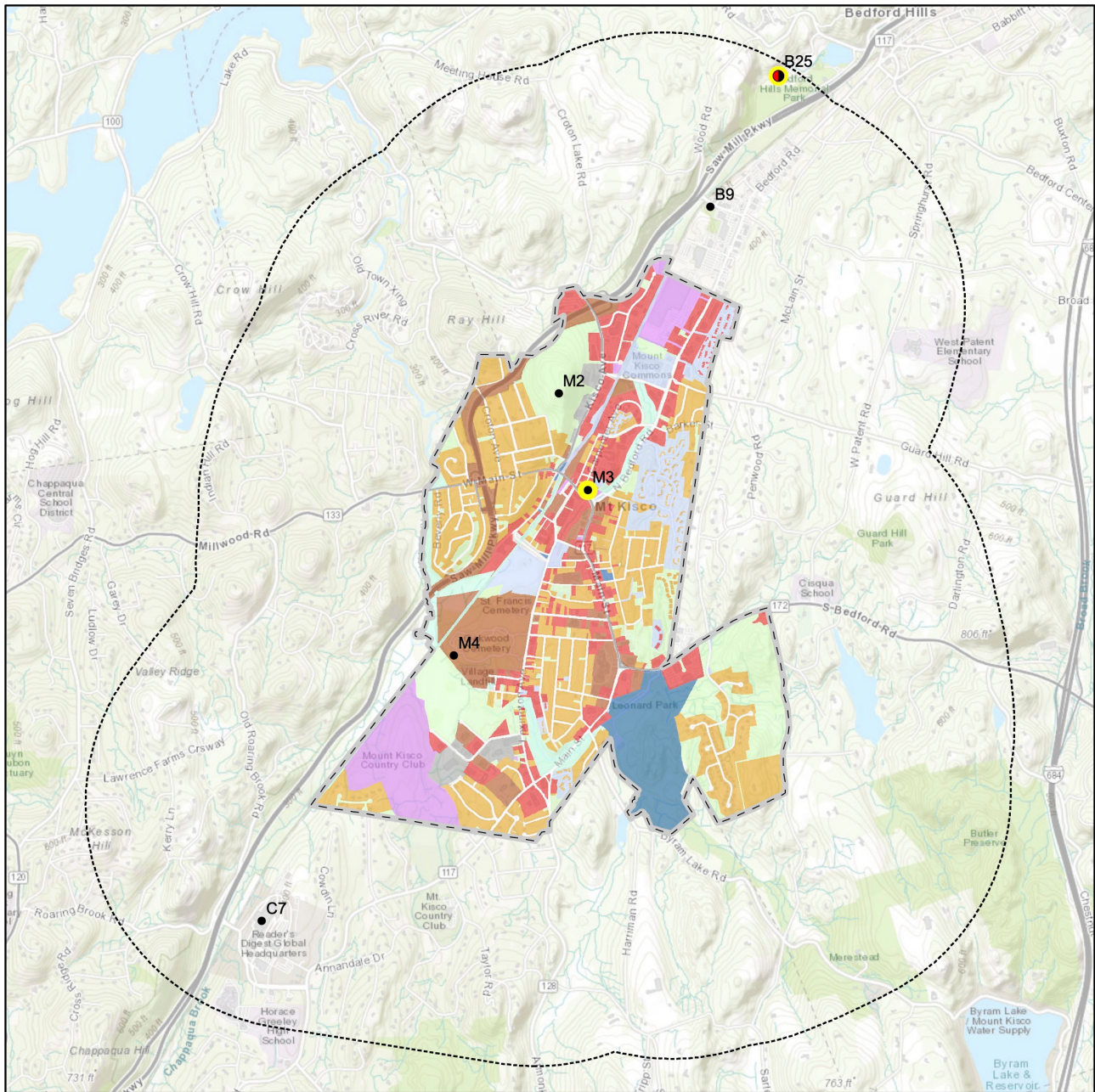


Figure M7: Population Density with PWSF Overlay





Northern Westchester County Inventory by:

**Mount Kisco**

**Cataloged PWSF Antenna Type**

- Macrocell Facility (5)
- Small Wireless Facility (0)
- Public Safety (0)
- Macrocell Facility and Public Safety (1)
- Draft Green Field Options (0)
- Other (0)
- Approved but Not Yet Built (2)
- Proposed and Under Review (0)
- Inquiry (0)

City Boundary

1 Mile Buffer

**Land Classification**

- Residential
- Commercial
- Community services
- Industrial
- Public services
- Recreation & entertainment
- Agricultural
- Wild, forested, conservation lands and public parks
- Vacant land
- Unclassified

Sources: US Census Bureau, Cityscape Consultants, Inc, USGS

Map Created by Cityscape Consultants, Inc. on

Date: 6/8/2023

0 0.5 1 Miles



Figure M8: Land Classification Map

# WIRELESS NETWORK DENSIFICATION

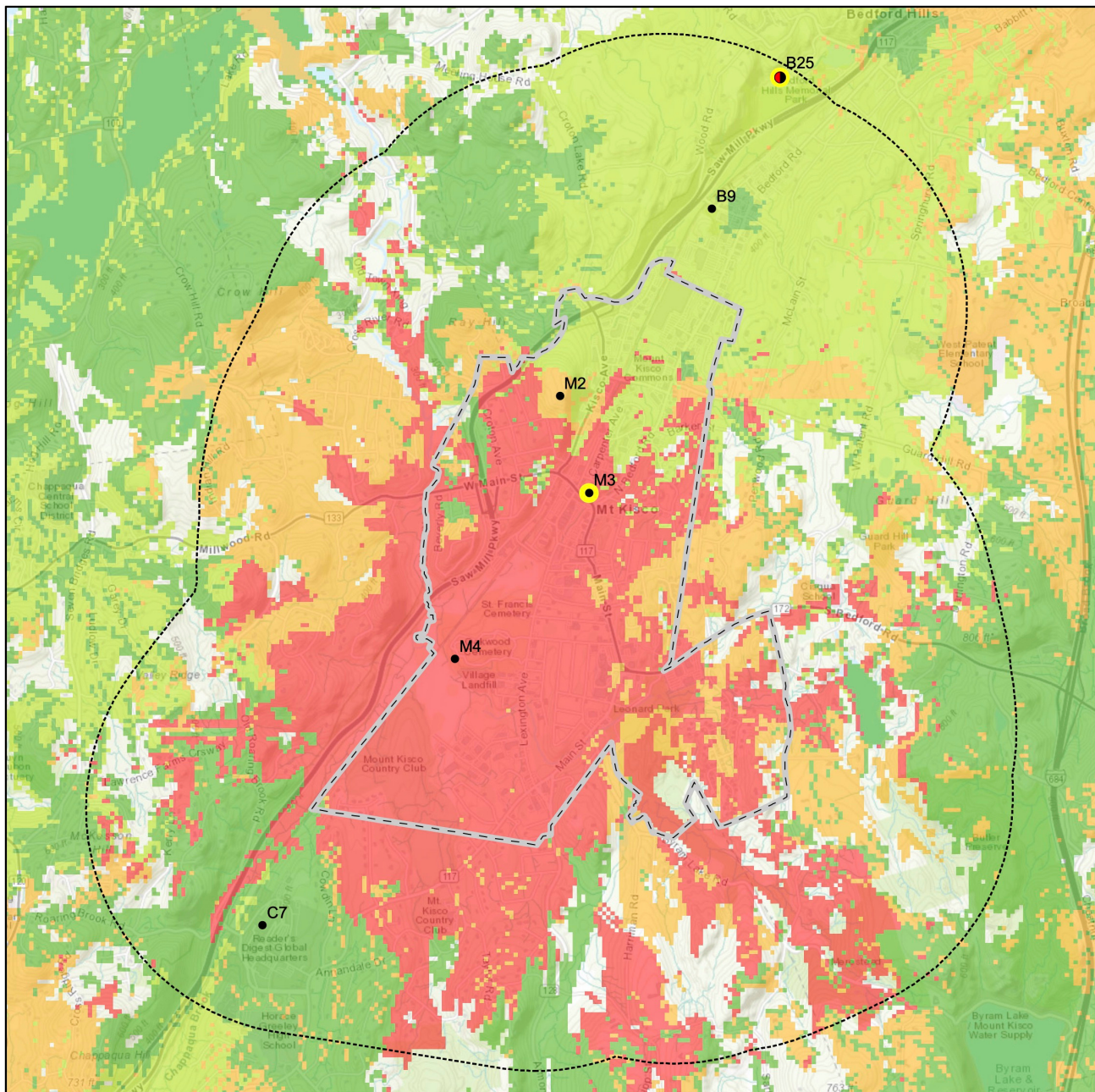
Modern and advancing technologies continue to transform how the wireless industry builds out their networks. Each wireless service provider is in a different stage of fifth generation (5G) deployment and use different technologies and spectrum to compete in the 5G race. In the evolution of wireless communications, some smartphones still use 4G technologies but they are rapidly transitioning to 5G wireless networks. Both platforms incorporate broadband technology enabling all the Smartphone applications like global positioning services (i.e. Google Maps, Waze Navigation); public safety, medical and banking services; weather, educational, music, games, on-line reading and countless other on demand services. These applications require significant amounts of information to be sent and received within the same radio signal boundary. Network densification is often needed within the coverage area to improve network capacity.

Network capacity is the amount of wireless traffic that a service provider's network can handle at any given time within a specific location. Capacity takes into account the amount of bandwidth being used simultaneously by way of voice calls, and data usage. In order to estimate network capacity, consideration and analysis of the distinct characteristics of the community is studied and portrayed.

Network densification means wireless service providers need to add more capacity to their networks to handle all the usage and network speeds subscribers expect. There are several ways to add capacity to a network. One is providers buying more spectrum, two is making spectrum more efficient and third adding more wireless facilities to areas in need. Commercial wireless providers are pursuing all three methodologies to prepare for and meet network speeds and improvements.

The following *Figure M9* theorizes geographic areas needing network coverage and capacity densification. Red and orange shaded areas are vicinities where the existing number of towers and base stations are proportionally insufficient to the number of existing households. Yellow and green shaded areas do not need immediate densification, provided existing PWSFs inside these colorings can accommodate collocations for other service providers. If collocation options are not available at the existing sites in the yellow and green shaded areas, then a new PWSF will be necessary to accommodate additional antennas. Any area void of yellow, green, orange or red colorings represents places in the Village/Town with immediate need of personal wireless service facilities.





# Northern Westchester County Inventory by: **Mount Kisco**

## **Cataloged PWSF Antenna Type**

- Macrocell Facility (5)
- Small Wireless Facility (0)
- Public Safety (0)
- Macrocell Facility and Public Safety (1)
- Draft Green Field Options (0)
- Other (0)
- Approved but Not Yet Built (2)
- Proposed and Under Review (0)
- Inquiry (0)

- ▭ City Boundary
- ▭ 1 Mile Buffer

## **Number Households**

- 1 - 500 (Acceptable Capacity)
- 501 - 1000
- 1001 - 1500
- 1501 - 3450 (Poor Capacity)

Sources: US Census Bureau, Cityscape Consultants, Inc, USGS

Map Created by Cityscape Consultants, Inc. on

Date: 6/8/2023



0 0.5 1 Miles

Figure M9: Heat Map Approximating Network Capacity Areas of Concern

# POTENTIAL SOLUTIONS

Long Term Evolution (LTE) is a 4G wireless communication standard used by commercial wireless service providers offering high-volume data and faster internet speeds with minimal delay or latency. Transitioning to LTE modeling requires a slight change in the propagation model. Residential indoor service tends to require a minimum of -95 dBm RSRP (LTE Reference Signal Received Power) which contains a 5 dB margin added to ensure reliable indoor services. The typical minimum service level for in vehicle is -90 to -105 dBm, which makes for reliable text, call and data sessions, and the minimum usable outdoor LTE coverage level is -115 dBm.

The following Figures are representations of simulated LTE coverage assuming all service providers are on each facility since this is the best possible collocation scenario. Each of these figures uses the following RSRP signal level shown in *Table M3*.

SIGNAL STRENGTH COLOR	dBm	SIGNAL STRENGTH DESCRIPTION
Yellow	> -90	In Building
Green	-90 to -105	In Vehicle
Blue	-105 to -115	Outdoor

Table M3: LTE Signal Strength Description





## MOUNT KISCO OVERVIEW

The following *Figure M10* provides a closer look at the LTE coverage predictions from all the existing personal wireless facilities in the Mount Kisco Study Area. The area outlined in blue illustrate very poor to non-existent wireless coverage and the areas in greatest need of wireless infrastructure.

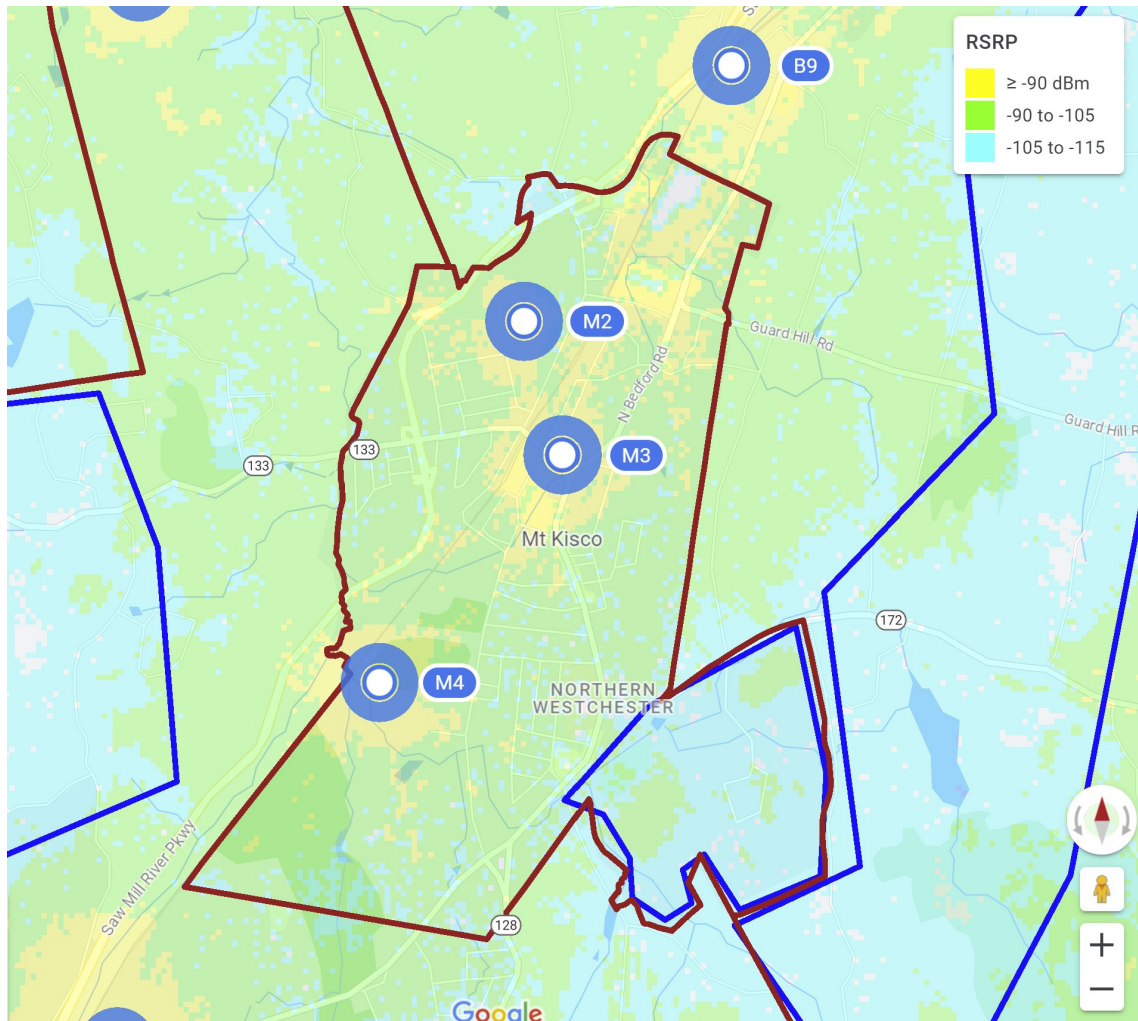


Figure M10: LTE Coverage Predictions Existing or Approved PWSF Sites

The following maps provide an in depth look at specific underserved areas and offer potential solutions to fill-in these gaps. Suggested new macro cell towers or base stations are represented as new tower (NT) followed by a number.

In order to improve coverage areas in Mount Kisco it is anticipated to take a minimum of three macro cell facilities, either towers or base stations at approximately 100' or 120' in height in the vicinities shown on the maps. Areas where a new tower is suggested is identified by NT followed by a number on the following map.

The following *Figure M11* shows predicted coverages utilizing existing tower Sites M2 and M4, approved but not built Site M3 and proposed and under review Site M5. If all these sites are utilized for macro cell facilities, then the addition of three new macro wireless facilities (M-NT1, M-NT2, M-NT3) should be sufficient for the Village/Town. If the proposed site does not come to fruition, then other macro cell site or a number of small wireless facilities may be necessary in the same vicinity.

Site M-NT1 is a suggested 100' macro wireless facility in the northern part of Mount Kisco and needed in the commercial zones and along North Bedford Road to improve capacity and to help handoff between Sites B9 and B22 in Bedford and M2 in Mount Kisco. Site M-NT2 is a suggested 100' macro cell and is recommended in between approved Site M3 and proposed Site M5 for handoff between the two sites and to accommodate needed capacity in this area. If a macro cell site at suggested N-NT2 is not constructed then it is estimated to take approximately four small wireless facilities south of approved Site M3 and north of potential M-NT3. Site M-NT3 a suggested 120' macro cell, would provide capacity densification in some of the most heavily populated neighborhoods in the Village/Town and would maintain network connections along North Bedford Corridor between Mount Kisco and Site C7 in New Castle.

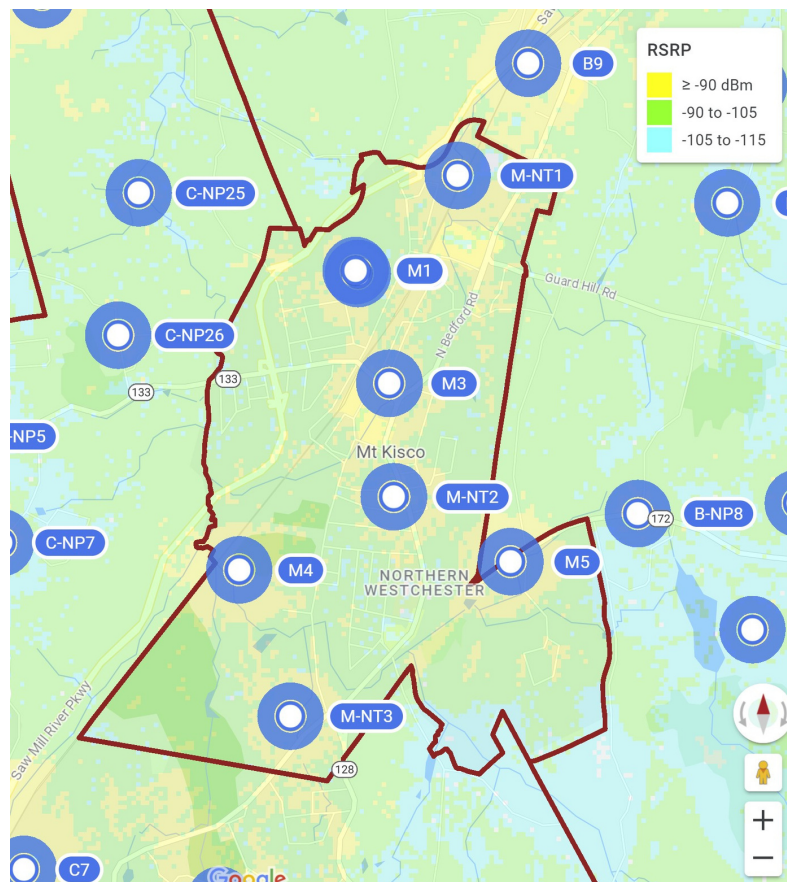


Figure M11: Predicted LTE Coverage Mount Kisco



The following *Table M4* provides a summary of all the suggested macro fill in sites for the Village/Town.

MACRO CELL SUGGESTED SITES	
SITE NAME	FACILITY HEIGHT (FEET)
M-NT1	100'
M-NT2	100'
M-NT3	120'

Table M4: Suggested Macro Fill-In Sites



# COMMUNITY SURVEY AND ZONING

In order to facilitate effective regulations that takes community input into consideration, the Village/Town promoted a Wireless Telecommunications Infrastructure Survey (Survey) to engage the townspeople. The main objective was to solicit information regarding thoughts, concerns and preferences as it relates to wireless infrastructure facilities.

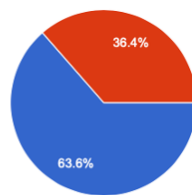
The Survey solicited opinions and experiences regarding the importance of the current state of wireless connectivity and aesthetics of the infrastructure in the Village/Town. The survey opened on October 7, 2021 and closed on December 16, 2021 and during that time 119 people participated in the poll. The responses are very similar to those collected for the larger study area.

Those who participated in the survey indicated that wireless connectivity and quality of service is very important to them but unlike most of the other communities in the study area, respondents in Mount Kisco, Somers and Yorktown indicate coverage at home, work and while travelling around the Town is generally excellent or acceptable. The majority support the use of public property for future sites and prefer concealed base stations, towers, and small wireless facilities over non-concealed and semi-concealed infrastructure.

The most notable observations from the survey and compared to the entire NWC study area are shown in *Table M5* with the entire collection of responses and comments provided in *Appendix D2*.



Thank you for taking the time to complete this poll. Please tell us a little about yourself.



- I am answering these questions on behalf of myself
- I am answering these questions on behalf of my household



RESPONSES	Mount Kisco	NWC
<b>PARTICIPANTS</b>	119	4002
<b>Average Number of Devices</b>	5	6
<b>Use of Devices</b>		
○ Personal Recreation/Leisure	84.00%	85.84%
○ Employment Related	51.30%	63.33%
<b>Wireless Coverage at Residence</b>		
○ Excellent or Acceptable	63.50%	43.03%
○ Poor or Inconsistent	35.60%	55.91%
<b>Wireless Coverage at Work</b>		
○ Excellent or Acceptable	40.80%	35.37%
○ Poor or Inconsistent	13.00%	32.60%
<b>Wireless Coverage Traveling Around Town</b>		
○ Excellent or Acceptable	67.80%	37.18%
○ Poor or Inconsistent	30.50%	61.88%
<b>Would Rely More on Device if Network was Better</b>		
○ Entirely Agree	41.50%	61.90%
<b>Quality of Wireless Service Is Important to Me</b>		
○ Entirely Agree	78.20%	87.64%
<b>What is Most Important to You</b>		
○ Excellent Connectivity	52.20%	56.24%
○ Good Connectivity and Minimal Visual Impact	37.30%	38.71%
<b>Prefer Taller Tower Supporting Multiple Collocations</b>	44.80%	44.64%
<b>Non-Concealed Tower Preference - Monopole</b>	64.30%	62.09%
<b>Concealed Tower Preference - Flag Pole</b>	66.10%	70.11%
<b>Rooftop Preference - Concealed</b>	80.00%	78.65%
<b>Small Wireless Facility Preference - Concealed</b>	88.60%	89.99%
<b>Locational Preference in Town - Anywhere</b>	56.90%	60.88%
<b>Support Use of Public Property for Revenue and Aesthetics - Yes</b>	47.80%	52.18%

Table M5: Summary of Notable Survey Responses

Overall, additional macro and small wireless facilities are needed throughout the Village/Town to provide initial coverages in areas where no service is currently available and in other areas where the ratio of subscribers exceeds the number of wireless facilities. Based on survey responses, the community supports and desires additional wireless infrastructure to improve the wireless network.

Additional macro wireless facilities are needed throughout the Village/Town to address network capacity where the ratio of subscribers exceeds the number of wireless facilities. Based on the poll responses, the community supports and desires additional wireless infrastructure to provide a robust wireless network in Mount Kisco.

The Village/Town's Code § 110-27.1. PWSF Personal Wireless Service Facilities Overlay District was added in 1996 and should be updated to harmonize all definitions and review timelines with current Code of Federal Regulation standards. Also, the Village/Town needs to add development standards and review and approval processes for installation of eligible facilities and small wireless facilities.

Other recommendations the existing Code for the Village/Town are as follows:


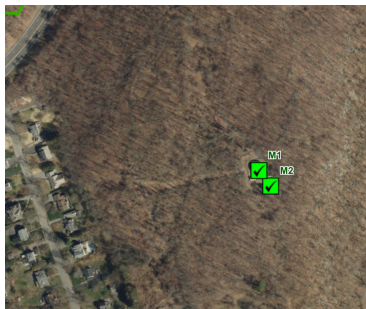
- Consolidate the development regulations listed below into one section of the Code specific to communication facilities:
  - § 110-27.1 and § 110-59 (PWSF standards)
  - § 110-31 E. (Additional development standards for rooftop installations)
  - § 110-23 B.(1)(b), § 110-24.1B.(1)(b) and § 110-25 B.1(1)(b) (broadcast facilities for radio and television)
- § 110-71.1.B. Only allows new PWSFs on properties other than Village-owned in the Personal Wireless Service Facilities Overlay District. It is likely new PWSFs, especially small wireless facilities, will be necessary in areas that do not meet these criteria and for this reason, this requirement could create a barrier to entry.
- § 110-71.1.E.(3) and § § 110-71.1.E.(5) use the phrase, "Unless the FCC promulgates rules to the contrary...". CityScape recommends removing this language because the FCC authorizes local governments to regulate heights and setbacks for wireless facilities.
- § 110-71.1.E.(3) limits the height of a tower to 80 feet above ground level or the minimum height to provide service to locations which the applicant is not able to serve with existing facilities, whichever is greater. This height limit may not accommodate collocations resulting in the need for multiple towers within the same geographic area of the shorter tower.
- § 110-71.1.G.(2) Annual Inspections. Is the Village/Town managing and collecting the required reports from the current commercial wireless providers? If not, then either remove the requirement or change the frequency the reports are due to the Village/Town and develop and accountability plan for tracking the required reports.





## APPENDIX D1

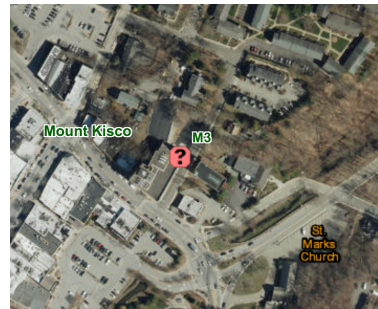
# WIRELESS INFRASTRUCTURE INVENTORY

Site M1		Emory Street	Mount Kisco
STRUCTURE TYPE:	Base Station		 
FACILITY TYPE:	Water Tank		
ANTENNA TYPE:	Public Safety		
DESIGN TYPE:	Non-Concealed		
FACILITY OWNER/ID:	Westchester County Mountain Ave		
FACILITY SITE NAME:	Mount Kisco - Mountain Ave		
SERVICE PROVIDERS:			
FCC ASR:			
HEIGHT:	50'		
LOCATION:	Public Property		
LATITUDE/LONGITUDE:	41.214632 N, -73.729549 W		
PARCEL ID:	06905600040070000000		
ZONING:	CD - Conservation Development District		
NOTES:	Antenna mounted on the water tank are part of the existing emergency radio service network.		

Site M2		1 Mountain Ave	Mount Kisco
STRUCTURE TYPE:	Tower		 
FACILITY TYPE:	Monopole		
ANTENNA TYPE:	Macro Cell		
DESIGN TYPE:	Semi-Concealed		
FACILITY OWNER/ID:	Crown Castle International - 843210		
FACILITY SITE NAME:	Mount Kisco		
SERVICE PROVIDERS:	AT&T, T-Mobile, Verizon, MTA		
FCC ASR:			
HEIGHT:	109'		
LOCATION:	Public Property		
LATITUDE/LONGITUDE:	41.214463 N, -73.729374 W		
PARCEL ID:	06905600040070000000		
ZONING:	CD - Conservation Development District		
NOTES:	Painted brown in an attempt to conceal somewhat however, doesn't meet the definition of concealed.		



Site M3		45 East Main Street	Mount Kisco
STRUCTURE TYPE:	Base Station		
FACILITY TYPE:	Roof		
ANTENNA TYPE:	Macro Cell		
DESIGN TYPE:	Concealed		
FACILITY OWNER/ID:	Verizon - VZCO-SC		
FACILITY SITE NAME:	Mt. Kisco		
SERVICE PROVIDERS:	Verizon		
FCC ASR:			
HEIGHT:	98'		
LOCATION:	Private Property		
LATITUDE/LONGITUDE:	41.208237 N, -73.726963 W		
PARCEL ID:	06908100020030000000		
ZONING:	CB-1 - Central Business District-1		
NOTES:	Approved Not Built		

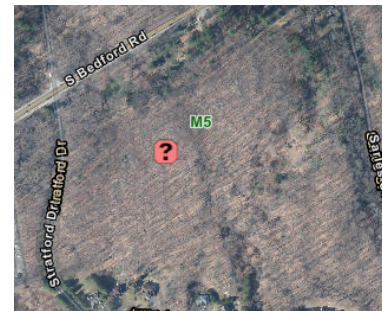
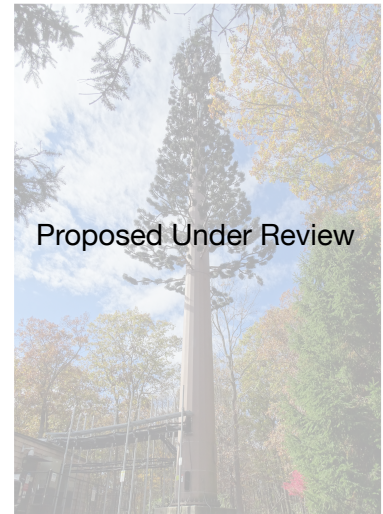


Site M4		304 Lexington Avenue	Mount Kisco
STRUCTURE TYPE:	Tower		
FACILITY TYPE:	Monopole		
ANTENNA TYPE:	Macro Cell		
DESIGN TYPE:	Non-Concealed		
FACILITY OWNER/ID:	Crown Castle International - 806584		
FACILITY SITE NAME:	South Mount Kisco - Oakwood Cemetery		
SERVICE PROVIDERS:	AT&T, T-Mobile, Sprint, Verizon		
FCC ASR:			
HEIGHT:	125'		
LOCATION:	Private Property		
LATITUDE/LONGITUDE:	41.197662 N, -73.738491 W		
PARCEL ID:	08003900010010000000		
ZONING:	PD - Preservation District; also in PWSF - Personal Wireless Service Facility Overlay District		
NOTES:			

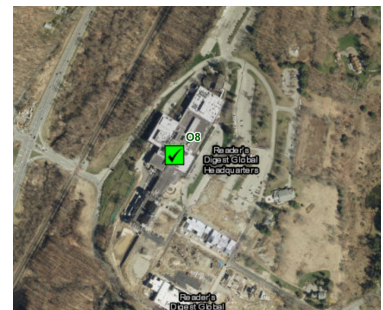


**Site M5****Mount Kisco**

<b>STRUCTURE TYPE:</b>	Tower
<b>FACILITY TYPE:</b>	Monopine
<b>ANTENNA TYPE:</b>	Macro Cell
<b>DESIGN TYPE:</b>	Concealed
<b>FACILITY OWNER/ID:</b>	Village Town of Mount Kisco
<b>FACILITY SITE NAME:</b>	
<b>SERVICE PROVIDERS:</b>	
<b>FCC ASR:</b>	
<b>HEIGHT:</b>	120'
<b>LOCATION:</b>	Public Property
<b>LATITUDE/LONGITUDE:</b>	41.197687 N, -73.721950 W
<b>PARCEL ID:</b>	
<b>ZONING:</b>	
<b>NOTES:</b>	Proposed Under Review

**Site C7****480 N Bedford Road****New Castle**

<b>STRUCTURE TYPE:</b>	Base Station
<b>FACILITY TYPE:</b>	Roof
<b>ANTENNA TYPE:</b>	Macro Cell
<b>DESIGN TYPE:</b>	Semi-Concealed
<b>FACILITY OWNER/ID:</b>	
<b>FACILITY SITE NAME:</b>	Chappaqua Commons
<b>SERVICE PROVIDERS:</b>	T-Mobile
<b>FCC ASR:</b>	
<b>HEIGHT:</b>	45'
<b>LOCATION:</b>	Private Property
<b>LATITUDE/LONGITUDE:</b>	41.180546 N, -73.755040 W
<b>PARCEL ID:</b>	
<b>ZONING:</b>	
<b>NOTES:</b>	





Site B9		5 Green Lane	Bedford
STRUCTURE TYPE:	Tower		
FACILITY TYPE:	Monopole		
ANTENNA TYPE:	Macro Cell		
DESIGN TYPE:	Semi-Concealed		
FACILITY OWNER/ID:	Crown Castle International/ 878862		
FACILITY SITE NAME:	Green Lane Wells		
SERVICE PROVIDERS:	Sprint, T-Mobile, Verizon		
FCC ASR:			
HEIGHT:	146'		
LOCATION:	Public Property		
LATITUDE/LONGITUDE:	41.2263822 N, -73.716326 W		
PARCEL ID:	07100800020470000000		
ZONING:	LI		
NOTES:	Monopole that is painted brown with three commercial wireless services providers.		



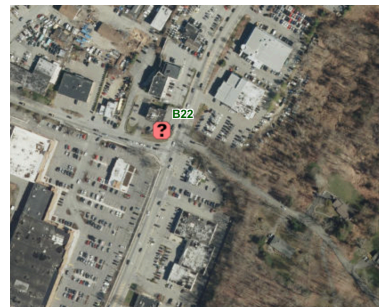
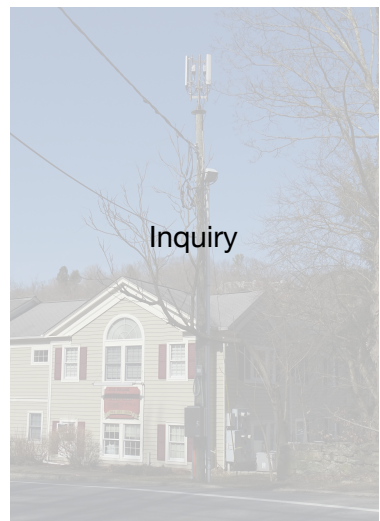
Site B10A		Guard Hill Preserve	Bedford
STRUCTURE TYPE:	Tower		
FACILITY TYPE:	Lattice		
ANTENNA TYPE:	Public Safety		
DESIGN TYPE:	Non-Concealed		
FACILITY OWNER/ID:	Westchester County		
FACILITY SITE NAME:	Guard Hill		
SERVICE PROVIDERS:			
FCC ASR:			
HEIGHT:			
LOCATION:	Public Property		
LATITUDE/LONGITUDE:	41.205554 N, -73.701177 W		
PARCEL ID:	08300500020010000000		
ZONING:	R-4A		
NOTES:	Lattice tower to be replaced with one 140' tower		



Site B10B		Guard Hill Preserve	Bedford
STRUCTURE TYPE:	Tower		
FACILITY TYPE:	Guyed		
ANTENNA TYPE:	Public Safety		
DESIGN TYPE:	Non-Concealed		
FACILITY OWNER/ID:	NY State DOT		
FACILITY SITE NAME:	Guard Hill		
SERVICE PROVIDERS:			
FCC ASR:			
HEIGHT:			
LOCATION:	Public Property		
LATITUDE/LONGITUDE:	41.205494 N, -73.701189 W		
PARCEL ID:	08300500020010000000		
ZONING:	R-4A		
NOTES:	Guyed tower with emergency radio service equipment.		



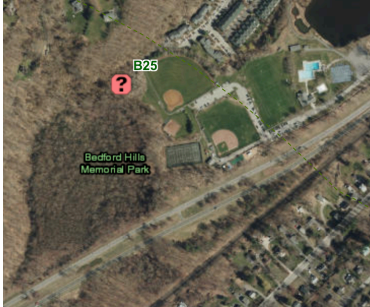
Site B22		709 Bedford Road	Bedford
STRUCTURE TYPE:	Tower		
FACILITY TYPE:			
ANTENNA TYPE:	Small Wireless Facility		
DESIGN TYPE:	Concealed		
FACILITY OWNER/ID:			
FACILITY SITE NAME:	Green Lane Microcell		
SERVICE PROVIDERS:			
FCC ASR:			
HEIGHT:	45'		
LOCATION:	Public Property		
LATITUDE/LONGITUDE:	41.225987 N, -73.713796 W		
PARCEL ID:			
ZONING:	RB		
NOTES:	Inquiry		





Site B25	Haines Road	Bedford
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STRUCTURE TYPE:	Tower
FACILITY TYPE:	Monopole
ANTENNA TYPE:	Macro and Public Safety
DESIGN TYPE:	Non-Concealed
FACILITY OWNER/ID:	Homeland Towers
FACILITY SITE NAME:	Sewer Treatment Plant
SERVICE PROVIDERS:	
FCC ASR:	
HEIGHT:	150'
LOCATION:	Public Property
LATITUDE/LONGITUDE:	41.234777 N, -73.710423 W
PARCEL ID:	
ZONING:	EL
NOTES:	Approved But Not Built





## APPENDIX D2

# **WIRELESS INFRASTRUCTURE SURVEY RESULTS**



# Wireless Infrastructure Poll

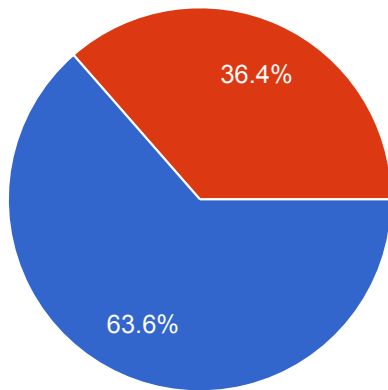
119 responses

[Publish analytics](#)

Thank you for taking the time to complete this poll. Please tell us a little about yourself.

 [Copy](#)

118 responses

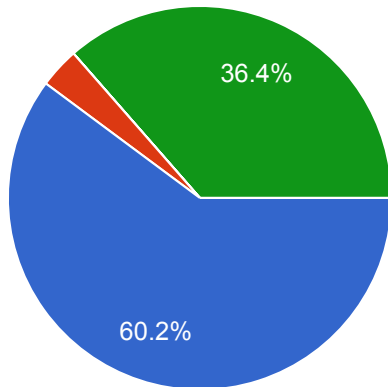


- I am answering these questions on behalf of myself
- I am answering these questions on behalf of my household

Choose which best describes you:

 [Copy](#)

118 responses

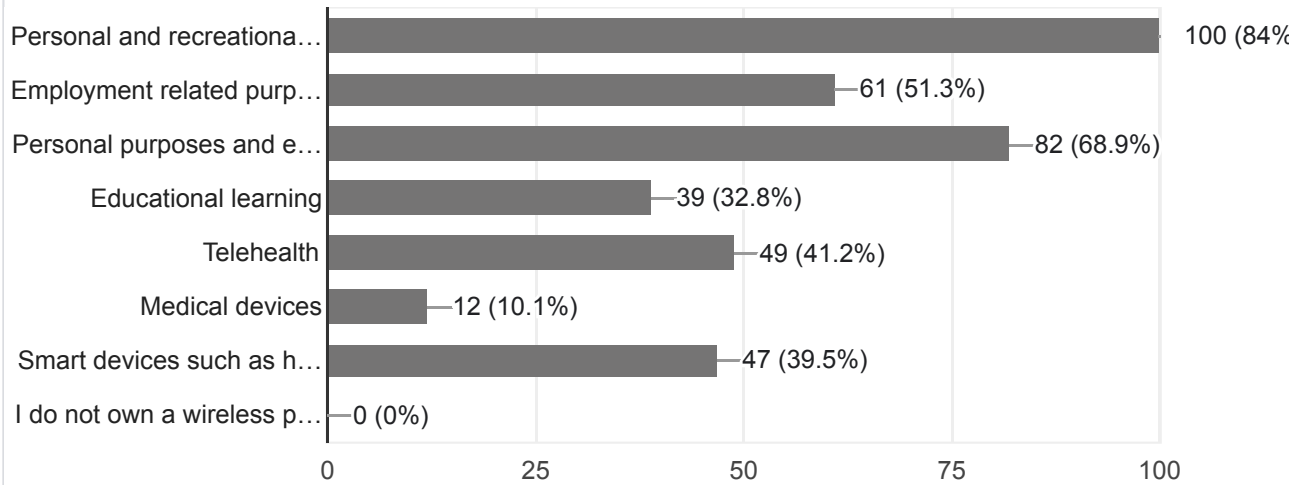


- I live and work in Mount Kisco year-round
- I live and work in Mount Kisco seasonally
- I live outside of Mount Kisco, but I work in Mount Kisco
- I live in Mount Kisco, but work outside of Mount Kisco

## I use personal wireless services for (check all that apply):



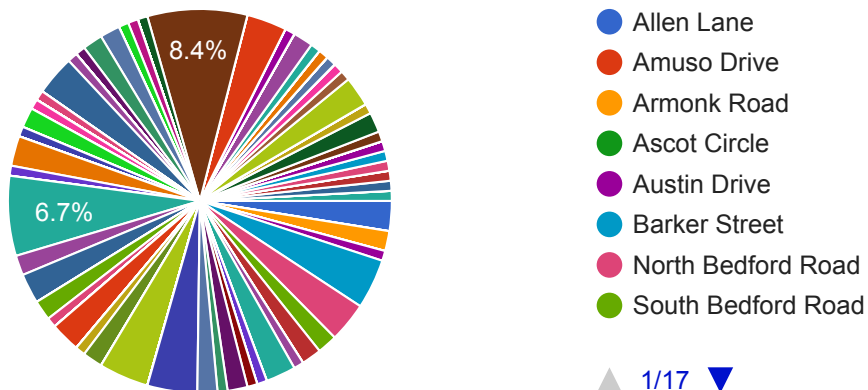
119 responses



## Please identify the area where you live by selecting the closest street to your residence.



119 responses

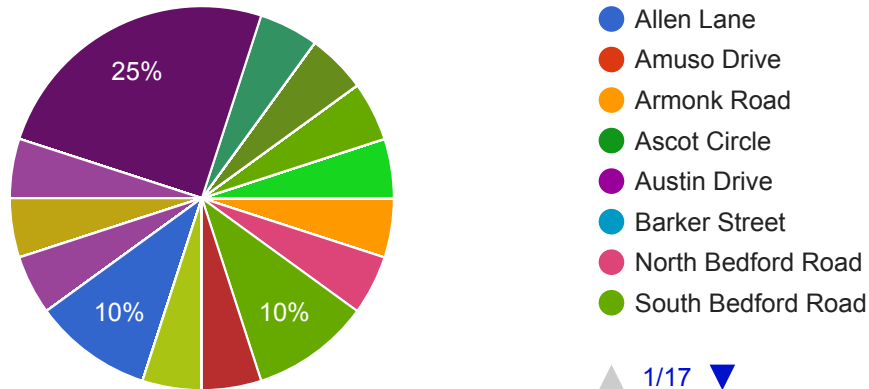




If you work in Mount Kisco at a fixed location other than your place of residence, then please identify where you work by selecting the closest street.



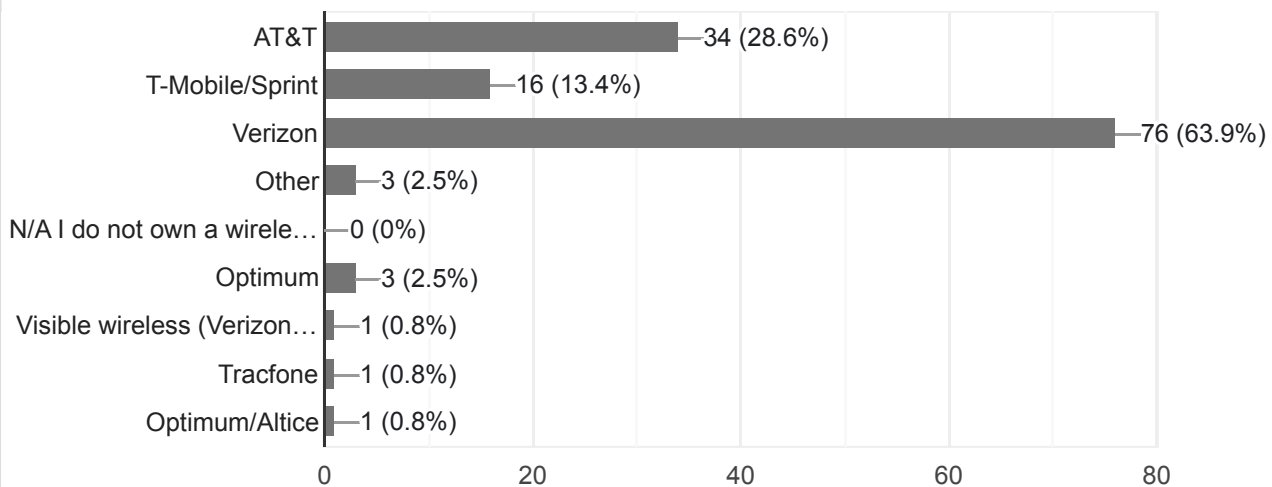
20 responses



My wireless service provider is (if you have multiple wireless providers then please mark all that apply):



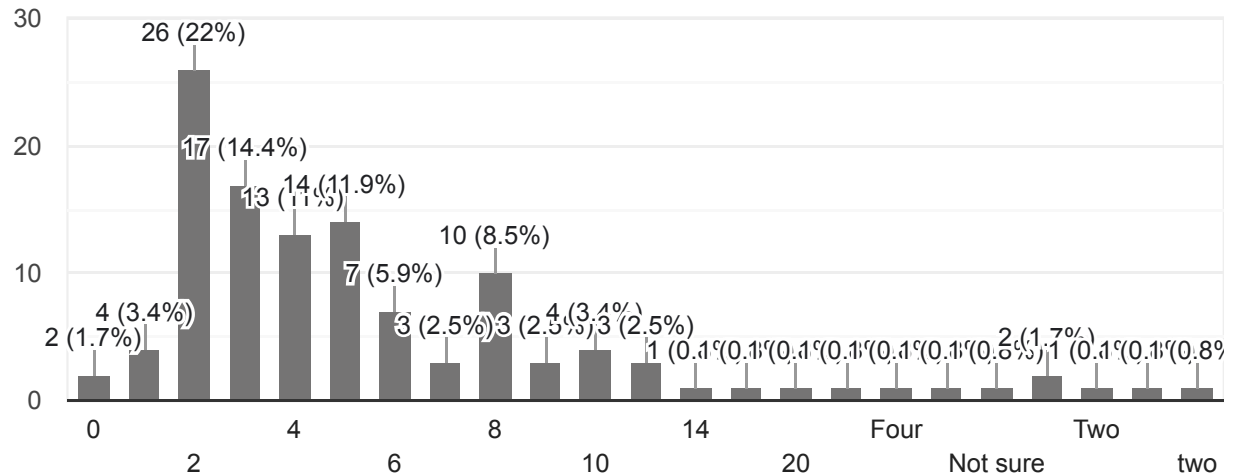
119 responses



How many wireless devices are used in your household? (Devices would include, but not be limited to, wireless phones, laptops, tablets, watches, computers NOT using your home internet provider. Do not include items like garage door openers or smart home items.)



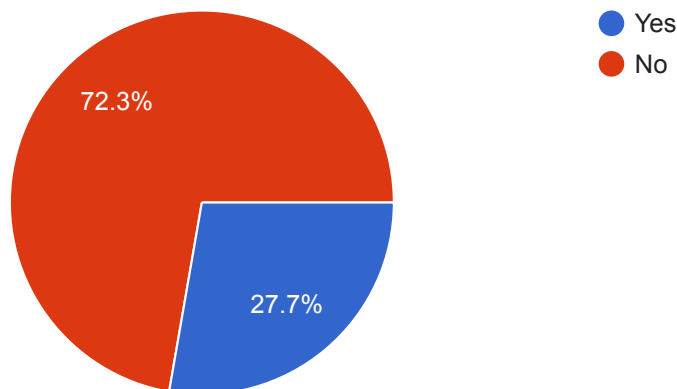
118 responses



Do you have a network extender (booster) to enhance your wireless service from your provider?



119 responses

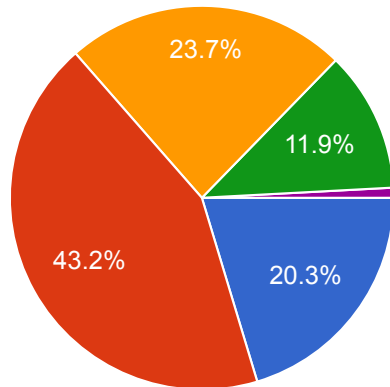




## Wireless network coverage where I reside is:



118 responses

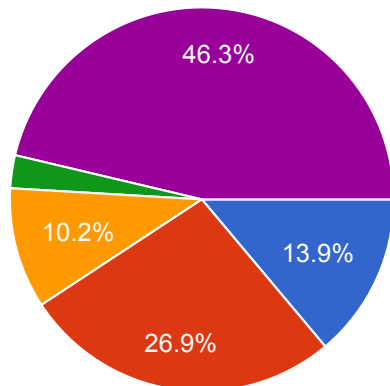


- Excellent (5 bars indoors and service never drops)
- Acceptable (3 bars indoors)
- Poor (1 bar indoors)
- Inconsistent
- N/A

## Wireless network coverage where I work is:



108 responses

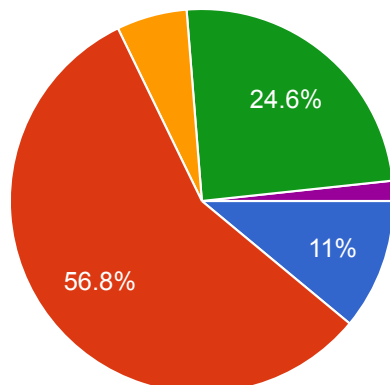


- Excellent (5 bars indoors and service never drops)
- Acceptable (3 bars indoors)
- Poor (1 bar indoors)
- Inconsistent
- N/A

## When I travel in and around the Town my network coverage is:



118 responses

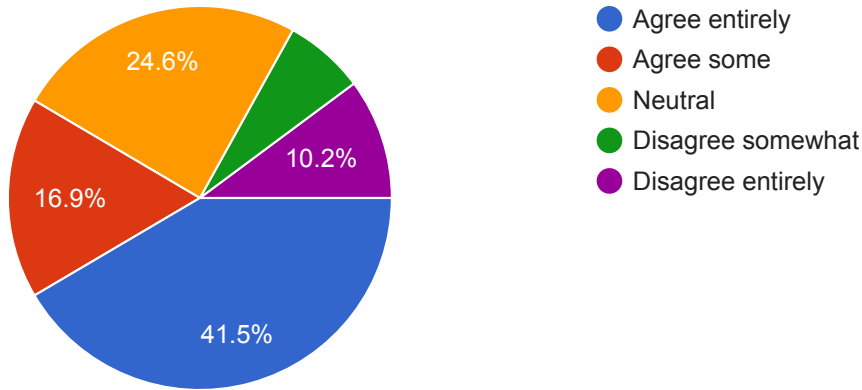


- Excellent (5 bars in vehicle and service never drops)
- Acceptable (3 bars in vehicle)
- Poor (1 bar in vehicle)
- Inconsistent
- N/A

I would rely more on my mobile device(s) if the network service was better.



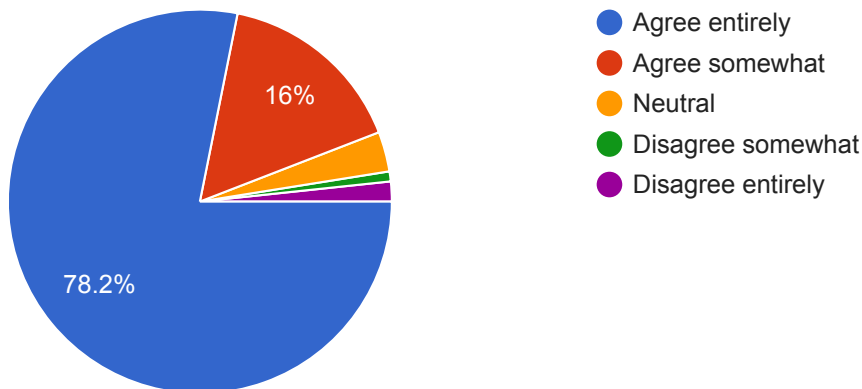
118 responses



The quality of wireless service is important to me.



119 responses



Are there specific areas of Mount Kisco where your service is poor? If yes, please explain below.

62 responses

No

172 area

Driving on highways (e.g. Saw Mill)

There are several areas that just don't have good coverage

McLain, over by CareMount. There is also apparent interference from networks (?) used by businesses—North Moger by HomeGoods comes to mind.

Along South Bedford Road and McLain Street. Also on Bedford Road east of 684.

172/

Along 172

172 by Leonard Park heading toward 684

Route 172

I don't have a problem

172

Route 72 near 684

1. Mount Kisco Train Station and 2. Rt. 133 between Presbyterian Church of Mt. Kisco and Seven Bridges Road

dead zone traveling on Route 128 to Armonk (around border)

Sometimes I lose connectivity in my house on Victoria Drive

Bedford Road

Route 128

Lose service on 172 near Mnlain

By CareMount Medical, McLain St.

Yes, there are a lot of areas where service is very spotty - I keep a landline as speaking for any length of time is much better than when I use a cellular phone



Downtown

On route 172

Outside of Caremount, inside Target

southeast area

Between the hospital and Mount Kisco Chase is the worst by far. It's spotty in areas of Leonard Park.

The area of 172 near Caremount. At Caremount I get no service at all.

Woodcrest Lane.

My home at  Byram Lake Rd.

In the vicinity of Main Street between Village Hall and Green Street.

Where I live on Glassbury Ct it is only one bar

Leonard Park is terrible, Rt 172 between 684 and Main Street

CareMount medical group/along 172

Route 133

residence: Woodcrest Village Condo

Between Route 172 and 684, near Kisco Chase and Leonard Park

N/A

Inside building where Oishii sushi restaurant is. And only slightly better in rear parking lot.

172 heading toward 684 from the hospital

Near mount kisco diner

Leonard Park, FLHS, FLMS, WPES

Route 172 and McClain

Na

The backside of my home, anywhere by Caremount

South Bedford road corridor

Caremount Medical

Chestnut ridge rd

South Bedford Road, Town of Bedford

Home

my home, on 172 driving towards 684 and in town

Southeast area

Rt. 128

Recently I have been losing service in the area of Radio Circle and the Post Office. And the past few times I have been to the Shoppers Park area, I have also lost service completely. My phone actually says "no service."

Bryam lake road

at the bottom of Foxwood Circle - entrance to Petco off Rt 117

Route 172 near 684, Route 128 down to Armonk

172

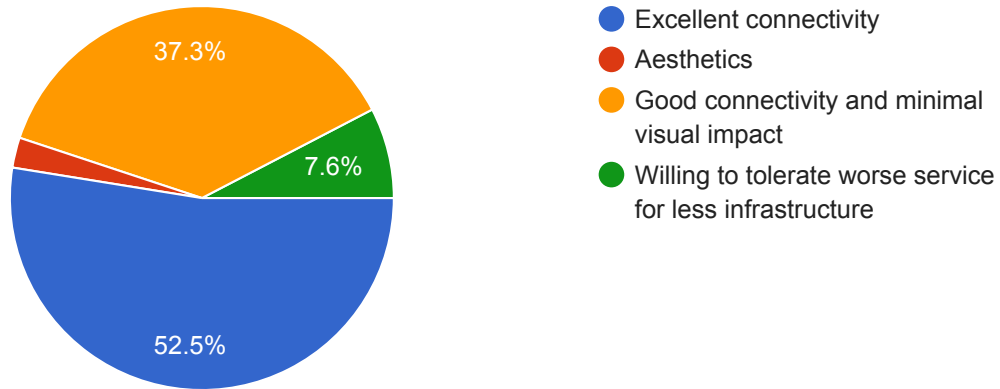
Have spotty connection by the Mt kisco train station

## Aesthetics and Location

What is most important to you?

 Copy

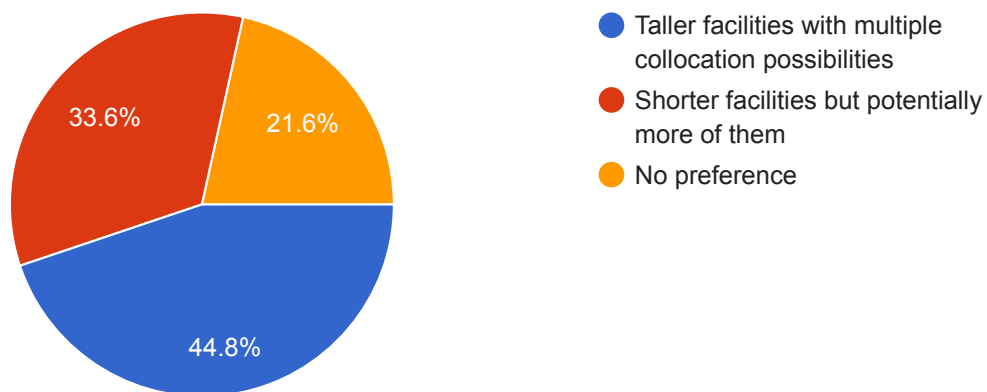
118 responses



Taller traditional macro towers remain the backbone of the wireless network. Taller towers allow for more collocations but are more visible in the landscape. Building shorter tower are less visible in the landscape but limit collocations so more towers are required. Please choose which you prefer.

 Copy

116 responses

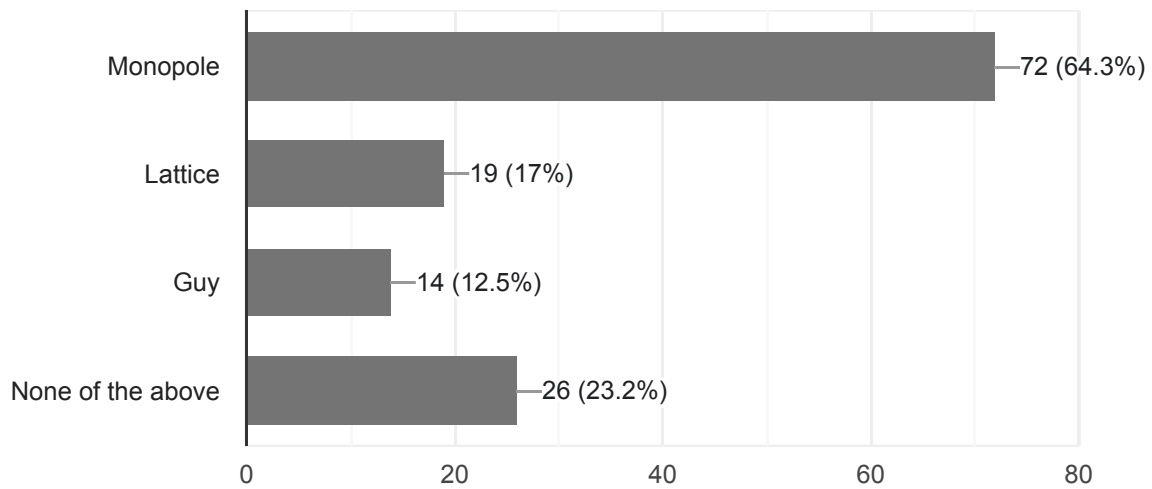




Which non-concealed macro tower facility do you prefer? Check all that apply.



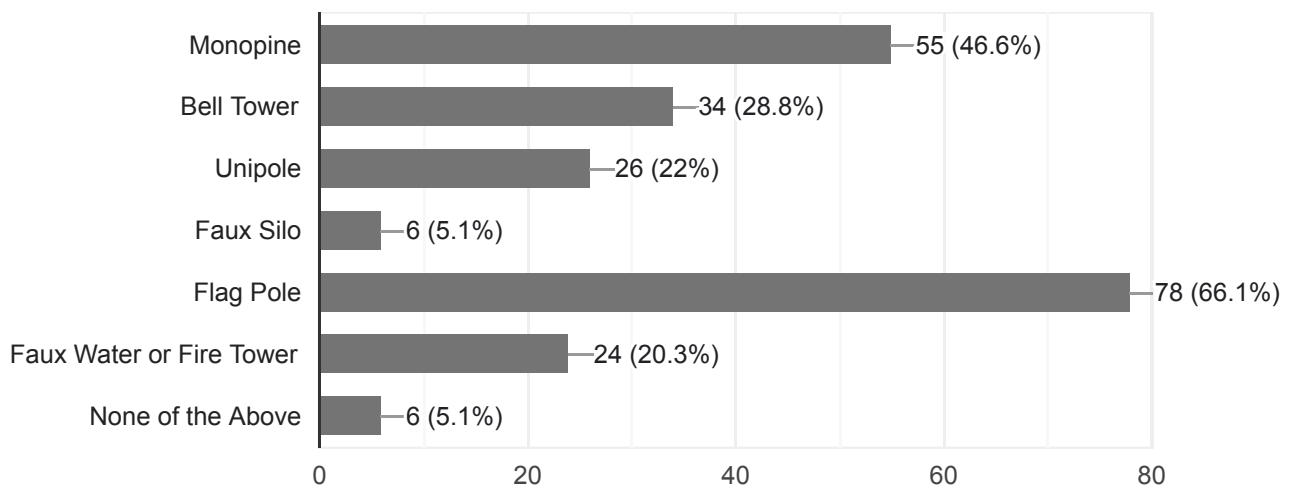
112 responses



Which concealed macro tower do you prefer? Check all that apply.



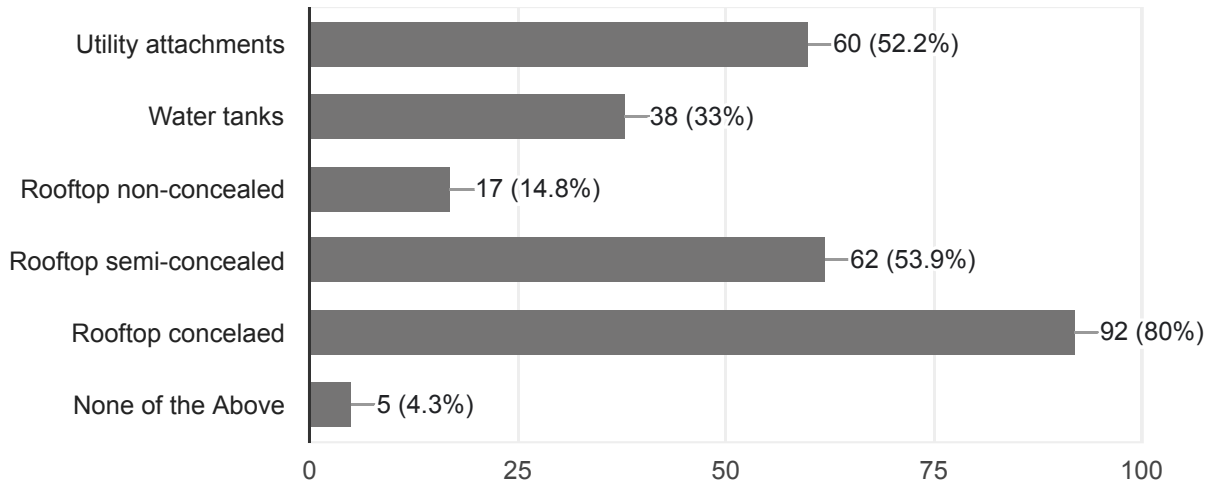
118 responses



A "base station" is any existing structure other than a tower that can accommodate wireless antennas. Examples include rooftops, water tanks, stadium lights, electrical utility poles. Which macro base station do you prefer? Check all that apply.



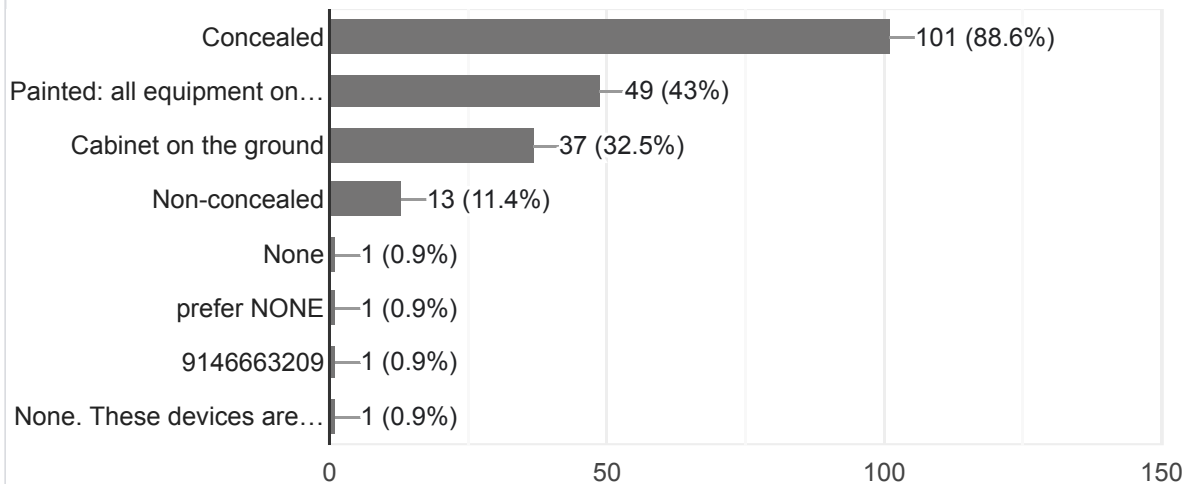
115 responses



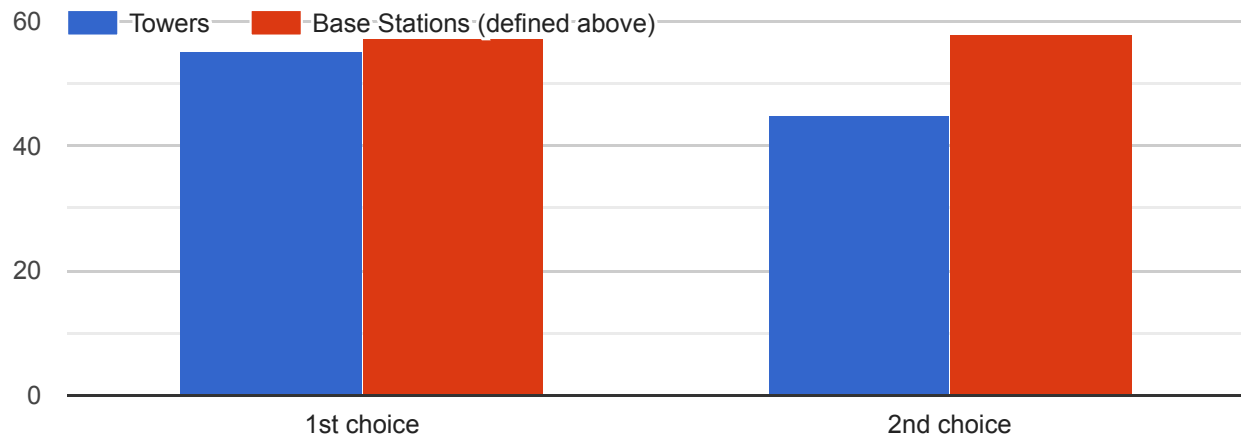
Which small wireless facilities do you prefer? Check all that apply.



114 responses



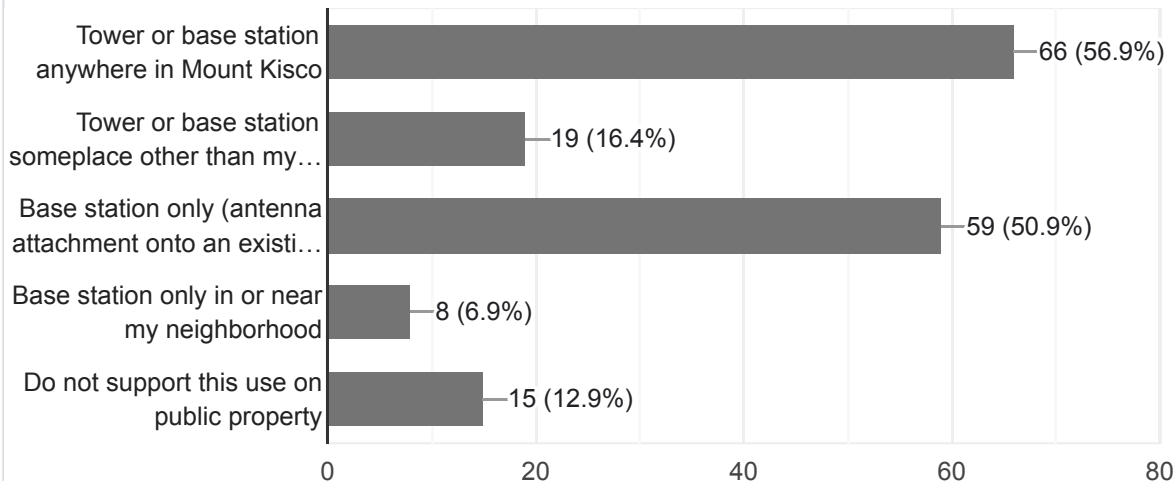
## Which do you prefer?

 Copy

Public property and infrastructure (library, schools, fire stations, etc...) could be used to fill in wireless network coverage and capacity gaps in certain areas. Please check all that you would support.

 Copy

116 responses

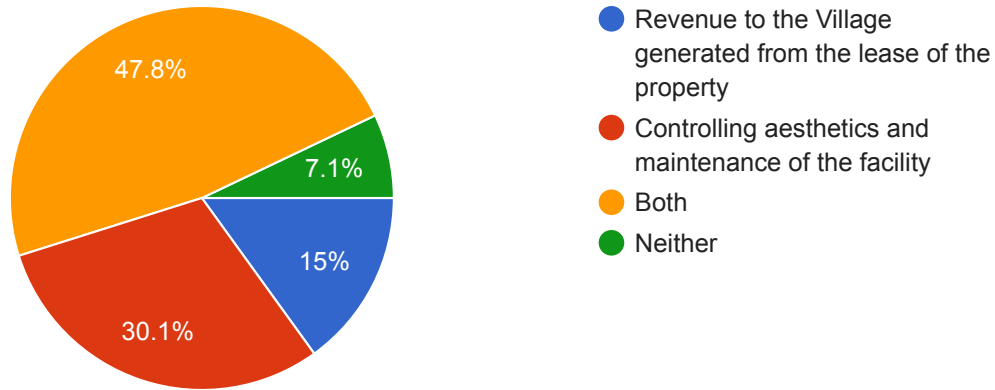




If you support using public property and infrastructure in Mount Kisco, please choose which is more important to you.

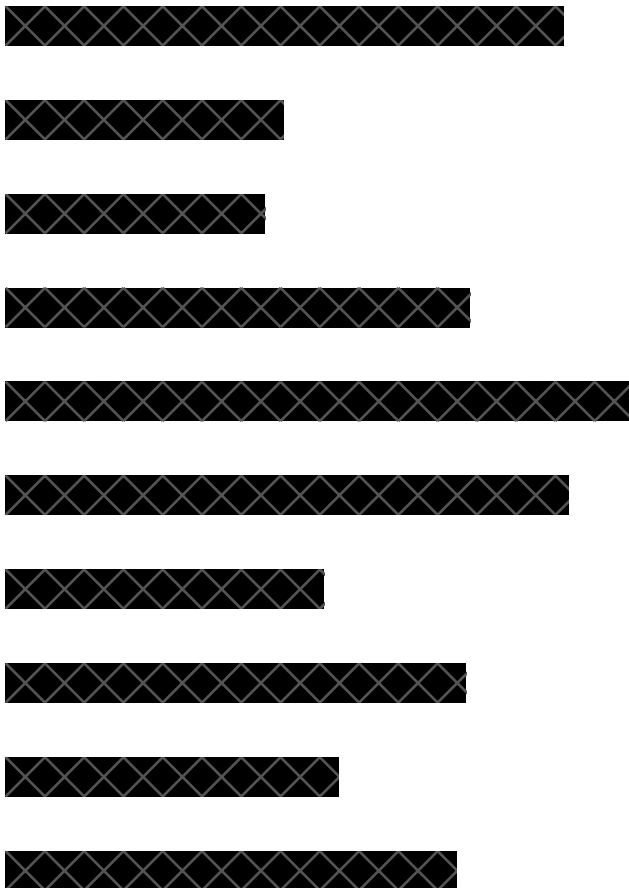


113 responses



Name and e-mail address - email will not be used for anything other than this poll.

119 responses



It would probably be best to limit putting towers very close to residences/densely populated areas (for health reasons). Perhaps a base station that is in a sparsely populated area would be the best for improving cell service in those areas. The center of town has great cell service already. I would hate to see a landscape be ruined by a stand-alone cell tower.

Preserve the integrity of Mount Kisco with the least offensive and obtrusive equipment. We do not need to be "blighted" with ugly cell towers.

Minimize intrusion- share burdens with neighboring towns- Put only in commercial areas

Would prefer fewer towers over many ugly installations. Would feel uncomfortable with bases on schools.

How does this not discuss health and safety? You are avoiding the topic that need be discussed.

Cell towers do not belong in residential areas. No trees should be cut down to install one. Locate near industrial/business areas. No cell towers should be allowed on private property. Maintain natural beauty of Mt Kisco.

This is an incredibly important project and I suggest a communications committee being established of which I would happily participate in/spearhead for the purposes of projects such as these in addition to other relevant areas of importance.

This poll appears to be either poorly designed (questions suggest a preferred answer), or deliberately designed to elicit certain responses.

Please upgrade cell service in Mt. Kisco. We should be able to call for assistance from anywhere in town.

Improve cell service, dont get left behind with technology.

LESS is always Better..... Quality of Life is not measured in bits and bytes; in fact, it's the opposite in my humble opinion.

Let's PROGRESS it's 2021...NOW.. NOT..1821

Apparently 5 g will call for closer towers but on present polls should be ok where power line is above ground on polls. Don't add polls to areas with the underground, authentically preferred,

power.

My parents have hard fall detectors on their Apple watches, and I fear they won't work because they've disabled their Wi-Fi (someone in my family has an irrational fear of Wi-Fi because of Facebook misinformation). It's critical that we get better cell service. I can't even make phonecalls outside of my Wi-Fi network, much less use data. The reception is terrible.

Please put up the pole ASAP ! Thank you

Wireless reception on my mobile phone and house phone are constantly interrupted by dropped bars

Improve connectivity in town

Is there anything we can do to convince MetroNorth to provide some sort of wireless service?

Thank you for this initiative!

Looking for the best service at the lowest possible cost

I recognize that improvement to wireless coverage it s essential to every community - all economic areas.

5G will obviate the need for towers!

You will get more honest answers with an anonymous survey

It is my opinion that the town should pass a moratorium on any additional cellular infrastructure in the town.

The macro towers are aesthetically un-appealing and their proximity raise many powerful concerns among residents and importantly home buyers.

Multiple even closer proximity base stations commonly associated with 5G will raise even more powerful concerns.

We need to be concerned about residents perceptions of the health and well being of their families and loved ones, the effect this has on real estate values, and ultimately town revenue. You will see in my survey I do not support town revenue coming from these facilities and am stifle against using public infrastructure like schools.

The perceptions are real.

I would encourage the town board members to review the thousands of studies that



overwhelming show how macro cell towers RF waves negatively effect end users and when placed within 300-400 meters can negatively effect human health.

I also strongly encourage board members and other officials to review and monitor the rapidly emerging studies on how micro waves emitted from 5G base stations negatively effect human health.

As the town officials must be aware 5G roll out will require a massive increase in the # of base stations throughout the town.

This will likely cause a chilling effect within the community that can lead to the perceived effects I mention above.

Additionally these 5G towers have such short range they have to be placed right on top of us. This greatly increases the entire communities exposure even for those who choose not to or cannot afford to use the 5G service.

I respectfully ask the town officials involved in this decision to justify passing a ban on 5G infrastructure within the town that does not run foul of the increasingly draconian federal rules and regulations that is forcing this technology into communities.

Thank you for your consideration.



Please conduct a poll regarding Cable service. Altice/Optimum is awful and unusable in the Village.

Some of the questions were confusing and seemed ambiguous otherwise thank you for the survey

The concealed tower concept in a clock tower could bring a nice sense of place to town while also improving cell service. This should not necessarily be viewed as revenue generating for the town but rather as a public utility that preserves the aesthetics of our town in a way that a privately owned tower may not.

It is important to preserve our "little village" aesthetic. With newer, smaller technologies coming, please do not jump to appease corporate interests over the beauty of our town.

**I DO NOT SUPPORT THIS INFRASTRUCTURE PLAN!**

No towers or base stations should be placed in any residential area.

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