

# WIRELESS NETWORK CONSULTING



Vertical Bridge

ID-5107 The Sheriff / Verizon THE-SHERIFF Site

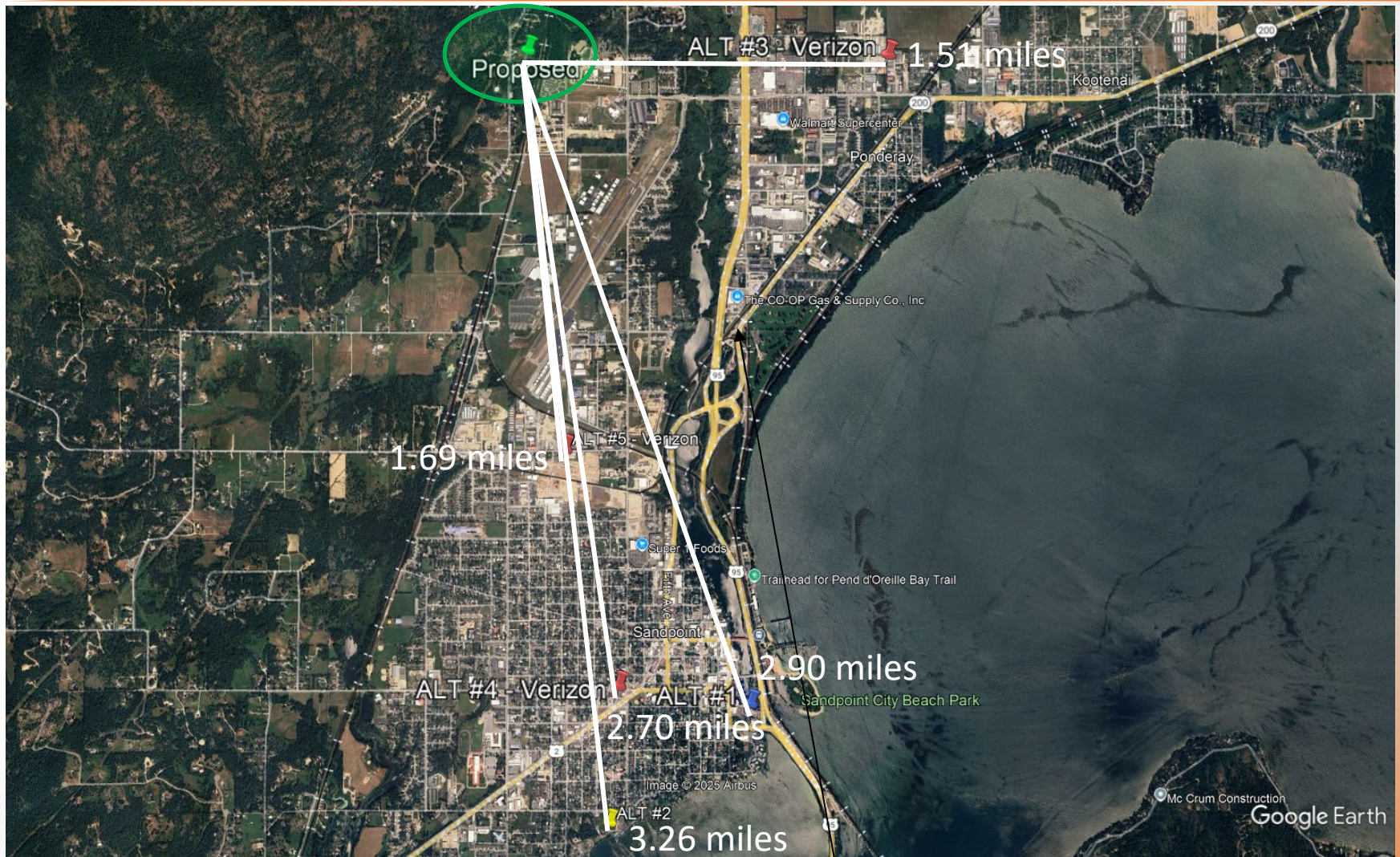
Capacity Cell Split

## ALTERNATE SITE ANALYSIS

# Alternate Site

- † Requested to review alternative tower site locations in jurisdiction
- † Other tower sites in area already have Verizon on them or are too close to an adjacent Verizon site
- † Primary objective is to provide capacity offload to neighbor sites and service on the NW side of town around Mickinnick Trail Head

# Area



Proposed Site

2025

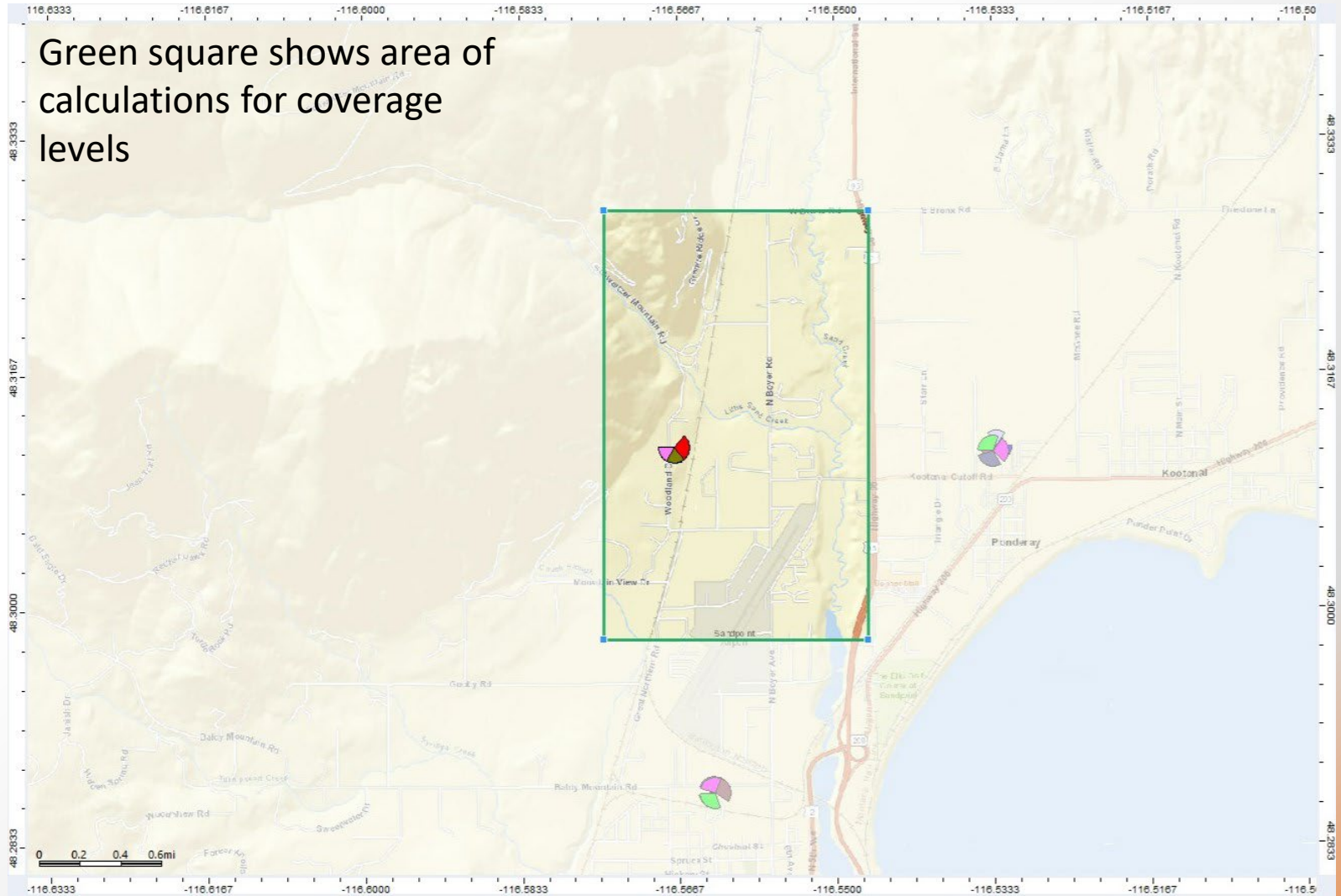
# Alternate Sites

- † Alternate #1 – Rooftop
  - AT&T is located on roof, no other space available
  - Site is too far away from coverage objective and within .56 miles of existing Verizon site  
48.271578, -116.546185
- † Alternate #2 – SBA 100' monopole
  - T-Mobile is located on site
  - Available height is 88'
  - Site is too far away from coverage objective and within .55 miles of existing Verizon site  
48.264514, -116.558888
- † Alternate #3 – ATC 118' monopole
  - Verizon is already located on this site  
48.311103, -116.533488

# Alternate Sites (continued)

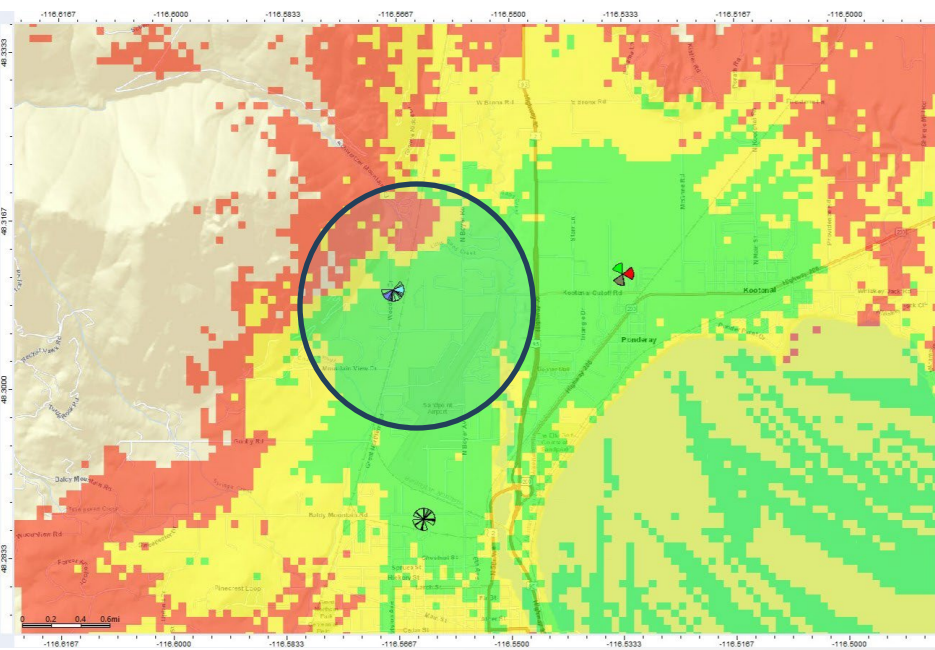
- † Alternate #4 – ATC 80' Monopole
  - Verizon is already located on this site  
48.272673, -116.558133
- † Alternate #5 – Recently approved 70' monopole
  - Verizon will be located on the site
  - Site was built to alleviate capacity South of the airport
  - This site will not help alleviate the capacity in the proposed area as it is too far away
  - Modeling for this alternate is attached below  
48.286994, -116.563061

# Focus Zone



# RSRP Coverage – low band Proposed vs Existing Coverage

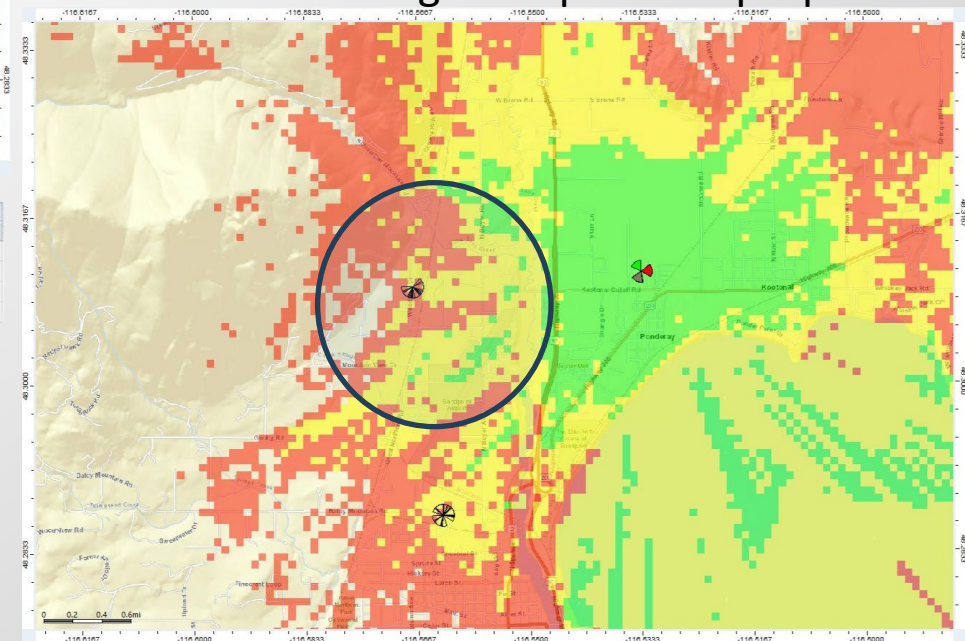
LEGEND	
	Indoor $\geq -85$ dbm
	In-Vehicle $\geq -95$ dbm
	On-Street $\geq -106$ dbm






Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band	RSRP Level (DL) (dBm) $\geq -85$	7.006559	6.724	100	96
		RSRP Level (DL) (dBm) $\geq -95$		0.719468	10.7	10.3
		RSRP Level (DL) (dBm) $\geq -106$		4.491632	66.8	64.1
		RSRP Level (DL) (dBm) $\geq -106$		6.724	100	96

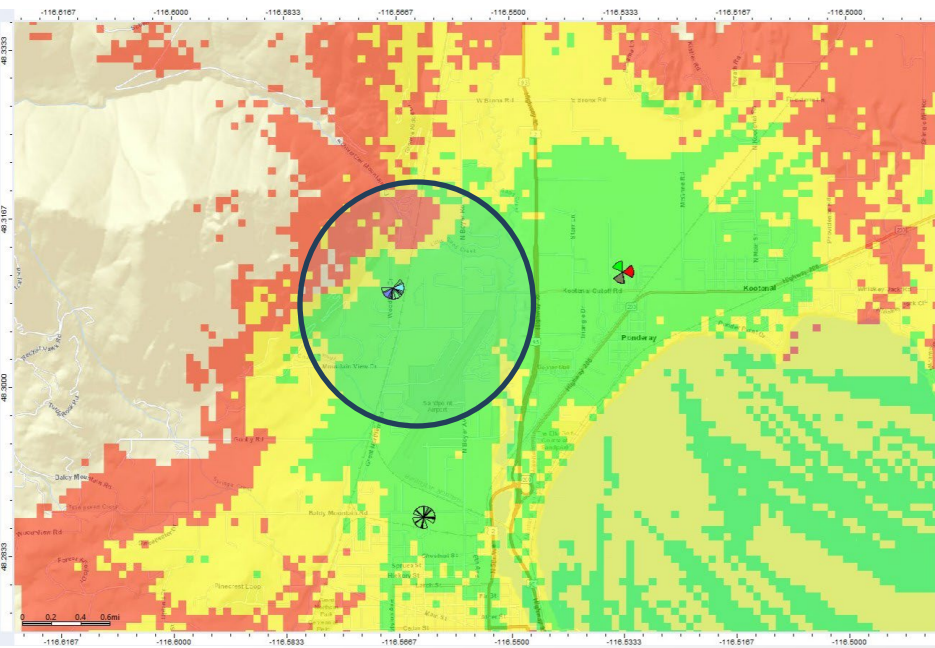
Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band	RSRP Level (DL) (dBm) $\geq -85$	7.006559	6.8921	100	98.4
		RSRP Level (DL) (dBm) $\geq -95$		4.027676	58.4	57.5
		RSRP Level (DL) (dBm) $\geq -106$		5.762468	83.6	82.2
		RSRP Level (DL) (dBm) $\geq -106$		6.8921	100	98.4

Left Picture and upper table Proposed data showing **4.02** square kilometers are covered with indoor service vs lower picture, lower left table showing data showing **.71** square kilometers covered with indoor service a **83%** reduction in coverage compared to proposed.



# RSRP Coverage – low band Proposed vs Alternate #5

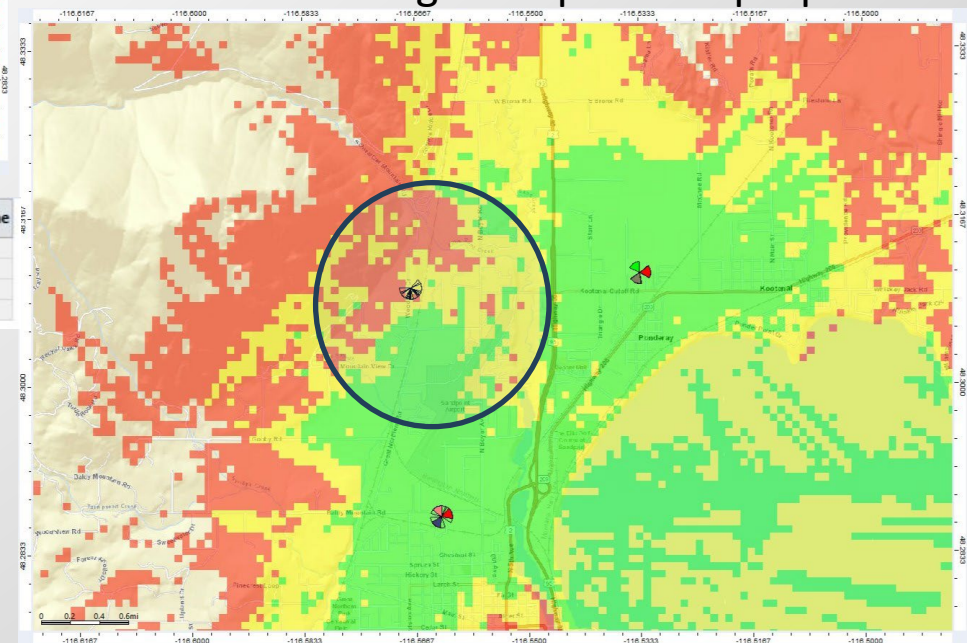
LEGEND	
	Indoor $\geq -85$ dbm
	In-Vehicle $\geq -95$ dbm
	On-Street $\geq -106$ dbm






Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band	RSRP Level (DL) (dBm) $\geq -85$	7.006559	6.8921	100	98.4
		RSRP Level (DL) (dBm) $\geq -95$		1.855824	26.9	26.5
		RSRP Level (DL) (dBm) $\geq -106$		5.24472	76.1	74.9
		RSRP Level (DL) (dBm) $\geq -106$		6.8921	100	98.4

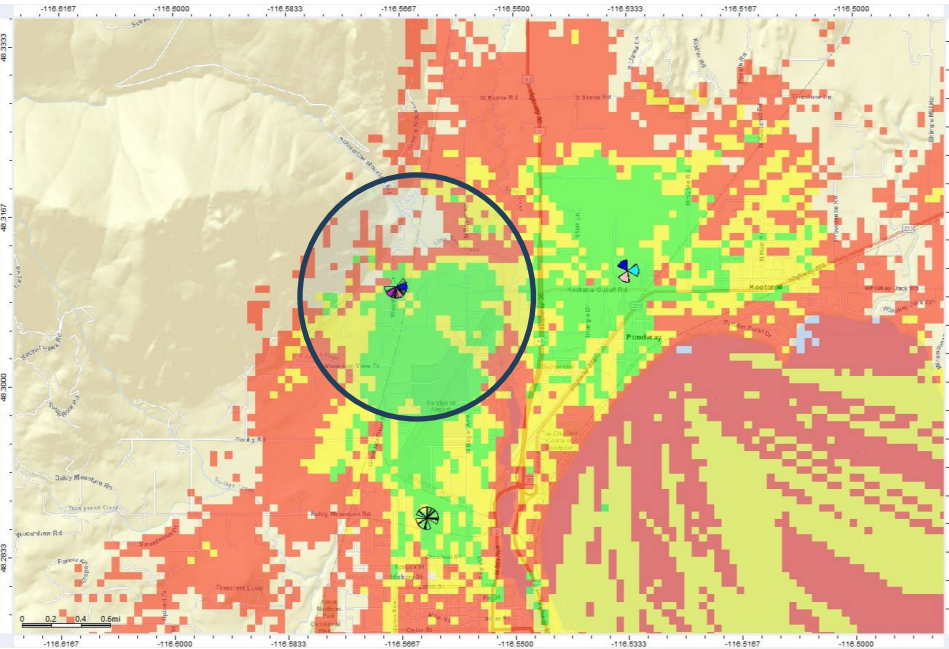
Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band	RSRP Level (DL) (dBm) $\geq -85$	7.006559	6.8921	100	98.4
		RSRP Level (DL) (dBm) $\geq -95$		4.027676	58.4	57.5
		RSRP Level (DL) (dBm) $\geq -106$		5.762468	83.6	82.2
		RSRP Level (DL) (dBm) $\geq -106$		6.8921	100	98.4

Left Picture and upper table Proposed data showing **4.02** square kilometers are covered with indoor service vs lower picture, lower left table showing data showing **1.85** square kilometers covered with indoor service a **54%** reduction in coverage compared to proposed.



# RSRP Coverage – mid band Proposed vs Existing Coverage

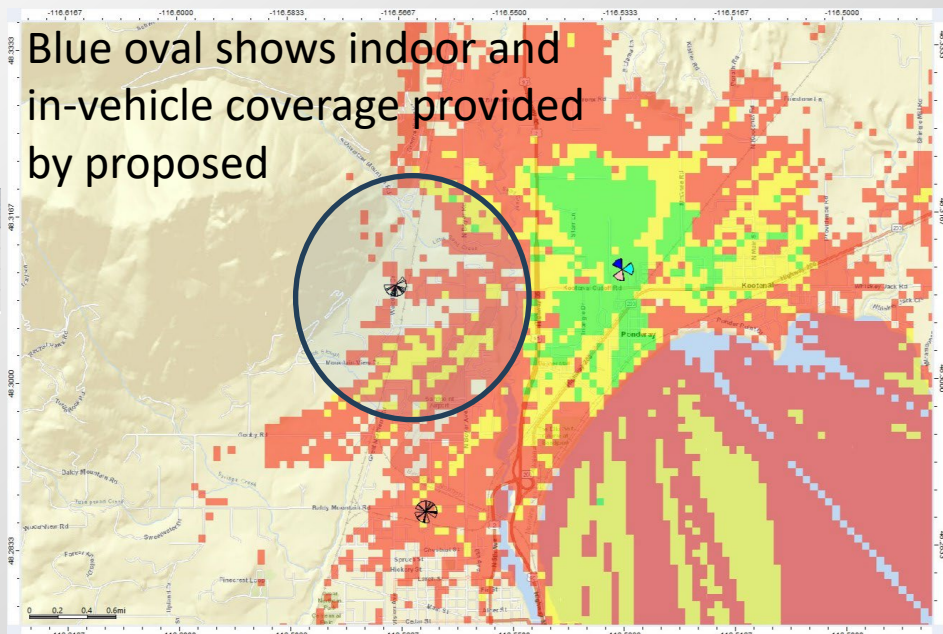
LEGEND	
	Indoor >= -85 dbm
	In-Vehicle >= -95 dbm
	On-Street >= -106 dbm






Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band	RSRP Level (DL) (dBm) >= -85	7.006559	4.50508	100	64.3
		RSRP Level (DL) (dBm) >= -95		0.03362	0.7	0.5
		RSRP Level (DL) (dBm) >= -106		0.948084	21	13.5
		RSRP Level (DL) (dBm) >= -106		4.50508	100	64.3

Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band	RSRP Level (DL) (dBm) >= -85	7.006559	5.601092	100	79.9
		RSRP Level (DL) (dBm) >= -95		1.990304	35.5	28.4
		RSRP Level (DL) (dBm) >= -106		3.409068	60.9	48.7
		RSRP Level (DL) (dBm) >= -106		5.601092	100	79.9

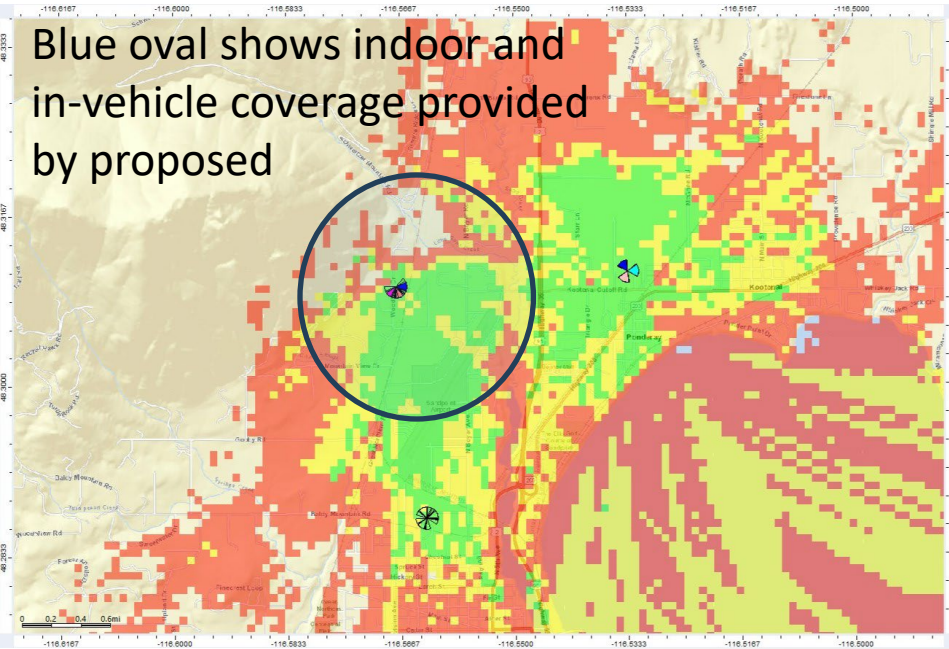
Left Picture and upper table Proposed data showing **1.99** square kilometers are covered with indoor service vs lower picture, lower left table showing data showing **.03** square kilometers covered with indoor service a **99%** reduction in coverage compared to proposed.



# RSRP Coverage – mid band Proposed vs Option 1

LEGEND	
	Indoor $\geq -85$ dbm
	In-Vehicle $\geq -95$ dbm
	On-Street $\geq -106$ dbm

Blue oval shows indoor and in-vehicle coverage provided by proposed

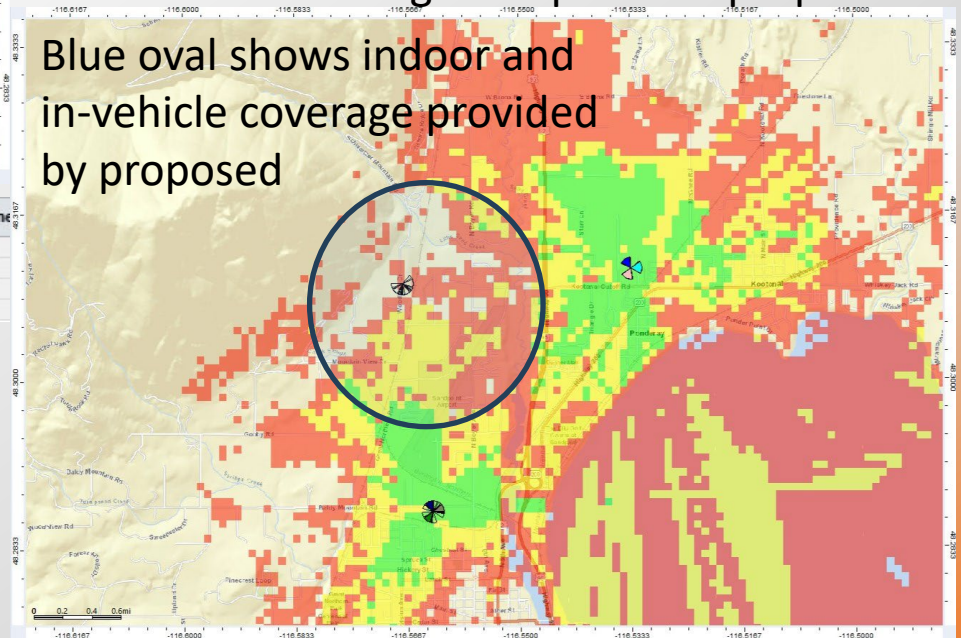


Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band		7.006559	4.901796	100	70
		RSRP Level (DL) (dBm) $\geq -85$		0.087412	1.8	1.2
		RSRP Level (DL) (dBm) $\geq -95$		1.486004	30.3	21.2
		RSRP Level (DL) (dBm) $\geq -106$		4.901796	100	70

Zone	Prediction	Legend	Zone Surface (km <sup>2</sup> )	Surface (km <sup>2</sup> )	% of Covered Area	% Focus Zone
Focus Zone	existing - RSRP - low band		7.006559	5.601092	100	79.9
		RSRP Level (DL) (dBm) $\geq -85$		1.990304	35.5	28.4
		RSRP Level (DL) (dBm) $\geq -95$		3.409068	60.9	48.7
		RSRP Level (DL) (dBm) $\geq -106$		5.601092	100	79.9

Left Picture and upper table Proposed data showing 1.99 square kilometers are covered with indoor service vs lower picture, lower left table showing data showing .08 square kilometers covered with indoor service a 99% reduction in coverage compared to proposed.

Blue oval shows indoor and in-vehicle coverage provided by proposed



# Conclusion

- † 90% of the spectrum utilized by Verizon is mid band and high band.
- † Alternate #5 does not provide the same level of service in the focus zone/coverage objective as the proposed
- † Verizon is located already on Alternate #5
- † The other alternates either have Verizon already located on them or are farther away from the proposed than Alternate #5
- † The proposed site is needed to provide service to the NW side of town
- † Recommend approval of the proposed tower