

# Improving New Canaan's Cell Service

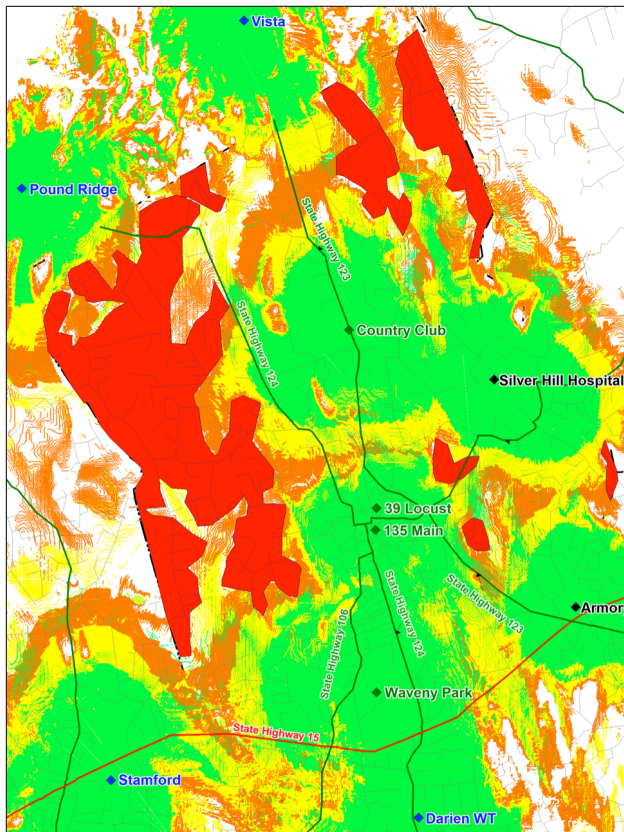
New Canaan Utilities Commission

April 20, 2017

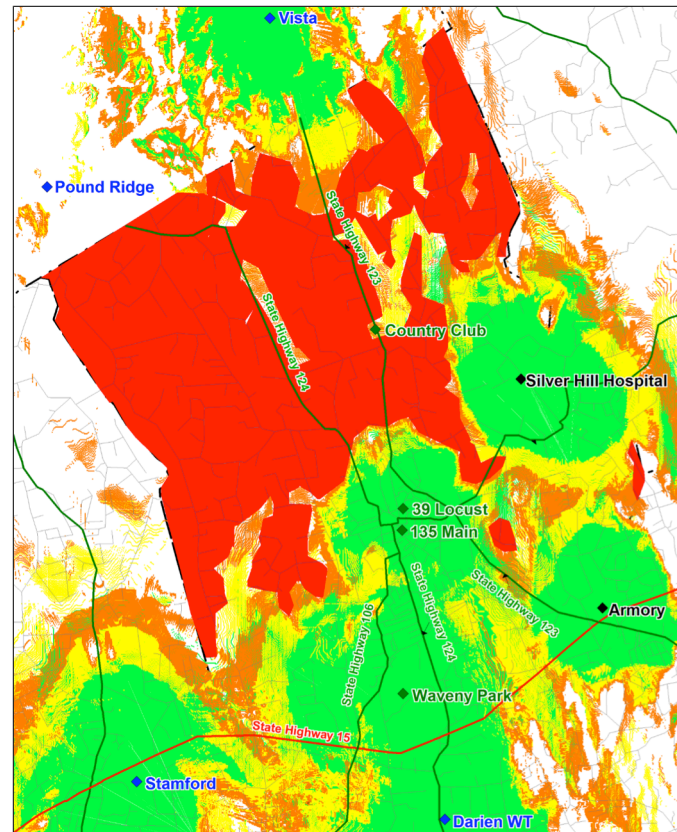
# Coverage Gaps

Centerline Study December 2014

## AT&T Wireless



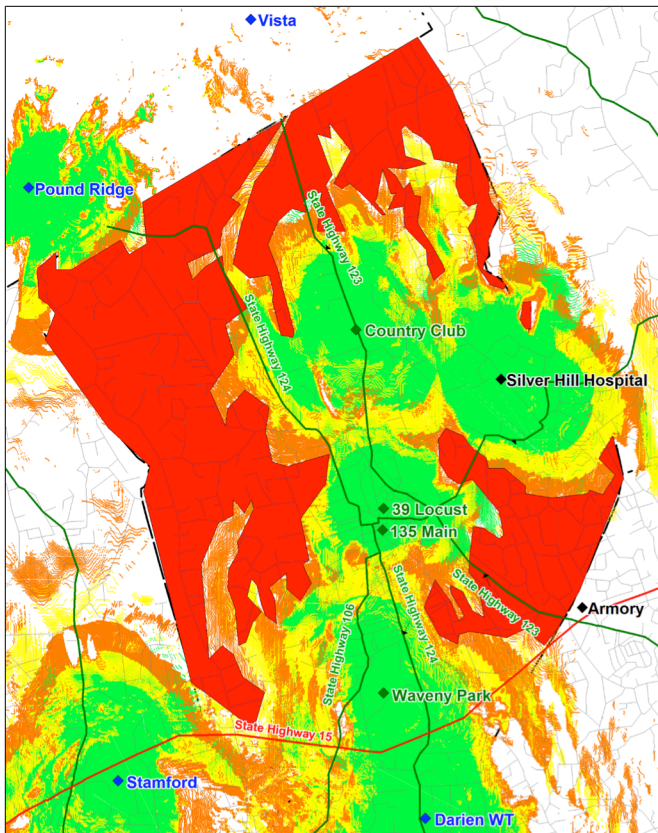
## Verizon Wireless



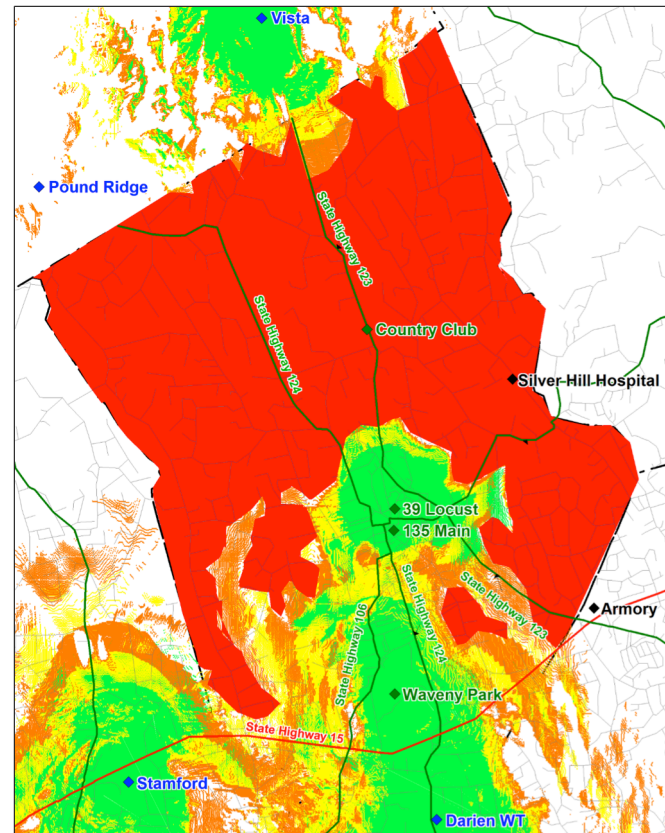
# Coverage Gaps

Centerline Study December 2014

## T-Mobile



## Sprint

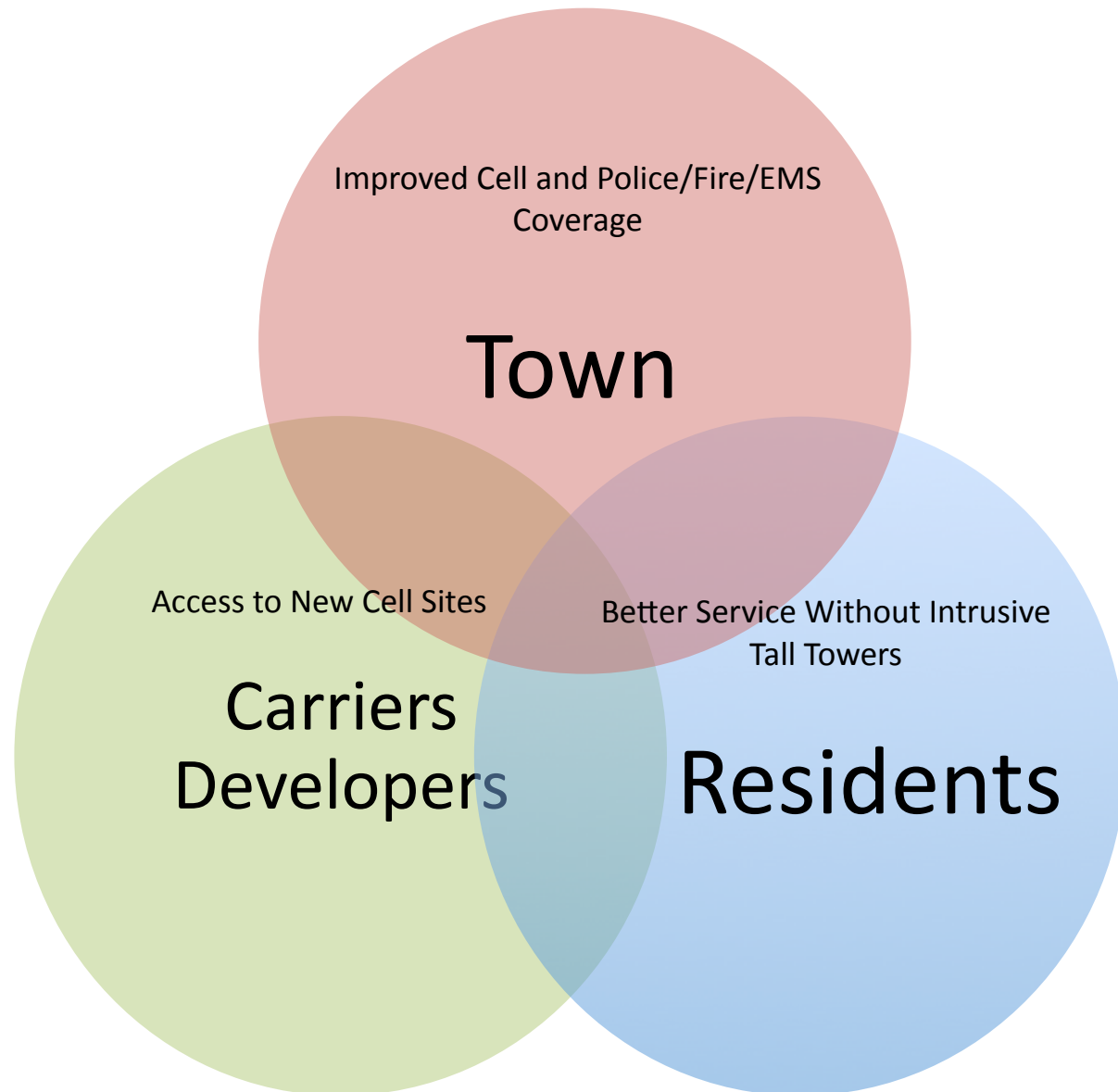


# A New Approach Needed

- The last cell site activated in New Canaan took 15 years to be realized (Silver Hill).
- In that time, four cell sites have been proposed and either rejected by the town or withdrawn by carriers.
- Town has played a passive or reactive role. No effort to plan or anticipate our needs.



# Compromise is Necessary



# In 2014, the UC Proposed A Two Phase Strategy

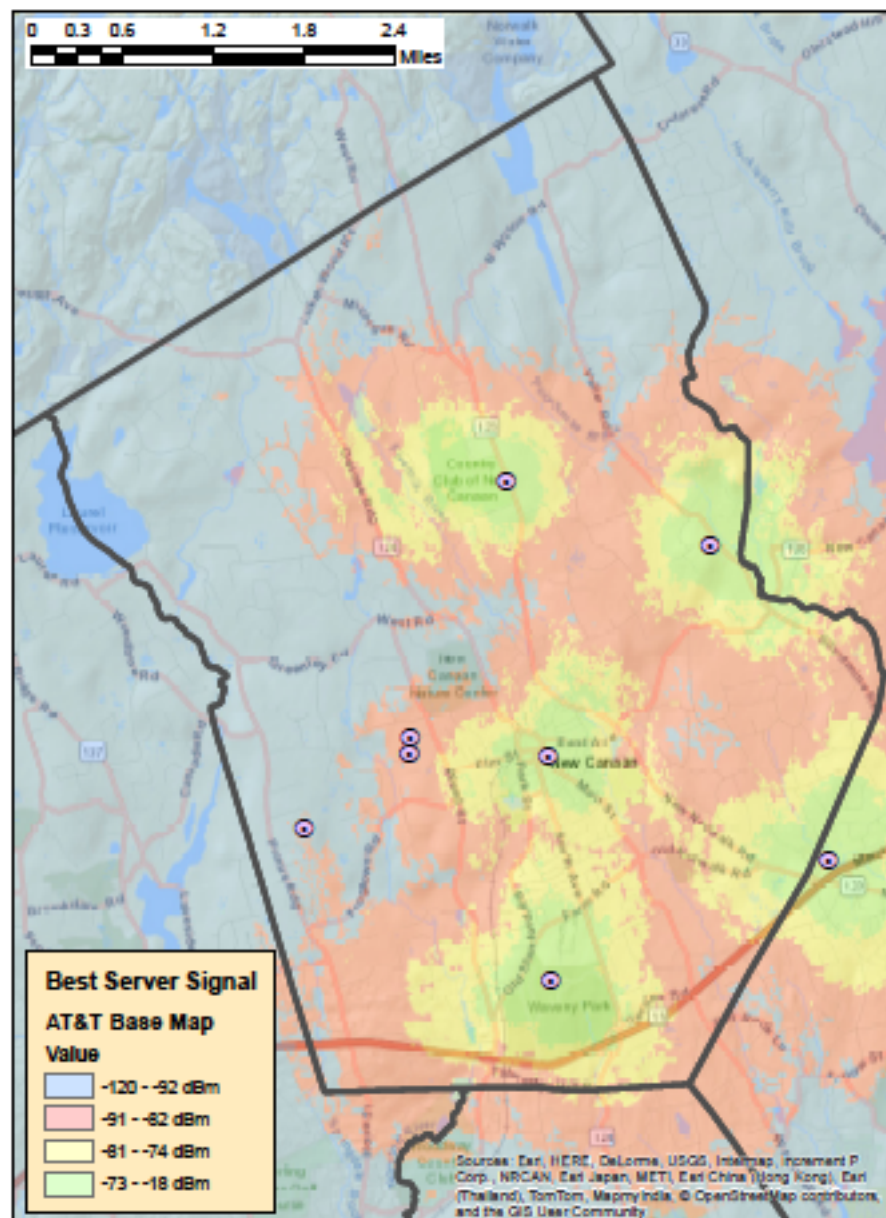
- ***Phase 1***

- Independently assess coverage requirements and identify potential municipal sites for new infrastructure.
- Address wide area coverage gaps with three concealed macro sites disguised as monopines with a capped height of 110 ft.
- Place sites on municipal property to give the town maximum influence over where sites are built and how they are designed.

- ***Phase 2***

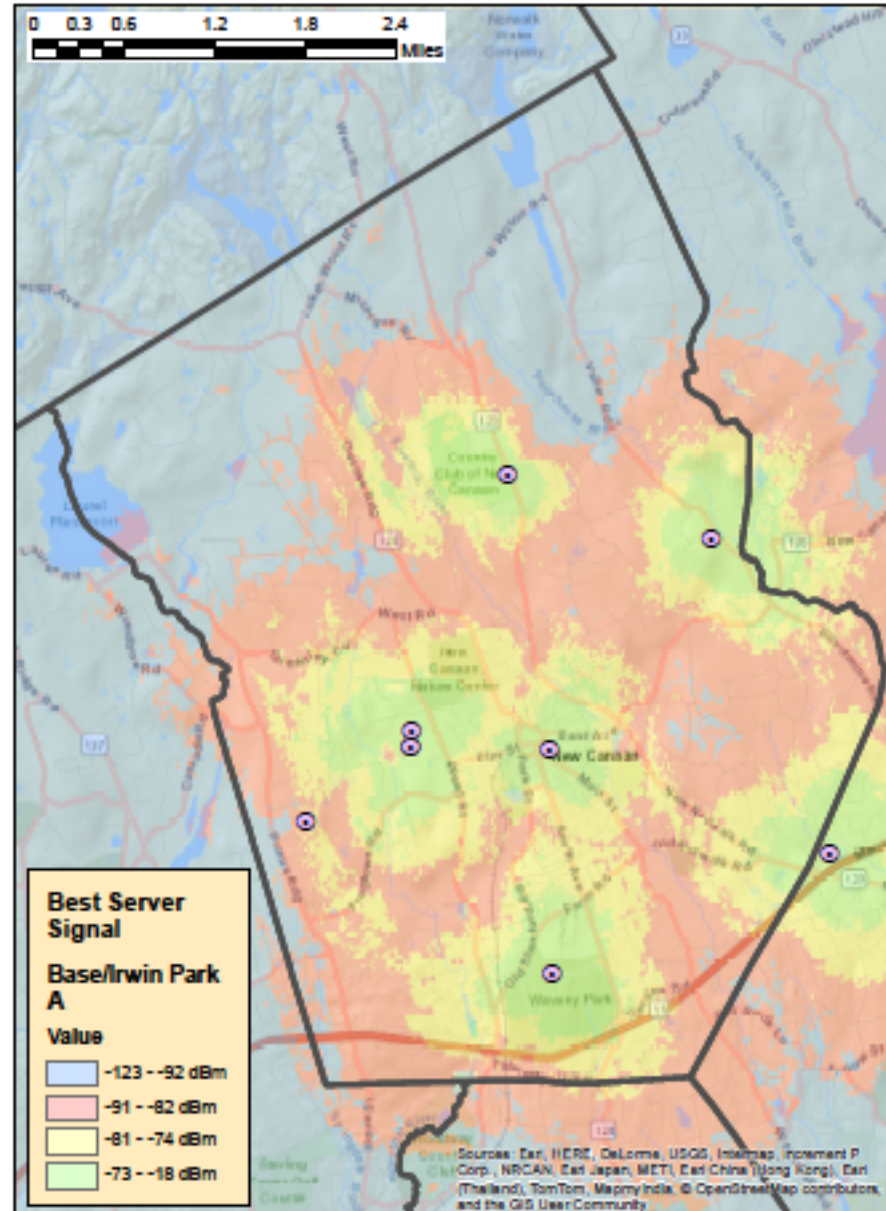
- Use microcells and or DAS technology placed in municipal right- of-ways to address remaining coverage gaps and to add network capacity as required.

# New Canaan Current Coverage (750 MHz)



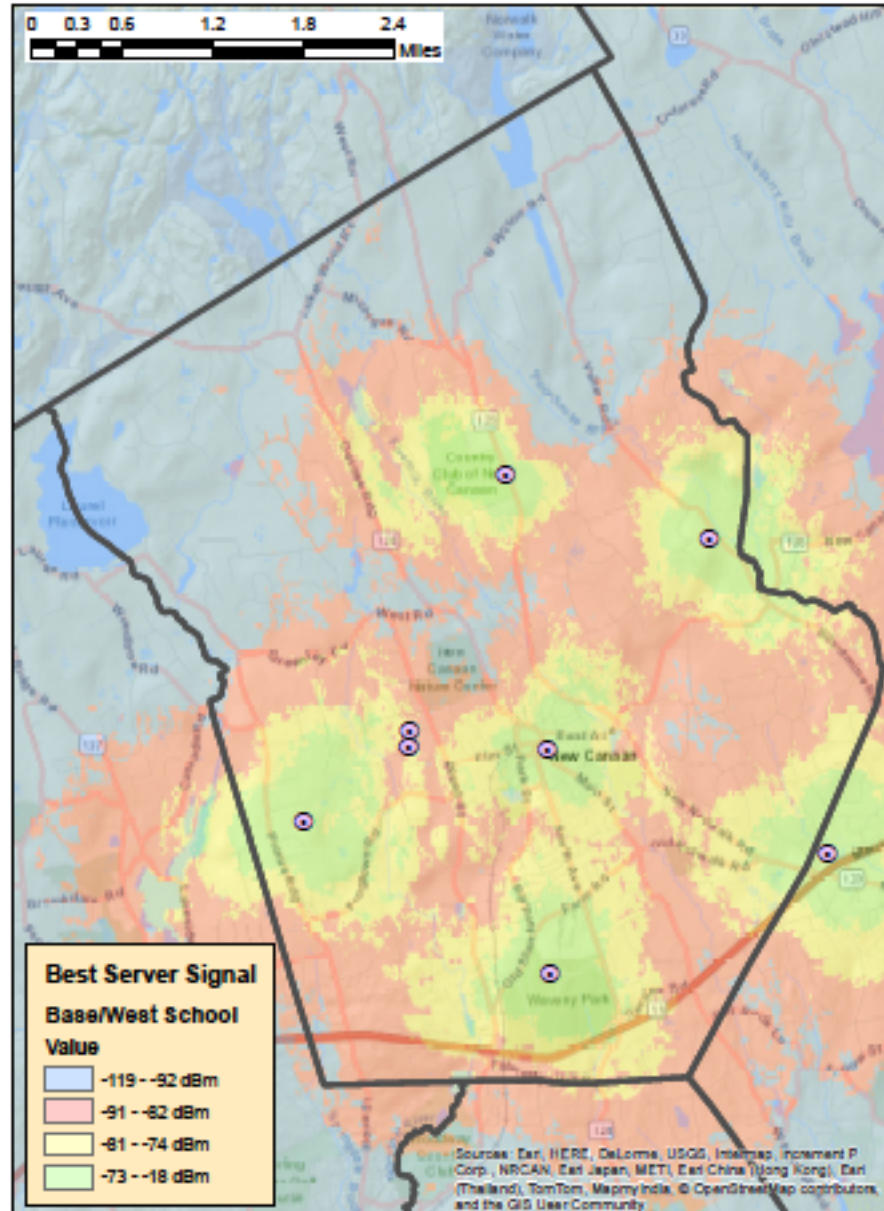


Coverage with Irwin A Site Added (Antenna:106 feet) (750 MHz)





## Coverage with West Site Added (Antenna:106 feet) (750 MHz)



# Phase 1

Independently gather and assess coverage data  
in town (Centerline Study 2014)

Concealed cell sites located at Irwin Park, the  
town property behind West School and a  
location tbd in the northeast

# Concealed Site Design Limits

- Height: 110 ft maximum
- Antennas
  - One shared neutral host antenna or
  - Two levels of shared aperture antennas
- Concealment
  - Customized monopine
- Placement
  - In wooded areas

# Are All Cell Towers the Same?



# Which is Preferable: This?





Or this?



# This?



## ***SIMULATION***

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
<b>1</b>	<b>ENTRANCE TO HOST PROPERTY</b>	<b>EAST</b>	<b>+/- 0.14 MILE</b>	<b>YEAR ROUND</b>

Or this?





# Stealth Monopoles



# Stealth Monopole

## Limitations

- Antennas must be enclosed and not mounted on the exterior of the pole.
- Each carrier's antennas must be stacked vertically on top of those of other carriers
- Accommodating 4 carriers requires taller poles

## Benefits

- Low profile



# Why Not Use DAS Instead?

- ***Terrain***

Northern half of town has hills, valleys, ridges and lots of trees

- ***Population Density***

4 acre zoning, low traffic, low density

- ***Cost***

\$39m to \$56m to place 350 to 600 poles, including fiber backhaul.

# Cost Breakdown for DAS Solution

- 9.71 sq mi. with inadequate service.
- 350 to 600 poles required for coverage.
- Cost per pole: \$24k (\$5m to \$15m) not including construction.
- Fiber backhaul is \$67k per mile in the NE.
- Costs for antennas, filters, remote radio units are not included – born by the carriers.

# If You Build It, Will They Come?

Carriers are unlikely to invest the capital required to activate such a system much less pay the required rent since the expected traffic may not justify the expense.

## Phase 2

Selective use of microcell sites or DAS  
to fill-in hard to reach areas

# A Microcell Site on Pine Street



# DAS Street Light





# Some Residents Object

Opposition to the UC's proposal falls into two categories:

1. Cell towers are ugly and not necessary
2. Cell towers pose health risks

# Ugly and Unnecessary

- Traditional cell towers are ugly
- Given the terrain, morphology and low population density of the northern half of town, a comprehensive solution based on DAS or microcell sites alone is not economically feasible.
- Concealed cell towers with height restrictions and placed in wooded areas offer an acceptable alternative

# Health Concerns

- Do cell towers cause cancer or other health problems – particularly for young children?
- Cell towers are not a source of ionizing radiation.
- No credible scientific evidence establishing a link. “Study” results cannot be replicated.
- Both the WHO and the American Cancer Society have not found evidence of a link.

# Health Concerns

The FCC sets standards for what are considered safe levels of exposure to radio frequencies as supported by the American Cancer Society and the World Health Organization.

Provided carriers operate with these standards, the risk is considered negligible.

Independent periodic testing of each site can be required by the town.

# Why Not Do Nothing?

- We face difficult choices:
  - Take Control: Use public property to place a limited number of Concealed Sites
  - OR
  - Do nothing and hope that a private property owner won't allow a truly ugly cell tower to be erected somewhere in town

# Public Safety

- ***76% of 911 calls in 2016 were made using wireless phones - FCC***
- ***New Canaan Police, Fire and EMS rely on cellular networks to receive vital data while in the field***





# Conclusions

- Past policies/practices in town have not worked.
- There is no magic, “one-size-fits-all” solution.
- Public safety demands action on our part.
- The town should play a leading role in finding a solution that meets the needs of all parties.