

# WIRELESS COMMUNICATIONS ANALYSIS FOR THE VILLAGE OF SCARSDALE

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**February 11, 2013**

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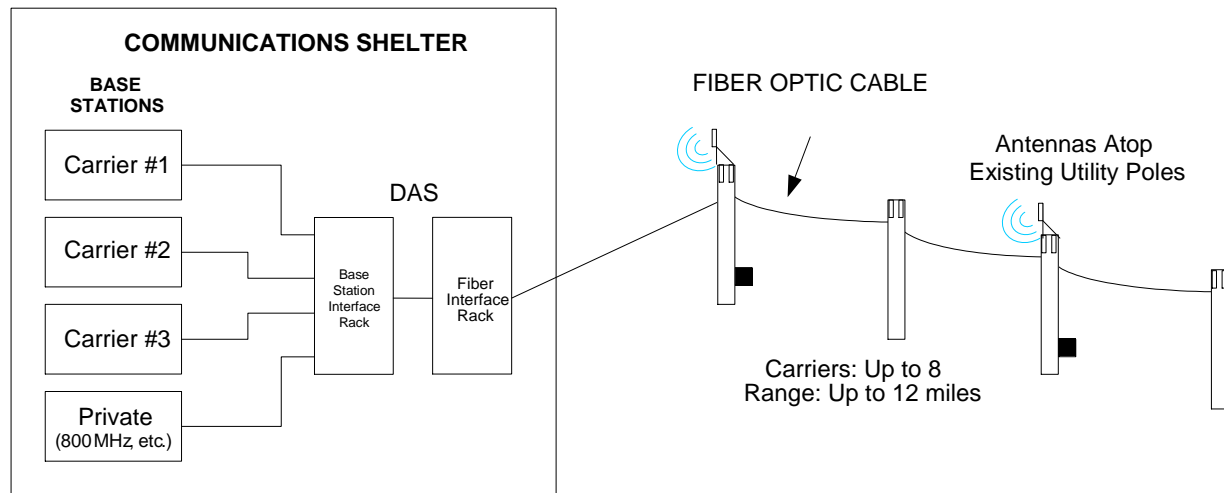
# Engineering Issues

- Coverage
- Backhaul interconnection
- Facility issues
  - Access
  - Power
  - Security
- RF emission

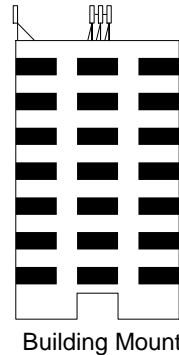
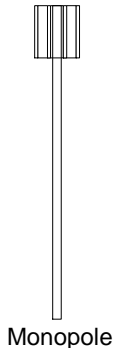
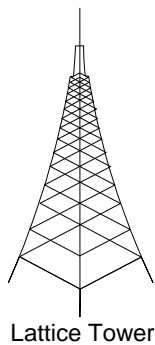
# Coverage Issues

- Antenna height above terrain
- RF Frequency band (700 to 2,500 MHz)
- Type of service (voice, text, video)
- Technology (3G/4G)
- User location (open coverage, in vehicle, in building)
- Providers use their own in-house RF propagation software modeling and standards. They often validate coverage with in-field testing.

# Distributed Antenna Systems (DAS)



**REPLACES**



# Distributed Antenna Systems (DAS)

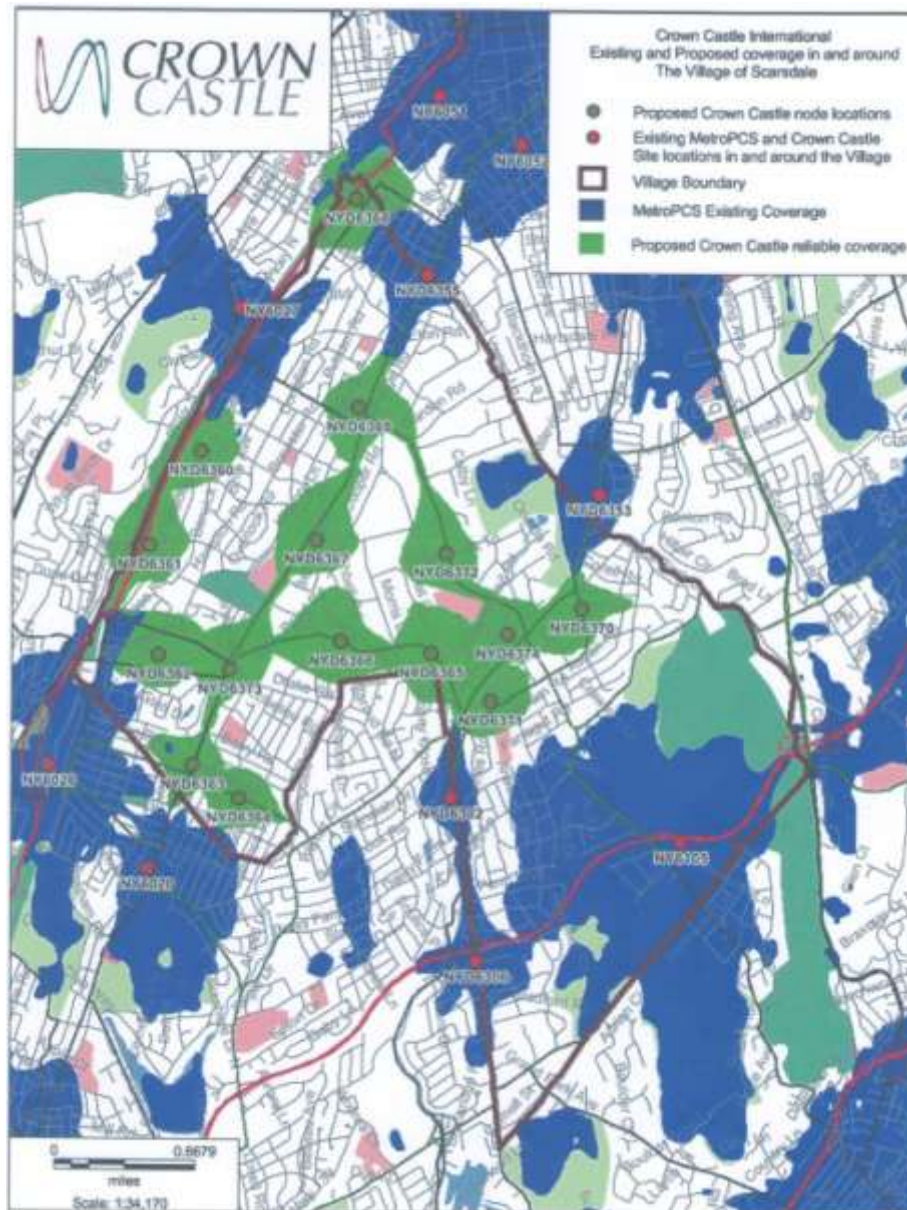
More Obtrusive Design



Less Obtrusive Design



# Proposed Coverage



# Towers and Monopoles

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Self-Supporting Lattice Tower



Monopole with Equipment





# Proposed Infrastructure

#	Map Key	Pole Height	Top of Antenna
1.	NYD6360	24 feet 0.5 inches	31 feet 6.5 inches
2.	NYD6361	24 feet 6.5 inches	32 feet 0.5 inches
3.	NYD6362	29 feet 3.5 inches	36 feet 9.5 inches
4.	NYD6363	35 feet	23 feet 7.5 inches
5.	NYD6364	34 feet 4.5 inches	22 feet 8.5 inches
6.	NYD6365	30 feet 2 inches	37 feet 8 inches
7.	NYD6366	29 feet 7 inches	37 feet 1 inch
8.	NYD6367	29 feet 8 inches	37 feet 2 inches
9.	NYD6368	28 feet 10.5 inches	36 feet 4.5 inches
10.	NYD6369	34 feet 1 inch	41 feet 7 inches
11.	NYD6370	36 feet 6 inches	44 feet
12.	NYD6371	34 feet 3 inches	41 feet 9 inches
13.	NYD6372	28 feet 4 inches	35 feet 10 inches
14.	NYD6373	28 feet 6 inches	36 feet
15.	NYD6374	29 feet	36 feet 6 inches



# Alternative Wireless Antenna Structures

- Dedicated towers
  - New monopoles
- Shared towers
  - Utility, broadcast, local government
- Stealth installations
  - Flagpole
  - Trees ( camouflaged)
  - Chimney
  - Steeples

# Shared Towers

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Active AM radio tower with 800 MHz public safety, cellular, and FM antennas



Former AM radio tower with cellular and commercial radio antennas



# Stealth Installations/Disguised Monopoles

Tree



Flagpole



# Stealth Installations/Disguised Monopoles

“Unipole” or “Slick Stick” Light Pole



Religious Structures



# Existing Structures

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Antennas Mounted on Silos



Church Bell Tower





# Stealth Installations

## Church Steeple



## Faux Chimneys



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# Alternative Village Sites Examined

Address	Type of Support Structure
110 Secor Road	Village incinerator smoke stack
Freightway Road	Four-story parking garage
1 Heathcote Road	Church cupola (bell tower)
1001 Post Road	Village Hall rooftop and unipole
Hutchinson River Parkway at Mamaroneck Ave	Approximately 100'-high monopole
50 Tompkins Road	110'-high Village public safety monopole
Commuter Rail Station, Pipeline Road at Fenimore Road	Approximately 100'-high monopole



# 50 Tompkins Road



# 110 Secor Road

