



Fort Pierce / Fort Pierce North 5G Service Improvements



5G Service Area

Currently, 4G service is provided to residential and commercial areas in parts of Fort Pierce and north by a tower with T-Mobile antennas at one-hundred-thirty-five feet elevation. This tower, located at 910 N. 25th Street, Fort Pierce is a one-hundred-fifty foot flagpole design with canisters that enclose the antennas. The design of the enclosures is not compatible with deployment of advanced 5G services. The diameter is not sufficient to house the antennas and radios and there is no active or passive cooling. This precludes the deployment of 5G equipment due to space and operational constraints.

There are significant network performance issues for 5G devices in an area from Saint Lucie Blvd in the north to Avenue D in the south and from US-1 S in the east to Angle Rd in the west. The signal levels are too low to support advanced 5G services. Users with 5G devices have higher incidences of no network access, dropped calls and slow or unusable download speeds. This would be especially true indoors or during network busy hours.

Numerous upgrades and technology enhancements have been added to the network and surrounding facilities for at least the last ten years with measurable but insufficient improvements. No other structures of sufficient height were identified within the area of concern. The proposed tower will mitigate and potentially eliminate performance issues to meet T-Mobile's service goals.

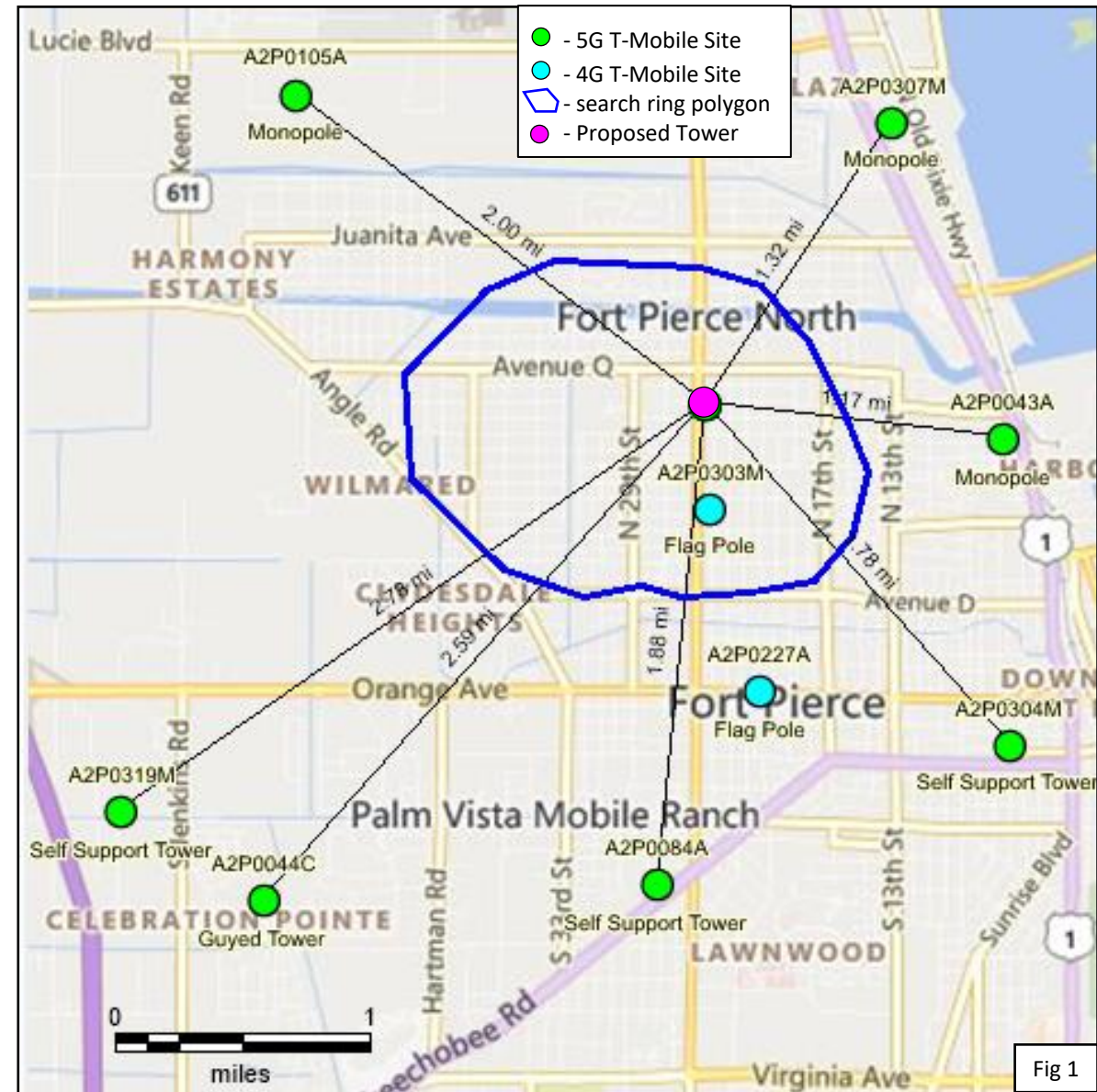
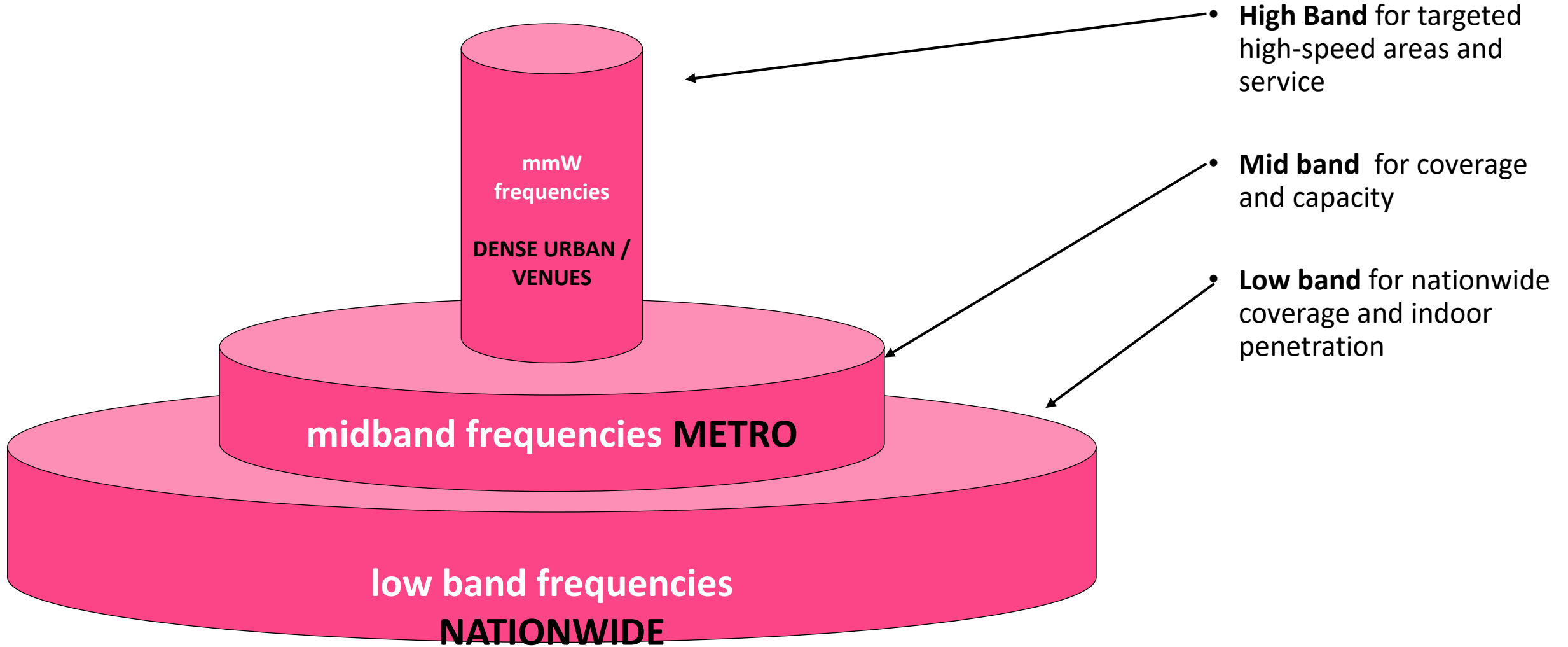


Fig 1

T-Mobile 5G Deployment Strategy – Spectrum Allocation



General Notes

5G benefits

<https://howmobileworks.com/>

- capacity – ability to provide service to more than five times the number of simultaneous users of 4G
- throughput – faster download speeds
- reliability – 5G network “slicing” dedicates comprehensive resources for individuals’ access
- applications – new requirements for bandwidth, latency and throughput (first responders/industrial-commercial/smart cities/etc)

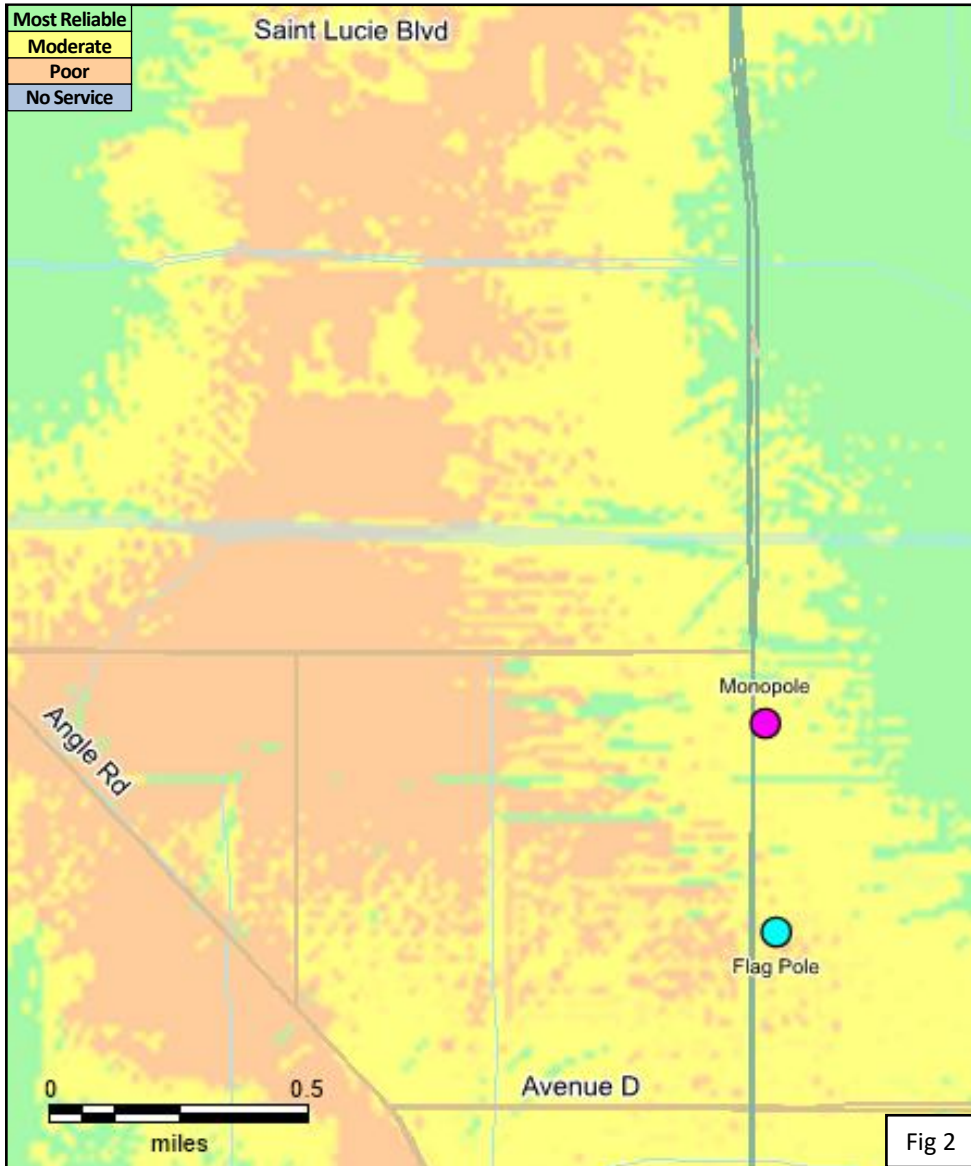
T-Mobile and their equipment manufacturers follow all FCC regulations regarding emissions:

The Telecommunications Act of 1986 includes the maximum exposure guidelines for the specific absorption rate (SAR) limits for devices using ANSI/IEEE C95.1-1992 standards. In addition, Title 47 Part 15 of the act includes the maximum transmission levels for all radio frequency devices. (cell phones/tablets/baby-monitors/etc)

<https://www.fcc.gov/general/radio-frequency-safety-0>

All new tower and ground space installations must follow the Florida Building Code. The current revision H has the most stringent wind-speed loading requirements in the nation and are based on ANSI/TIA-222-H Standard. (“Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Structures”)

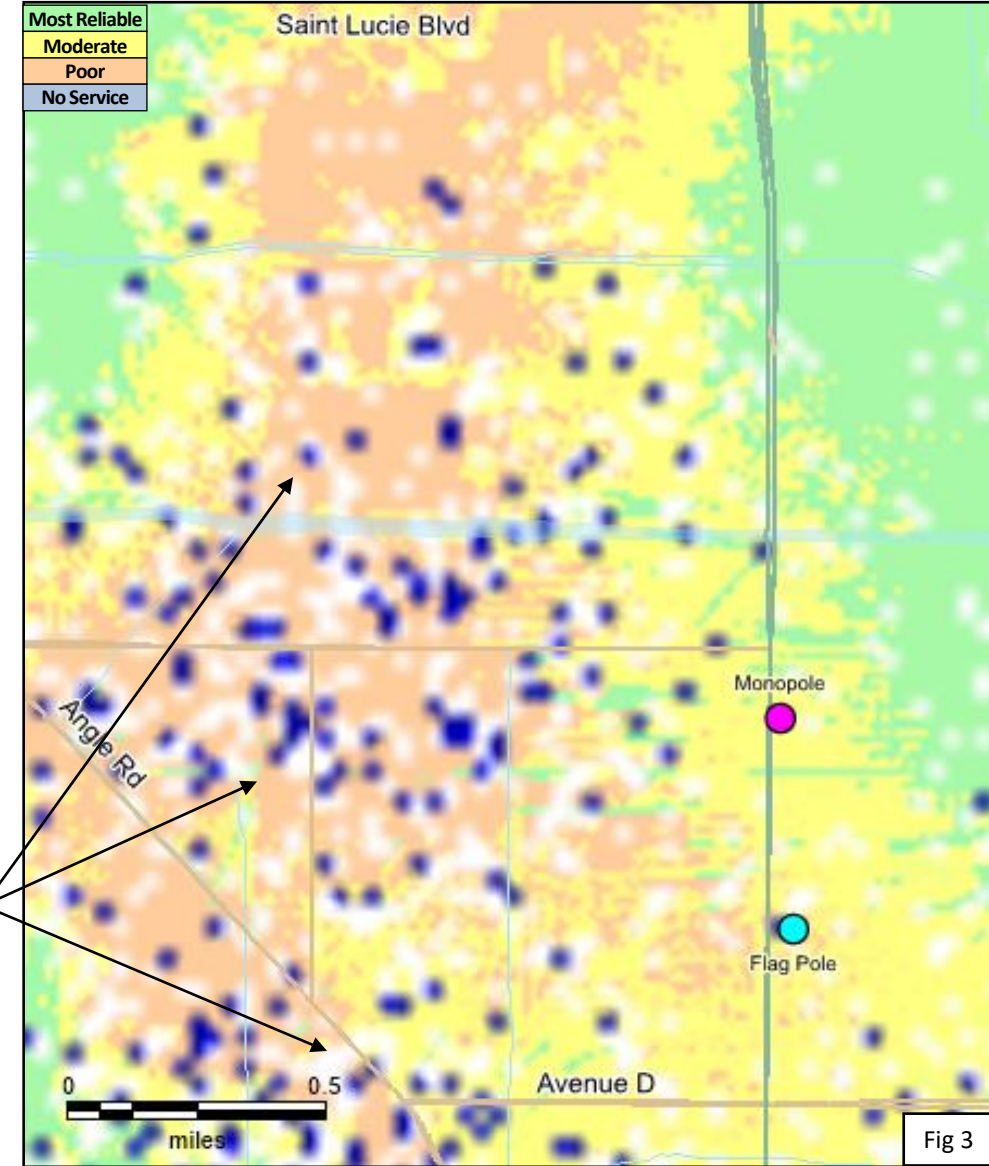
5G Signal Levels and 5G “Setup Failures”



Setup Failures or Ineffective Attempts indicate a user’s inability to access the network. Pushing the talk button and getting a network busy signal or when something like a navigation app fails to connect are measured by the network. Graphical Information Systems (GIS) are used to aggregate and map the data.

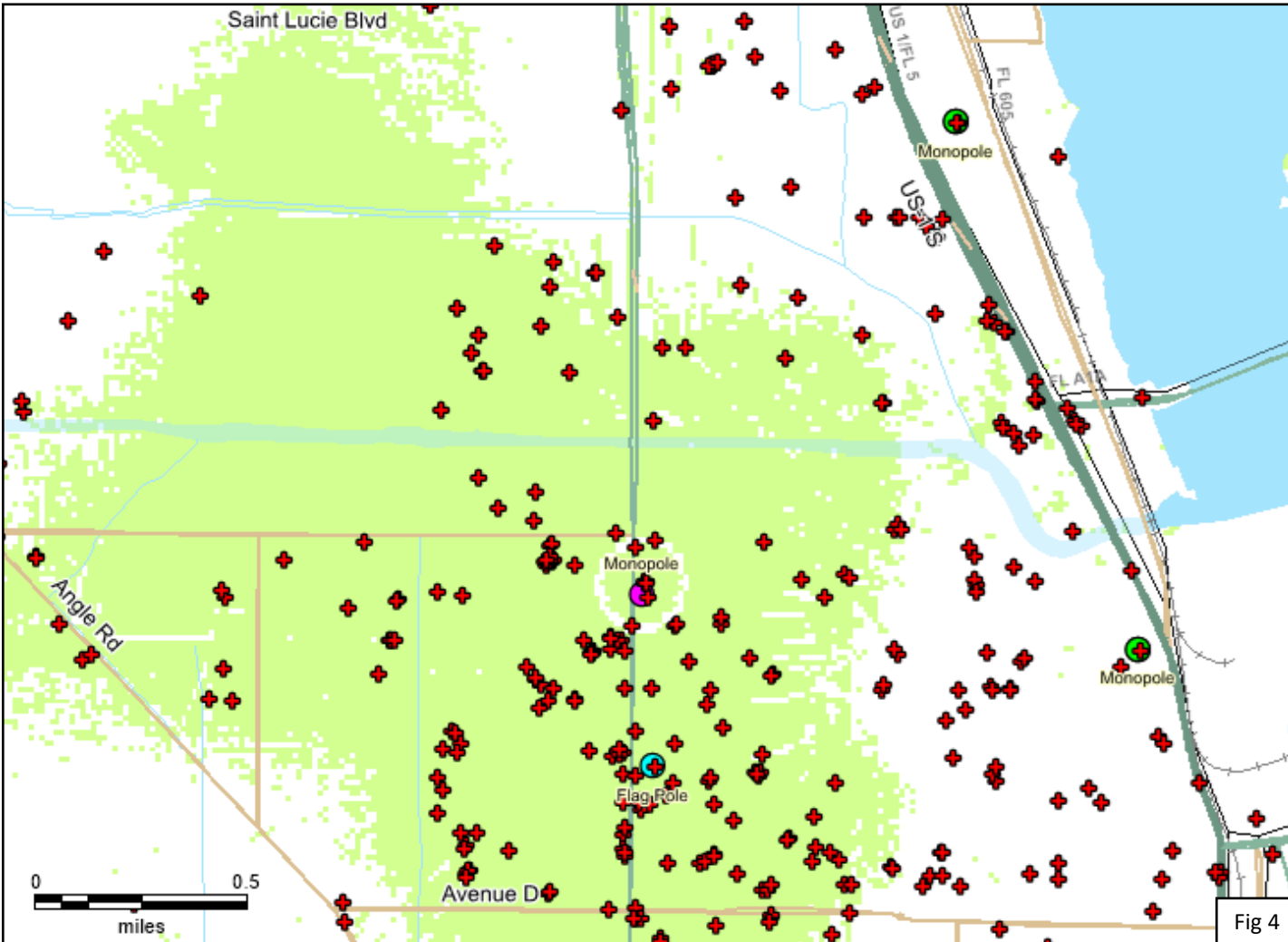
Figure 2 is a map of the current 5G service levels. Most of the area does not have adequate signal strength to support most 5G services indoors and even outdoors.

Dark blue data points representing 5G setup failures are overlaid on the signal level map in Figure 3. The majority of these measurements are in areas with the poorest 5G signal strength.

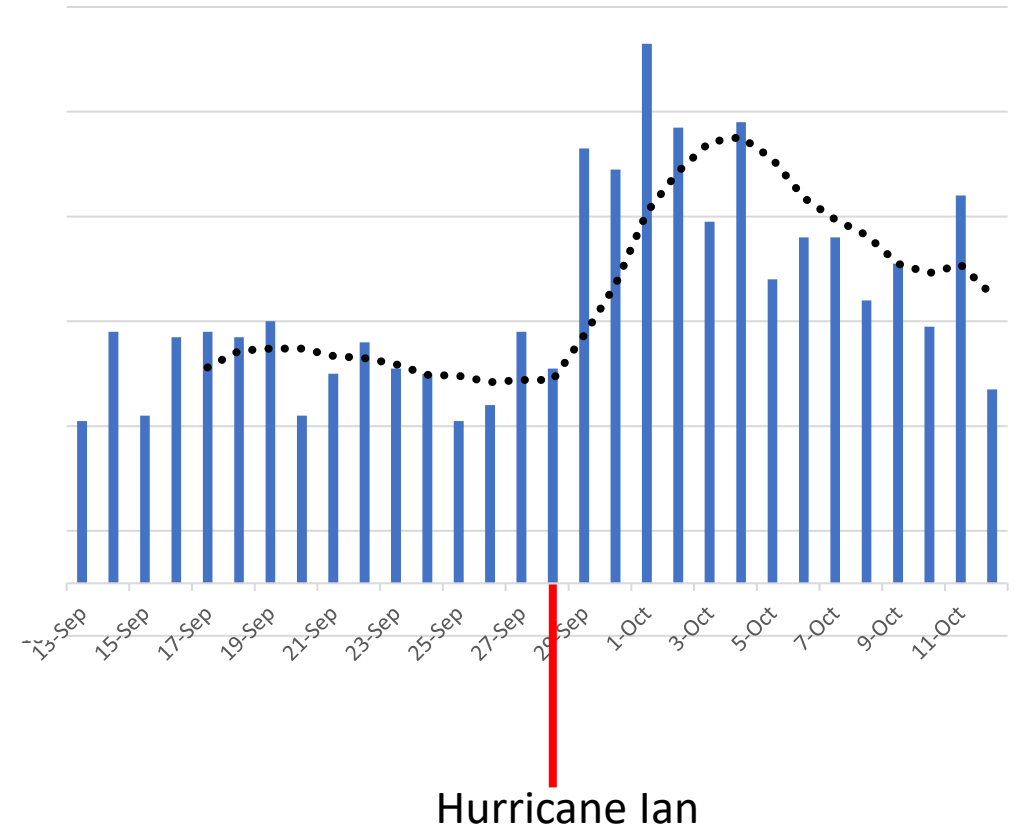


Improved Signal Area E911 Statistics

E911 Calls (+) and Improved Service Area (●)



Average Number of Emergency Calls more than doubled for first week after Hurricane Ian



Improved Signal Area and Population Statistics

Estimated that more than six-thousand residents would have indoor service levels with advanced 5G compatible tower.

