Site: AZ03-190 Supernova / AZ5 Oasis Golf Club

SUN STATE TOWERS

Address: 5242 E. Hunt Hwy. ~ Florence, AZ 85132

10/17/2024 | ***View 1***



Location Map



Existing



Proposed — ***Notes: 695' from proposed site, looking Southeast.***

These depictions are for demonstrative purposes only.
They are to be used in addition to the engineering drawings for an accurate representation of the site

Applicant

Sun State Towers
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

Contact

PINNACLE CONSULTING, INC
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

Site: AZ03-190 Supernova / AZ5 Oasis Golf Club

SUN STATE TOWERS

Address: 5242 E. Hunt Hwy. ~ Florence, AZ 85132

10/17/2024 **View 2**



Location Map



Existing



Proposed ***Notes: 195' from proposed site, looking Northeast.***

These depictions are for demonstrative purposes only.
They are to be used in addition to the engineering drawings for an accurate representation of the site

Applicant

Sun State Towers
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

Contact

PINNACLE CONSULTING, INC
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

Site: AZ03-190 Supernova / AZ5 Oasis Golf Club

SUN STATE TOWERS

Address: 5242 E. Hunt Hwy. ~ Florence, AZ 85132

10/17/2024

View 3



Location Map



Existing



Proposed **Notes: 110' from proposed site, looking North.**

These depictions are for demonstrative purposes only.
They are to be used in addition to the engineering drawings for an accurate representation of the site

Applicant

Sun State Towers
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

Contact

PINNACLE CONSULTING, INC
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

Site: AZ03-190 Supernova / AZ5 Oasis Golf Club

SUN STATE TOWERS

Address: 5242 E. Hunt Hwy. ~ Florence, AZ 85132

10/17/2024 | ***View 4***



Location Map



Existing



Proposed ***Notes: 255' from proposed site, looking Northwest.***

These depictions are for demonstrative purposes only.
They are to be used in addition to the engineering drawings for an accurate representation of the site

Applicant

Sun State Towers
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

Contact

PINNACLE CONSULTING, INC
1426 North Marvin Street, Suite 101
Gilbert, AZ 85233

WIRELESS NETWORK CONSULTING



AZ03-190 Supernova / Verizon AZ5_OASIS-GOLF-CLUB
Coverage Cell Split

RF DESIGN ANALYSIS

2024

Coverage vs Capacity

- **Capacity is providing bandwidth or processing capacity to service the customers in the area.**
  - Areas where large numbers of users are in a specific geographic areas
  - Areas where users are demanding higher data rates for services
  - Areas with a large amount of indoor users
- **Coverage is Providing Service where service does not exist, calls drop, or "no service".**
  - Areas where sites are farther apart
  - Areas where terrain or buildings block signals
  - Areas where indoor service is low or nonexistent

Objective of new site

- **Capacity**
  - Provide additional bandwidth for customers in the area surrounding the proposed site
  - Provide better throughput for users in the area
  - Offload surrounding sites
- **Coverage**
  - Provide coverage in suburban and rural areas surrounding proposed
  - Provide coverage along N Hunt Highway as well as feeder roads
- **Why is this site important?**
  - 96% of Americans own a Cellular Phone
  - 57% of American Homes rely exclusively on cellular phones
  - 84% or more of 9-1-1 emergency calls are made from wireless devices

Proposed Site

- 75’ Mono-Pine Tower
- With 5’ appurtenances
  - 5242 E Hunt Highway, Florence AZ 85132
    - Latitude: 33.1003994 N (NAD83)
    - Longitude: -111.5080938 W (NAD83)
    - Ground Elevation: 1543.6' (NAVD88)
    - Anchor tenant is Verizon
  - Antenna Centerline at 71’ AGL

Why here?

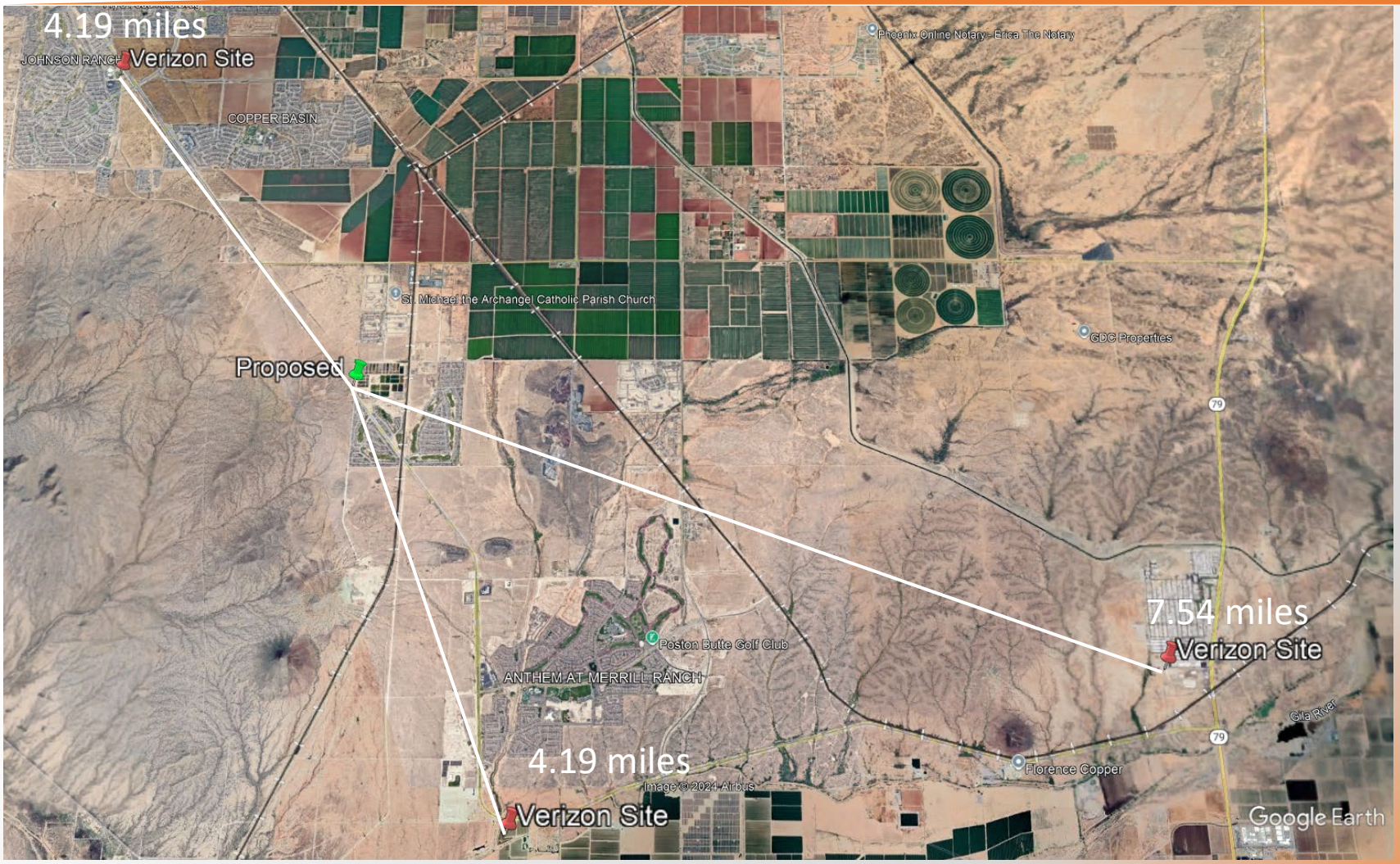
- Poor service quality in area
- Lack of services in the surrounding suburban and rural area
- Significant amount of user increase in the rural areas of Arizona
- Many of the users' mobiles are reporting low quality connections

Zoom – proposed site



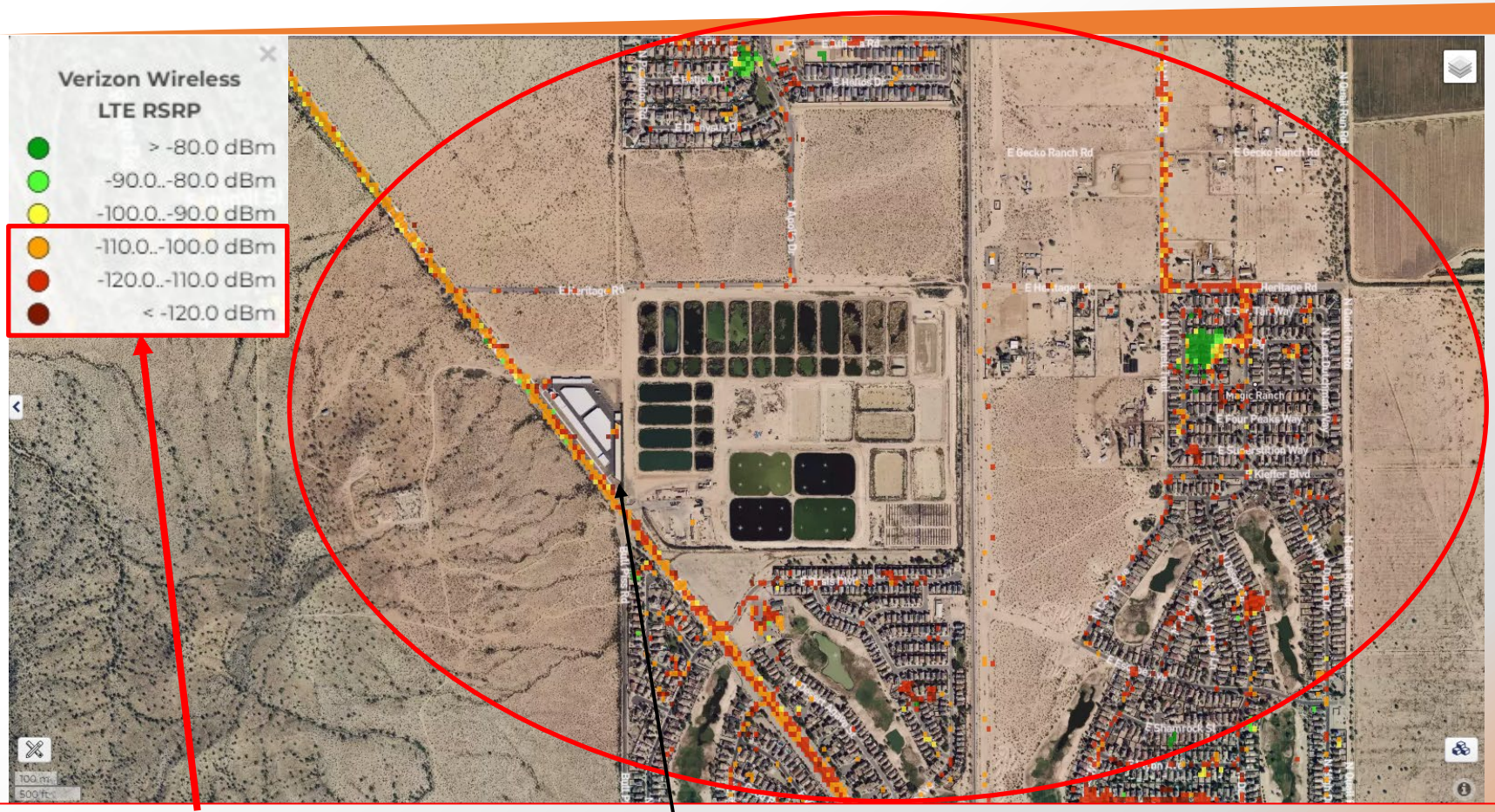
2024

Verizon Sites



2024

Ookla Verizon 4G



Less than outdoor Coverage

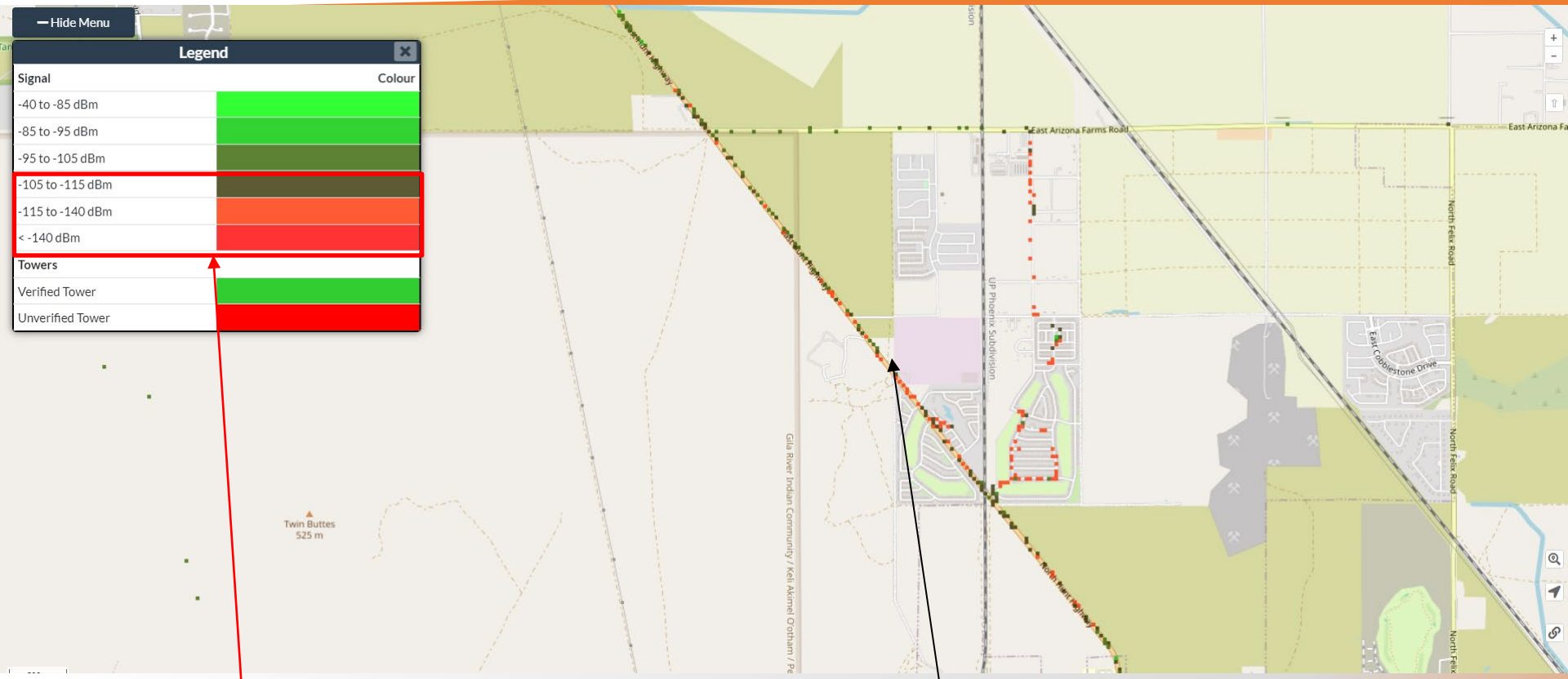
Proposed Site

The area in the red circle is what the proposed site would impact

The area is showing a significant number of mobiles reporting less than outdoor service

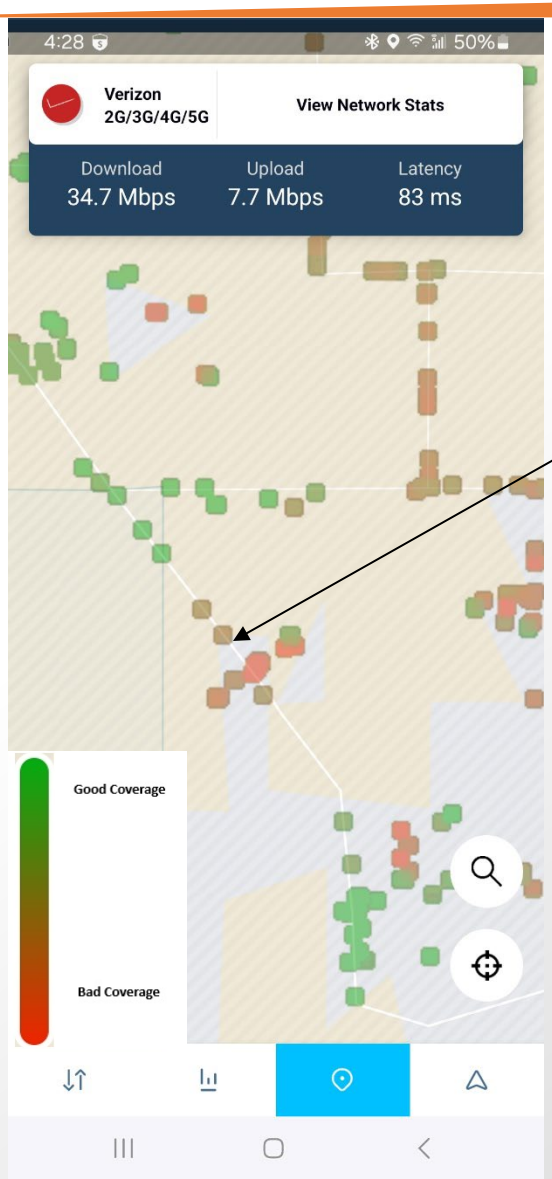
2024

Verizon CellMapper



2024

Open Signal
Verizon Quality Map



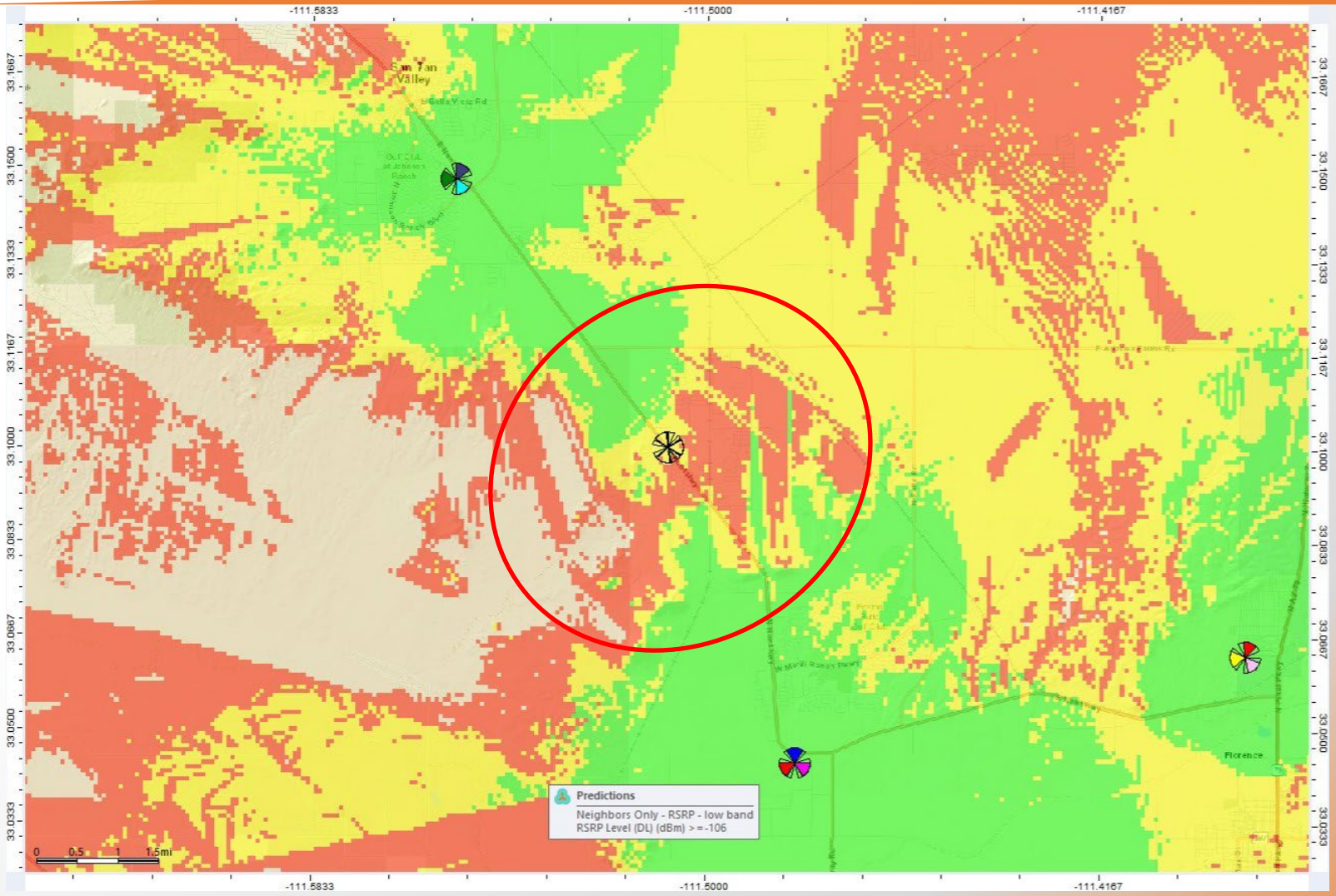
This map show mobiles reporting quality of their connections to the network. This is crowdsource data from Verizon users made available by the OpenSignal App: https://www.opensignal.com/apps#section-os-app

Green data points show good coverage and red data points show bad coverage and lack of data points show no coverage

Notice the amount of bad coverage reports in the area and to the East of the proposed.

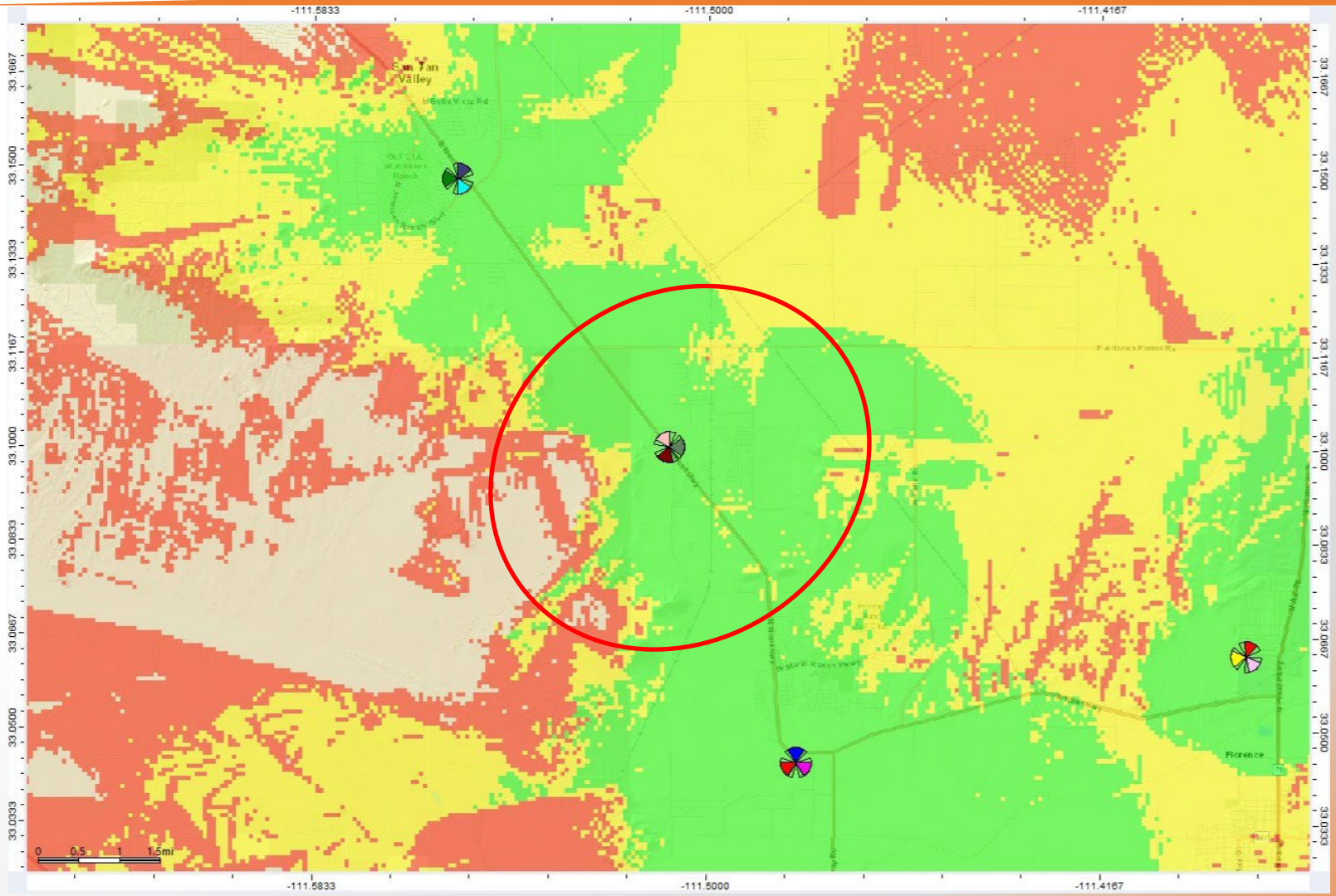
RSRP - Current Coverage

LEGEND	
	Indoor >= -85 dbm
	In-Vehicle >= -95 dbm
	On-Street >= -106 dbm



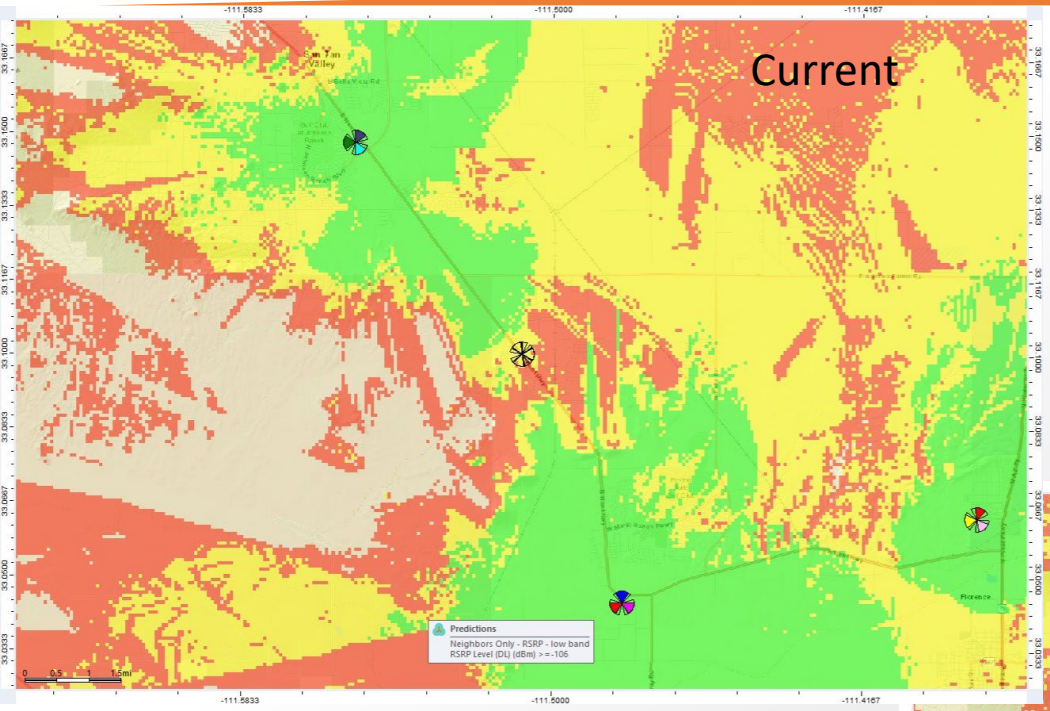
RSRP – Proposed Coverage

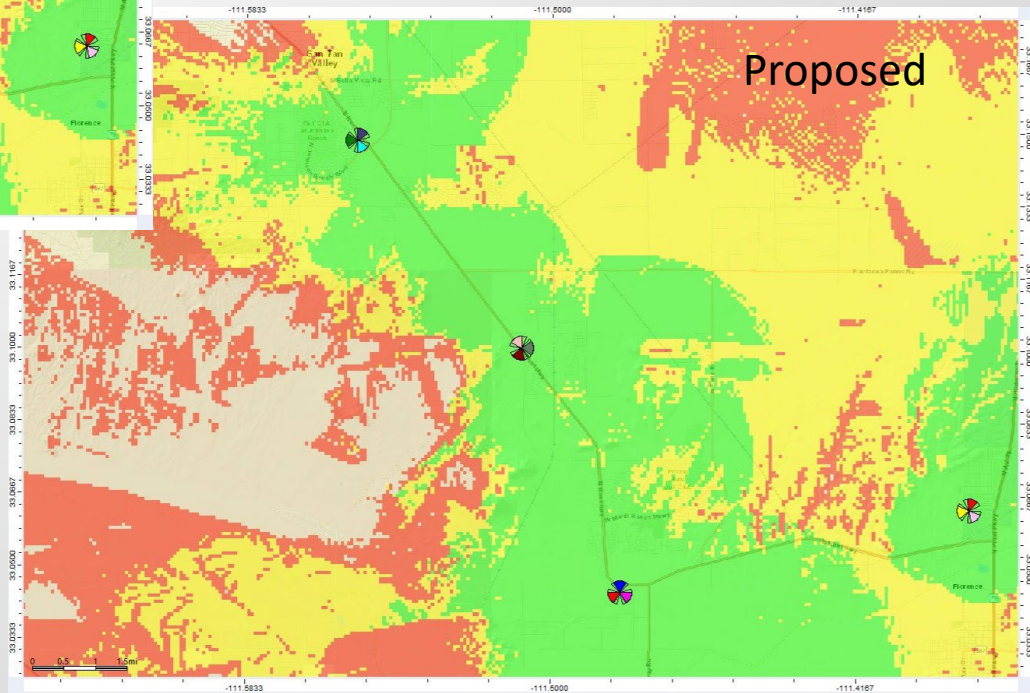
LEGEND	
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	In-Vehicle >= -95 dbm
	On-Street >= -106 dbm



RSRP – Comparison

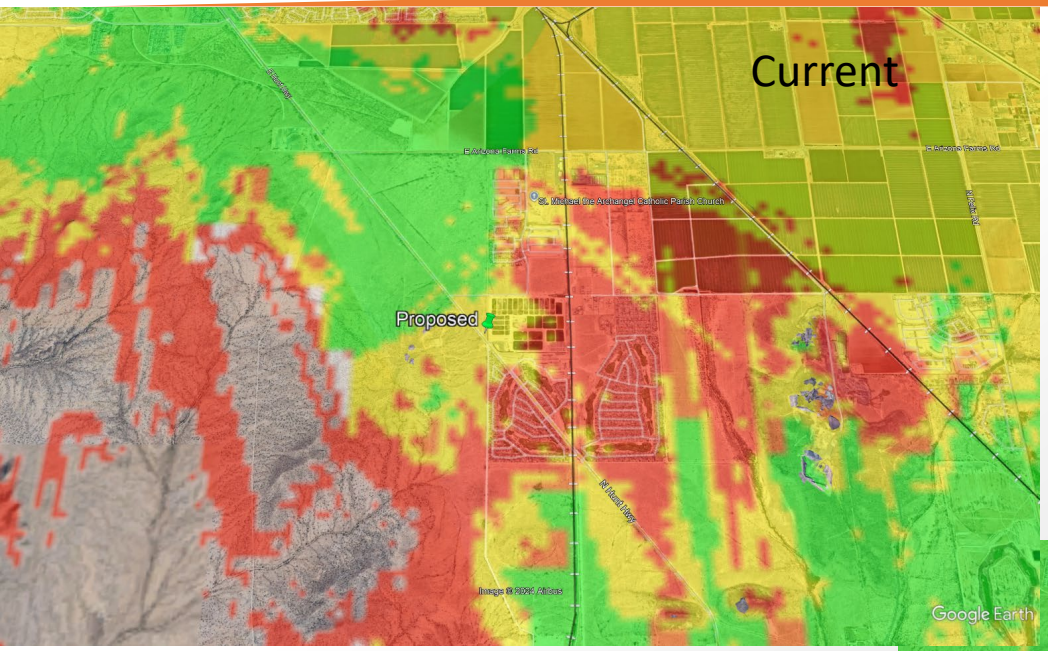
LEGEND	
	Indoor >= -85 dbm
	In-Vehicle >= -95 dbm
	On-Street >= -106 dbm

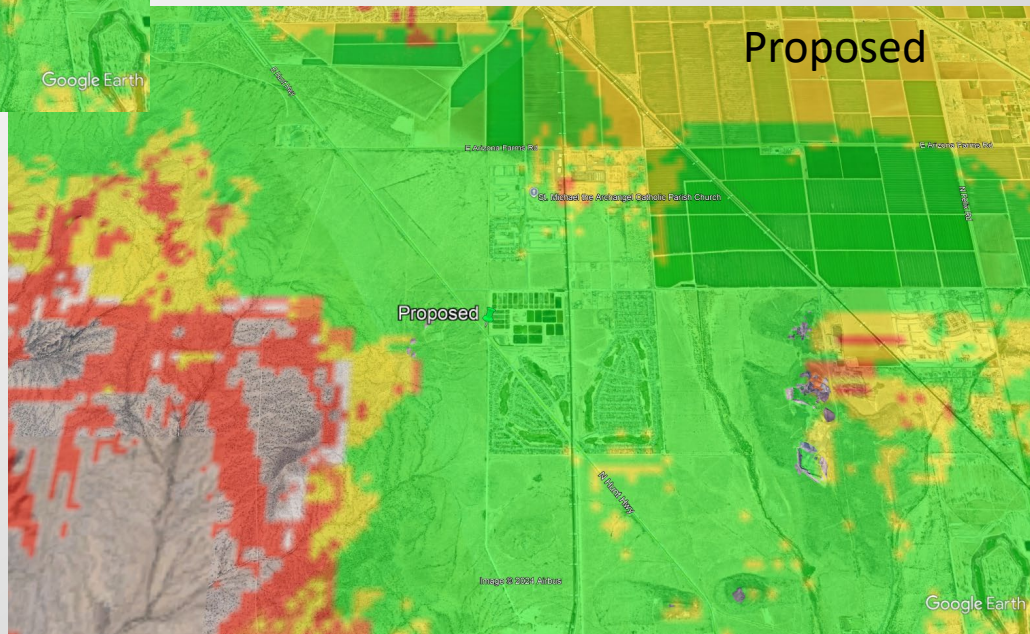




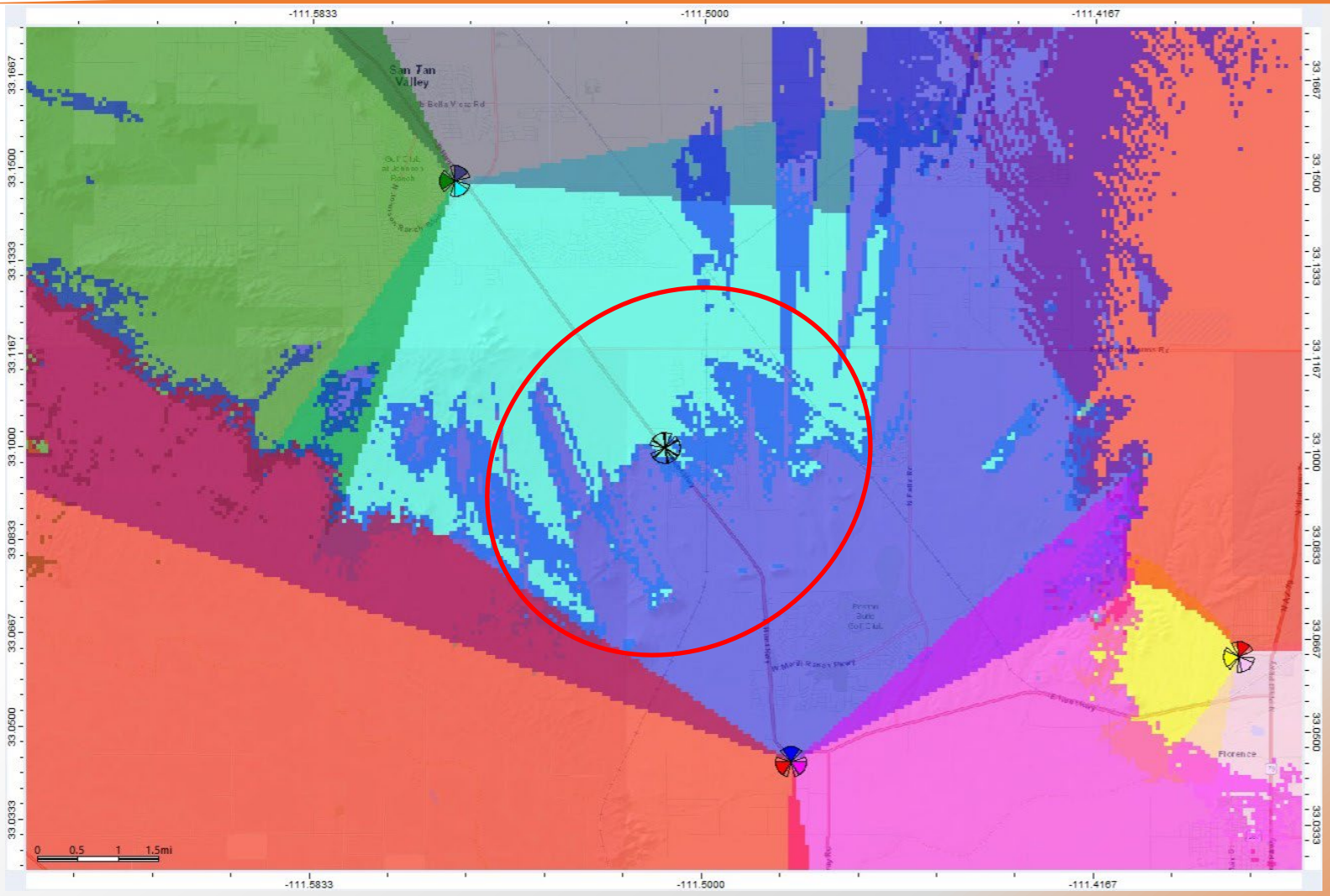
RSRP – Comparison (Zoom)

LEGEND	
	Indoor >= -85 dbm
	In-Vehicle >= -95 dbm
	On-Street >= -106 dbm

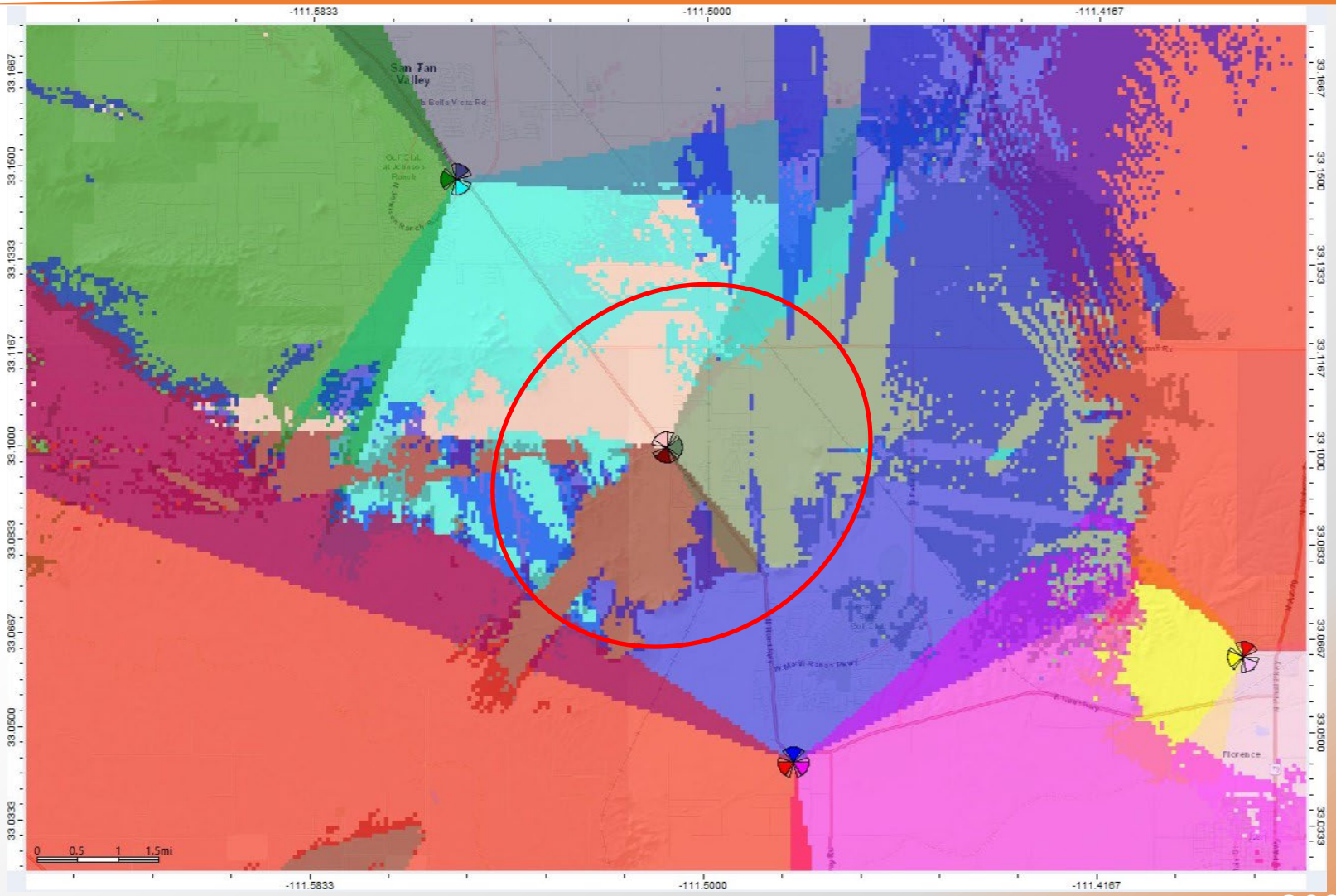




Best Server - Current (-120dbm)



Best Server – with new site (-120dbm)



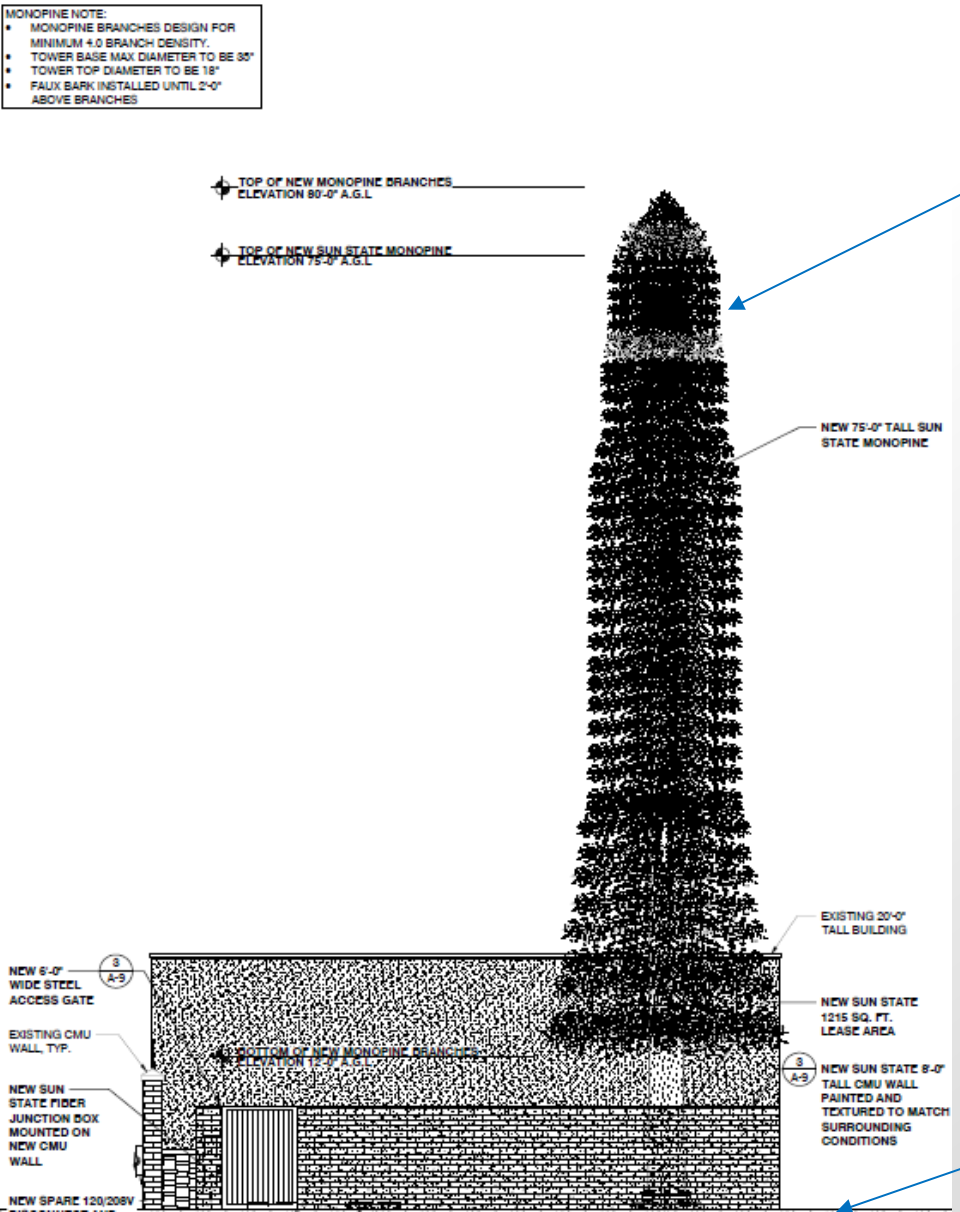
Ionizing vs Non-Ionizing

- There are two (2) types of Energy/Radio Waves
  - **Ionizing**
    - These are waves that can effect human DNA
    - Examples are:
      - Gamma rays
      - X-Rays
    - This is one of the reasons the nurse steps out of the room and you wear a lead overcoat when you get X-Rays at the dentist.
  - **Non- Ionizing**
    - These are waves do not effect human DNA
    - Examples are:
      - Car Radios
      - Television
      - Wi-Fi Access points and routers
      - Bluetooth headsets
      - Cellphones and Smartphones
      - Lightbulbs
      - Wireless Baby Monitors
      - TV remotes
  - Absorption of waves is proximity based, the closer you are to the antenna the more non-ionizing energy is absorbed. You will absorb 50% of the FCC's General Public limit with your smartphone next to your ear versus less than 10% of the FCC's General Public limit from the antennas when you are standing 20' away from the proposed tower.
  - The further you walk away from the tower it decreases even more.

General Public & Occupational limits

- The FCC isolated two (2) groups relative to access around wireless antennas
- The first group is called Occupational
  - This refers to areas where workers would be allowed (general public cannot access) but the workers would not have knowledge about antennas (An example would be an Air Conditioner Repair Technician). Barriers or signage may be needed to alert the worker when close to the antennas.
    - Examples are:
      - Rooftop access behind a locked door
      - Compound access behind a locked gate
  - The FCC determined the safe value and then lowered by a factor of 10 and that is the value the wireless carriers use in the studies
  - The exposure levels are averaged over 6 minutes
- The second group is called General Public
  - Uncontrolled access (General Public)
    - This group is for areas with general public access, the public would not have a knowledge of an antenna being close to them
    - Examples are:
      - Sidewalks
      - Parks
      - Public accessed buildings
  - The FCC determined the safe value and then lowered by a factor of 50 and that is the value the wireless carriers use in the studies
  - The exposure levels are averaged over 30 minutes
- Compare the value for a tower which is 10mW to the power of a smartphone which is 200mW of power.

Power Levels below a tower



Main beam of the antenna

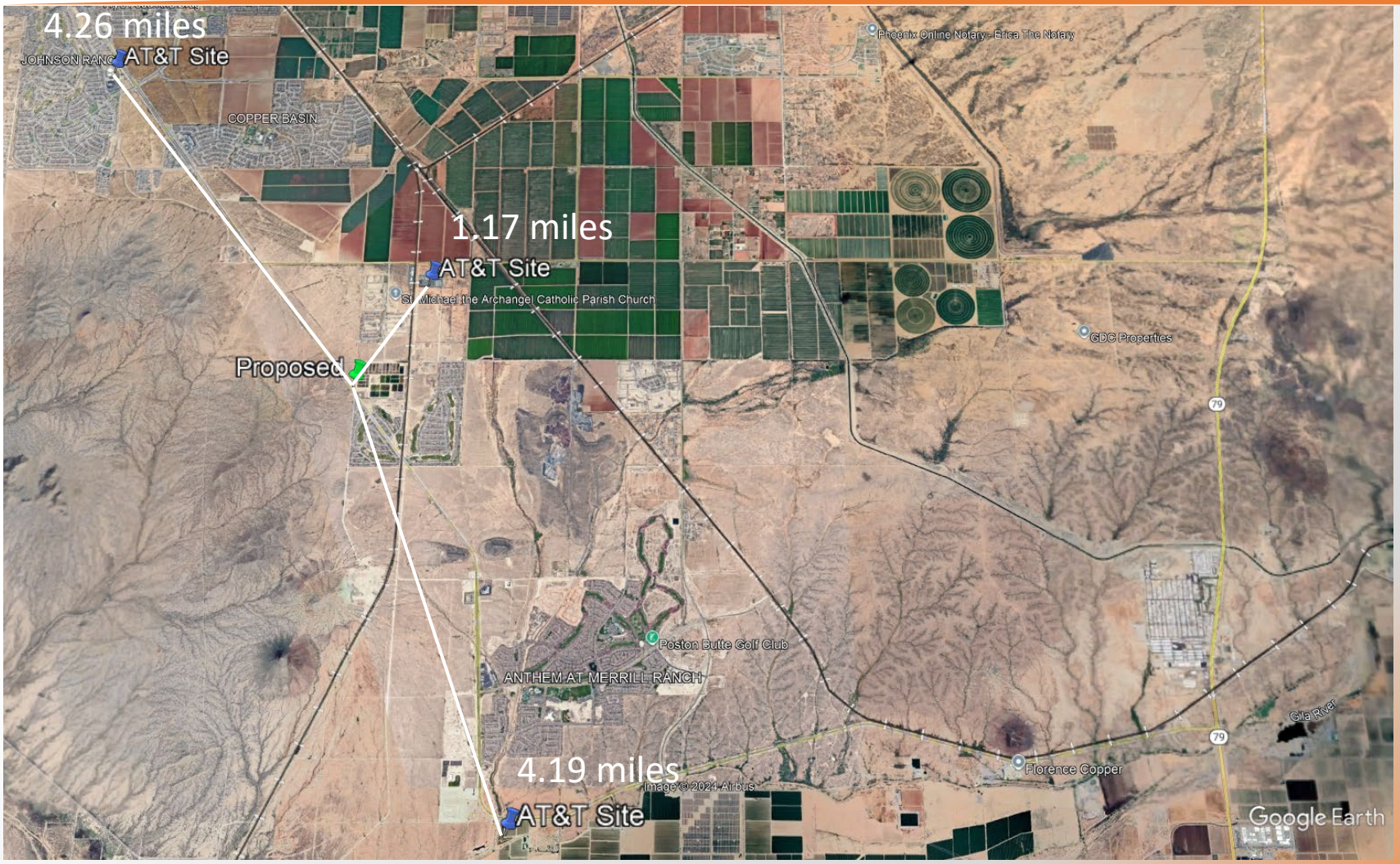
- Power levels on the ground around the tower are much less than what is at the antennas
- Power on the ground adjacent to the tower is 1/1000 of the power compared to what is at the antenna

1/1000 of the power on the ground around the site

World Health Organization

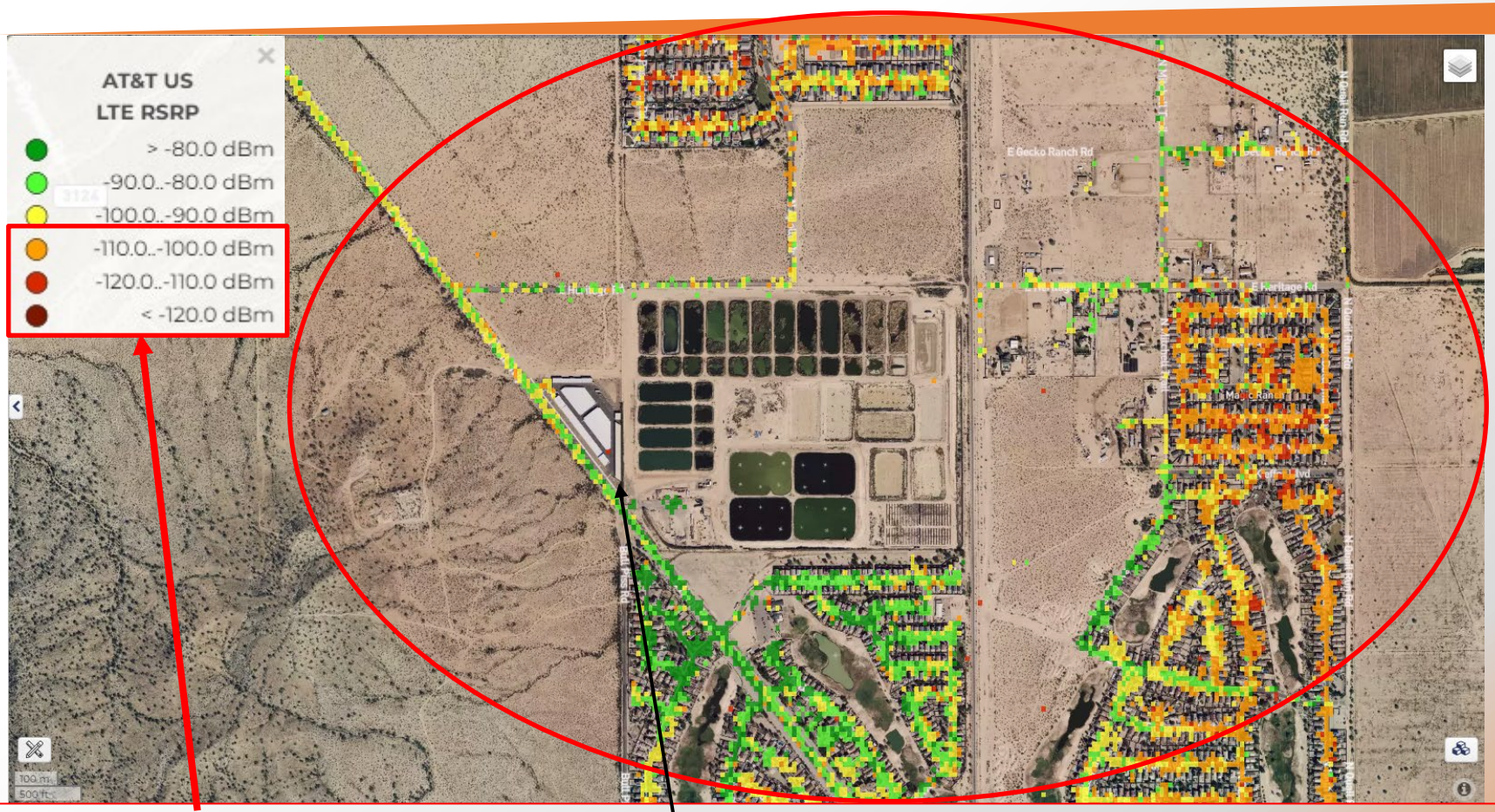
- Results from 28 year study completed by Environmental International
  - Posted online on August 30th, 2024
- https://www.sciencedirect.com/science/article/pii/S0160412024005695?via%3Dihub
- https://www.cnn.com/2024/09/03/health/mobile-phones-brain-cancer-review-the-conversation-partner/index.html
- Background: The objective of this review was to assess the quality and strength of the evidence provided by human observational studies for a causal association between exposure to radiofrequency electromagnetic fields (RF-EMF) and risk of most investigated neoplastic diseases.
- Results: We included 63 aetiological articles, published between 1994 and 2022, with participants from 22 countries, reporting on 119 different E-O pairs. **RF-EMF exposure from mobile phones (ever or regular use vs no or non-regular use) was not associated with an increased risk of glioma** [meta-estimate of the relative risk (mRR) = 1.01, 95 % CI = 0.89–1.13), **meningioma** (mRR = 0.92, 95 % CI = 0.82–1.02), **acoustic neuroma** (mRR = 1.03, 95 % CI = 0.85–1.24), **pituitary tumours** (mRR = 0.81, 95 % CI = 0.61–1.06), **salivary gland tumours** (mRR = 0.91, 95 % CI = 0.78–1.06), **or paediatric (children, adolescents and young adults) brain tumours** (mRR = 1.06, 95 % CI = 0.74–1.51), with variable degree of across-study heterogeneity (I2 = 0 %-62 %). **There was no observable increase in mRRs for the most investigated neoplasms (glioma, meningioma, and acoustic neuroma) with increasing time since start (TSS) use of mobile phones, cumulative call time (CCT), or cumulative number of calls (CNC). Cordless phone use was not significantly associated with risks of glioma** [mRR = 1.04, 95 % CI = 0.74–1.46; I2 = 74 %) **meningioma**, (mRR = 0.91, 95 % CI = 0.70–1.18; I2 = 59 %), **or acoustic neuroma** (mRR = 1.16; 95 % CI = 0.83–1.61; I2 = 63 %). **Exposure from fixed-site transmitters (broadcasting antennas or base stations) was not associated with childhood leukaemia or paediatric brain tumour risks, independently of the level of the modelled RF exposure. Glioma risk was not significantly increased following occupational RF exposure (ever vs never), and no differences were detected between increasing categories of modelled cumulative exposure levels.**

AT&T Sites



2024

Ookla AT&T 4G



Less than on Outdoor coverage

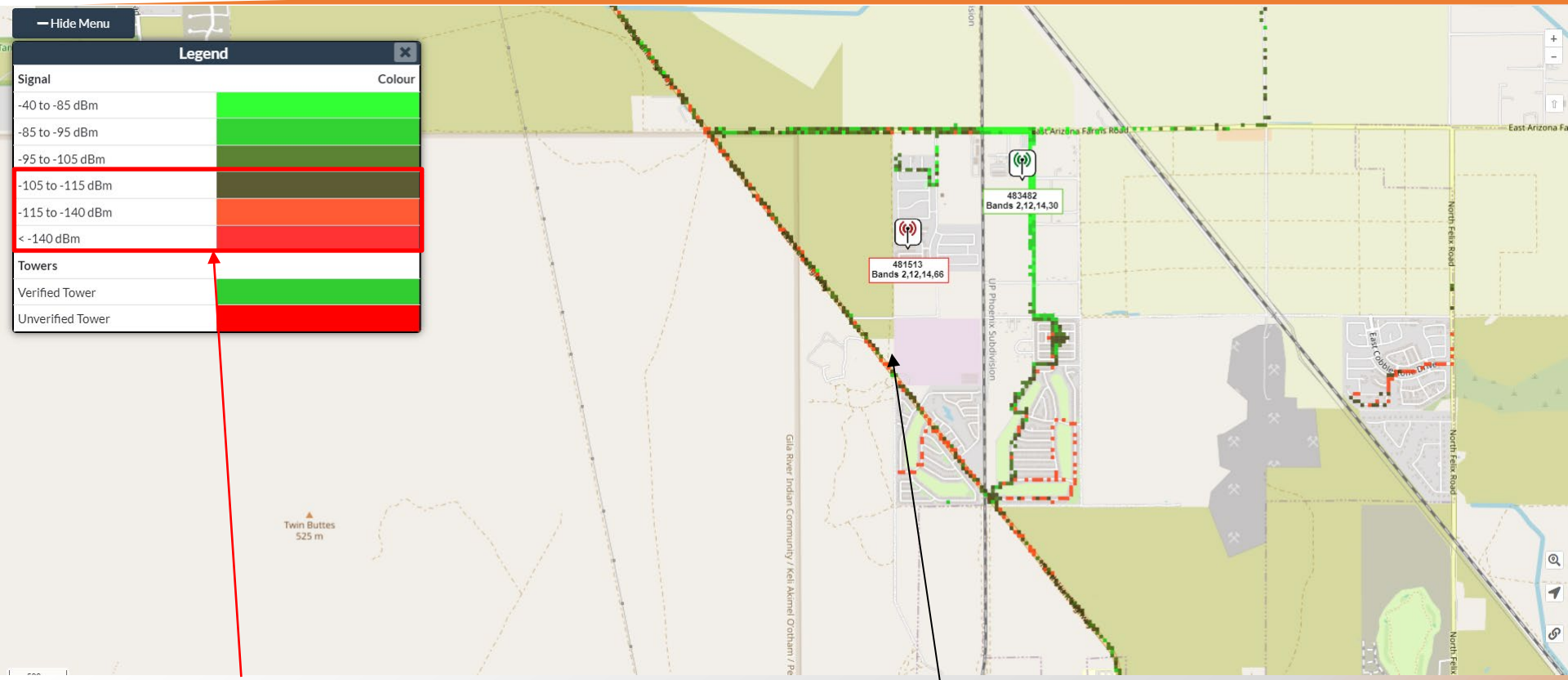
Proposed Site

The area in the red circle is what the proposed site would impact

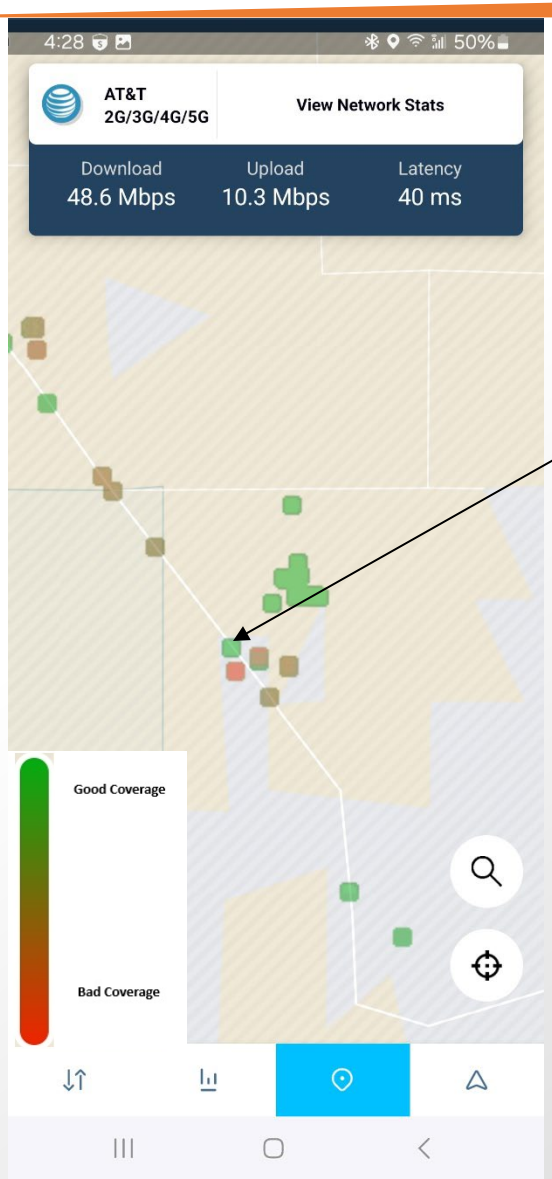
Since AT&T has a site to the Northeast by about 1.17 miles from proposed it is providing some service in area, note lack of coverage to the East

2024

AT&T CellMapper



Open Signal
AT&T Quality Map

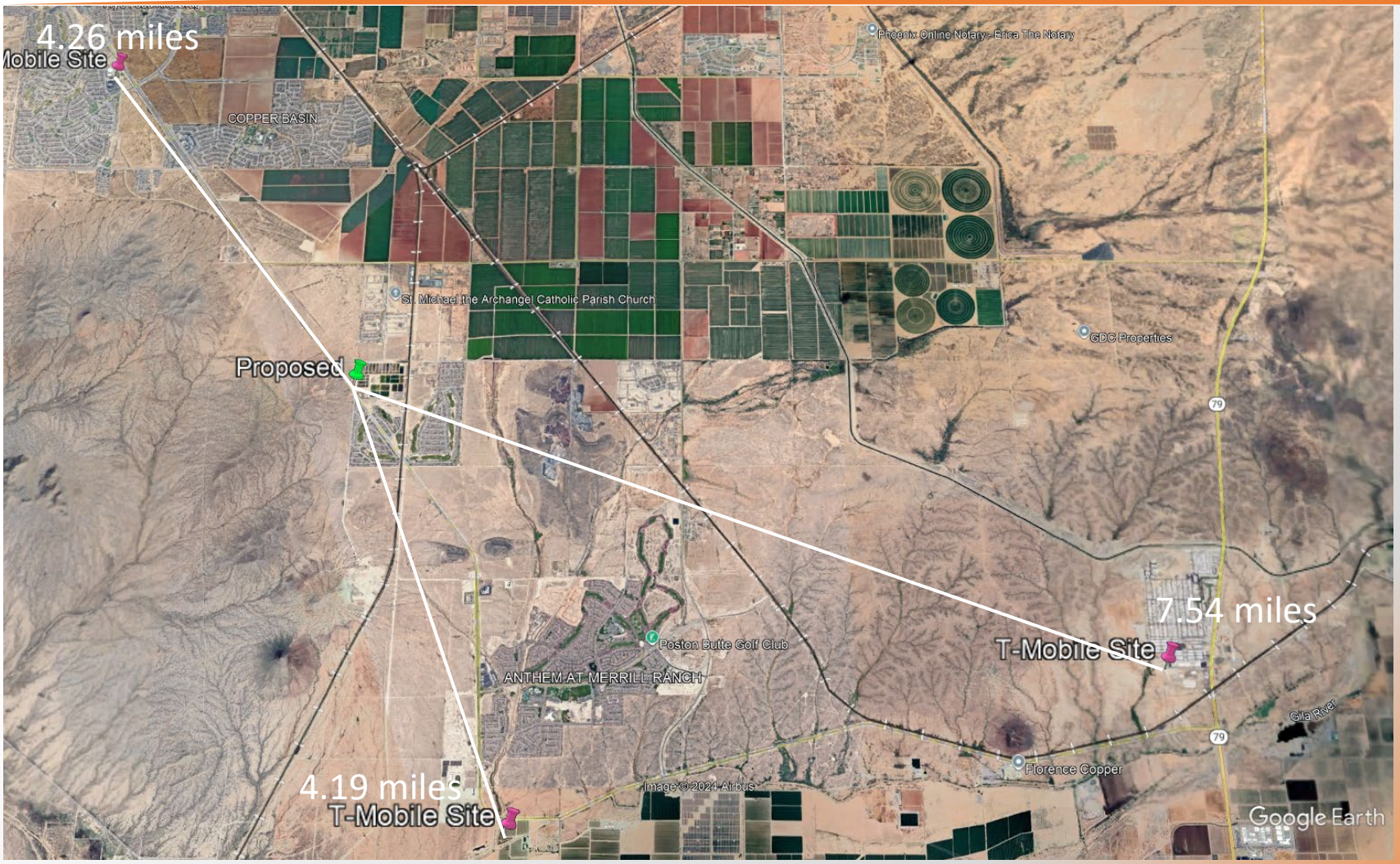


This map show mobiles reporting quality of their connections to the network. This is crowdsource data from AT&T users made available by the OpenSignal App: https://www.opensignal.com/apps#section-os-app

Green data points show good coverage and red data points show bad coverage and lack of data points show no coverage

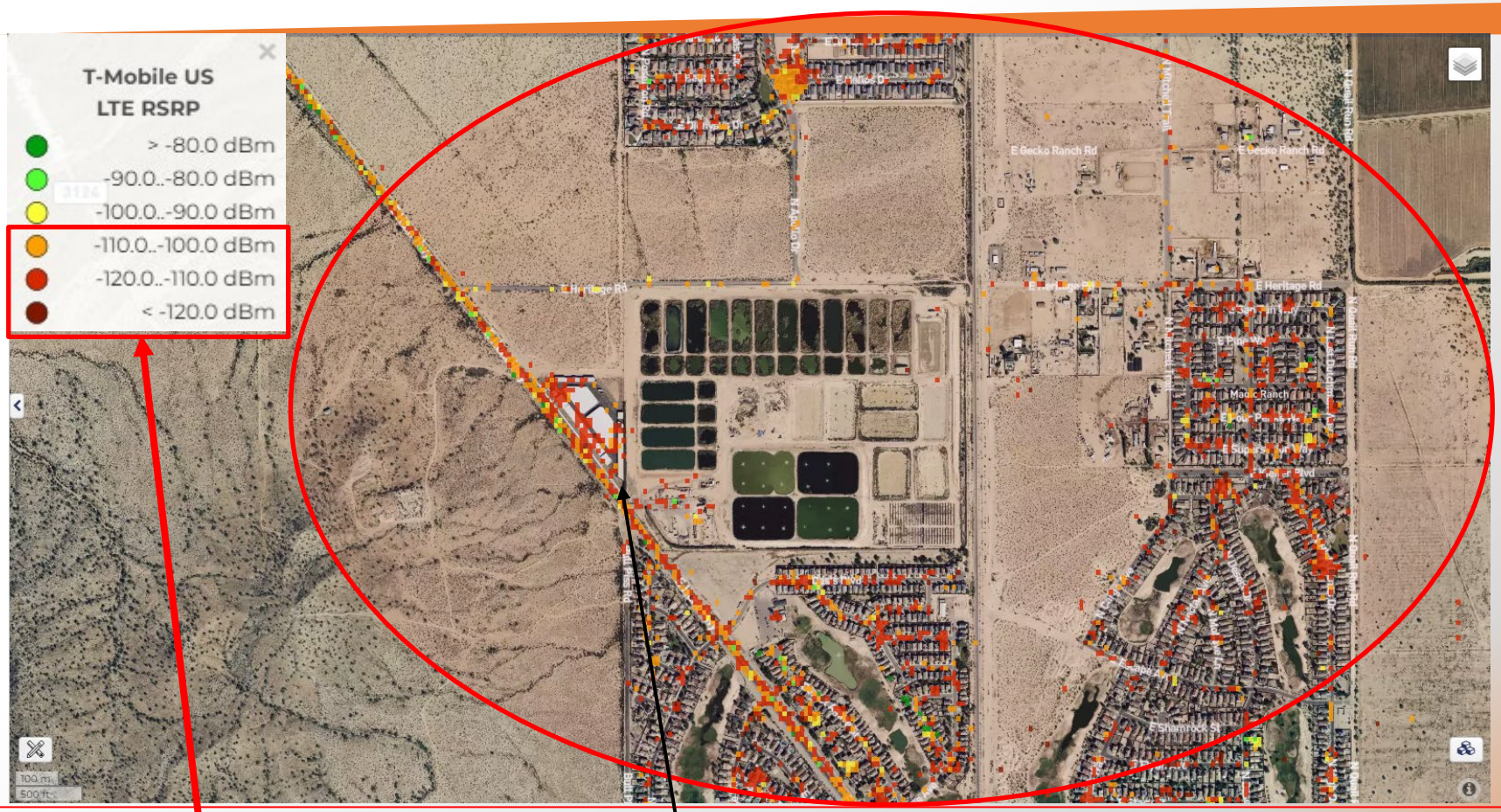
Note the good coverage to the NE of the proposed due to AT&T site, notice however that coverage to the South is showing bad coverage

T-Mobile Sites



2024

Ookla T-Mobile 4G

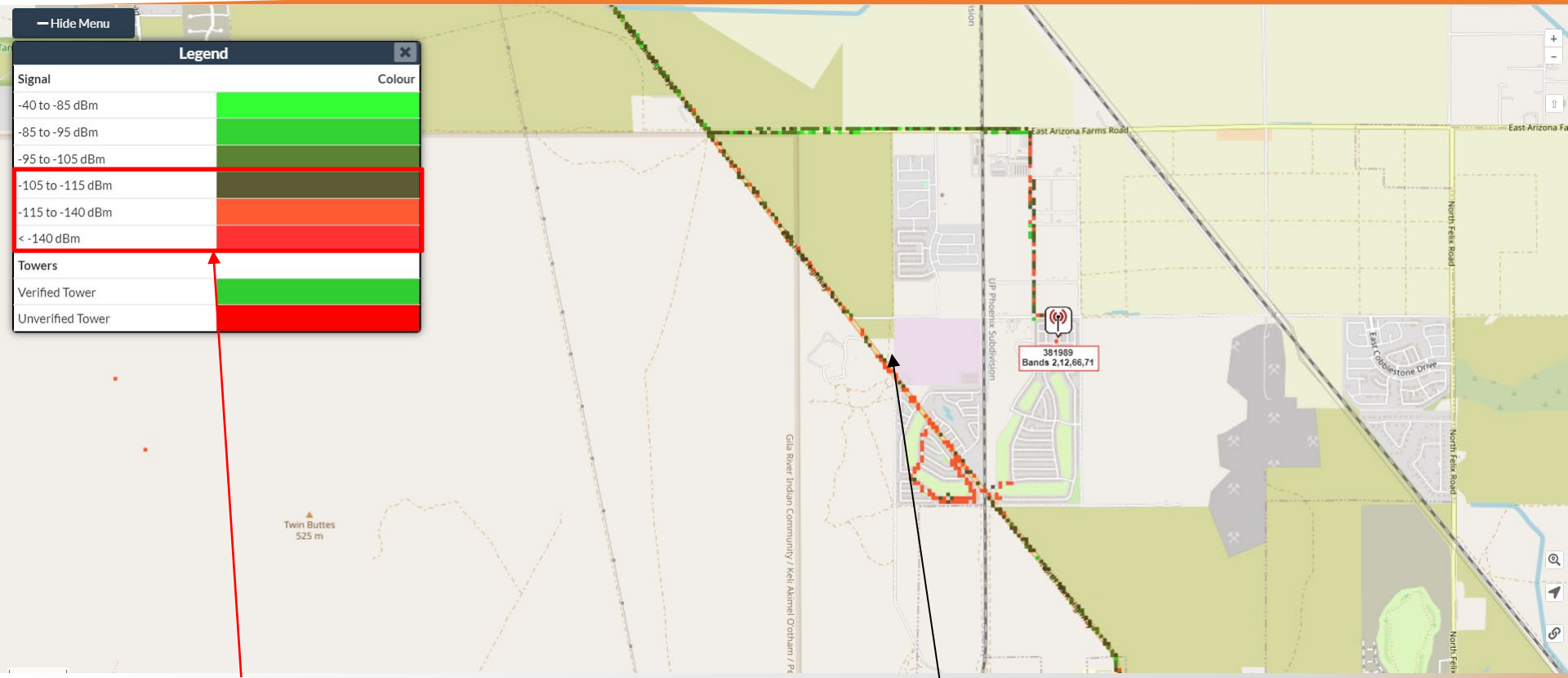


The area in the red circle is what the proposed site would impact

The area is showing a significant number of mobiles reporting less than outdoor service

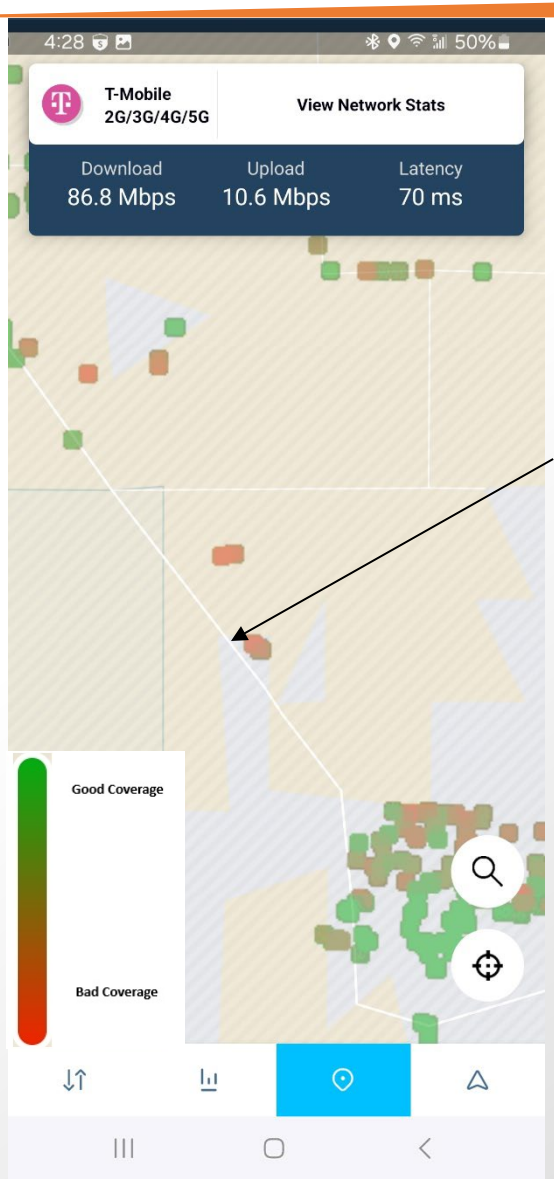
2024

T-Mobile CellMapper



2024

Open Signal
T-Mobile Quality Map



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Green data points show good coverage and red data points show bad coverage and lack of data points show no coverage

Notice the lack of coverage points and bad coverage points in the area which is indicative of poor service.

2024