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Understanding Cell Spacing

Differences in Frequency Coverage and Other Factors

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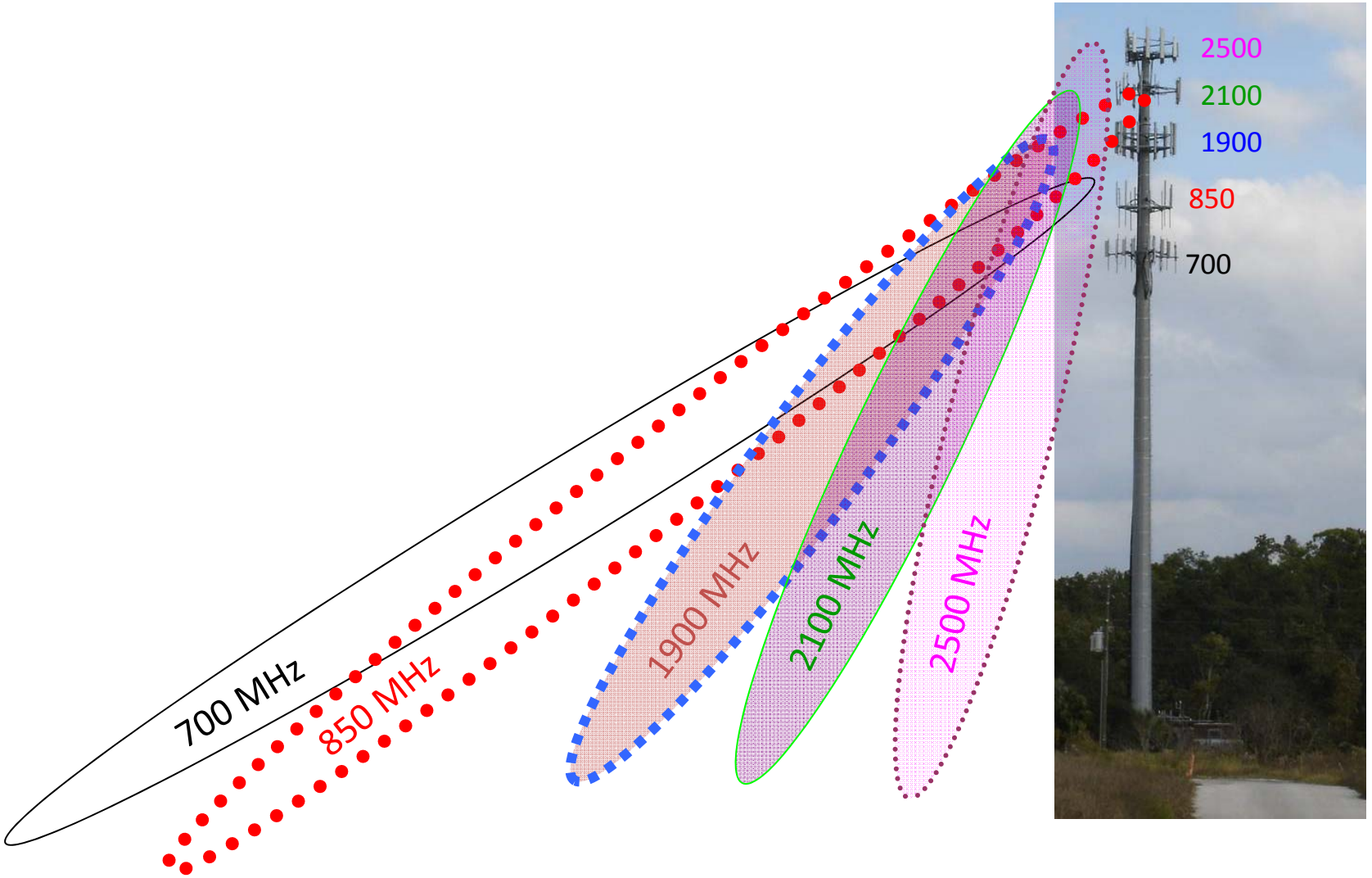
Frequency Propagation

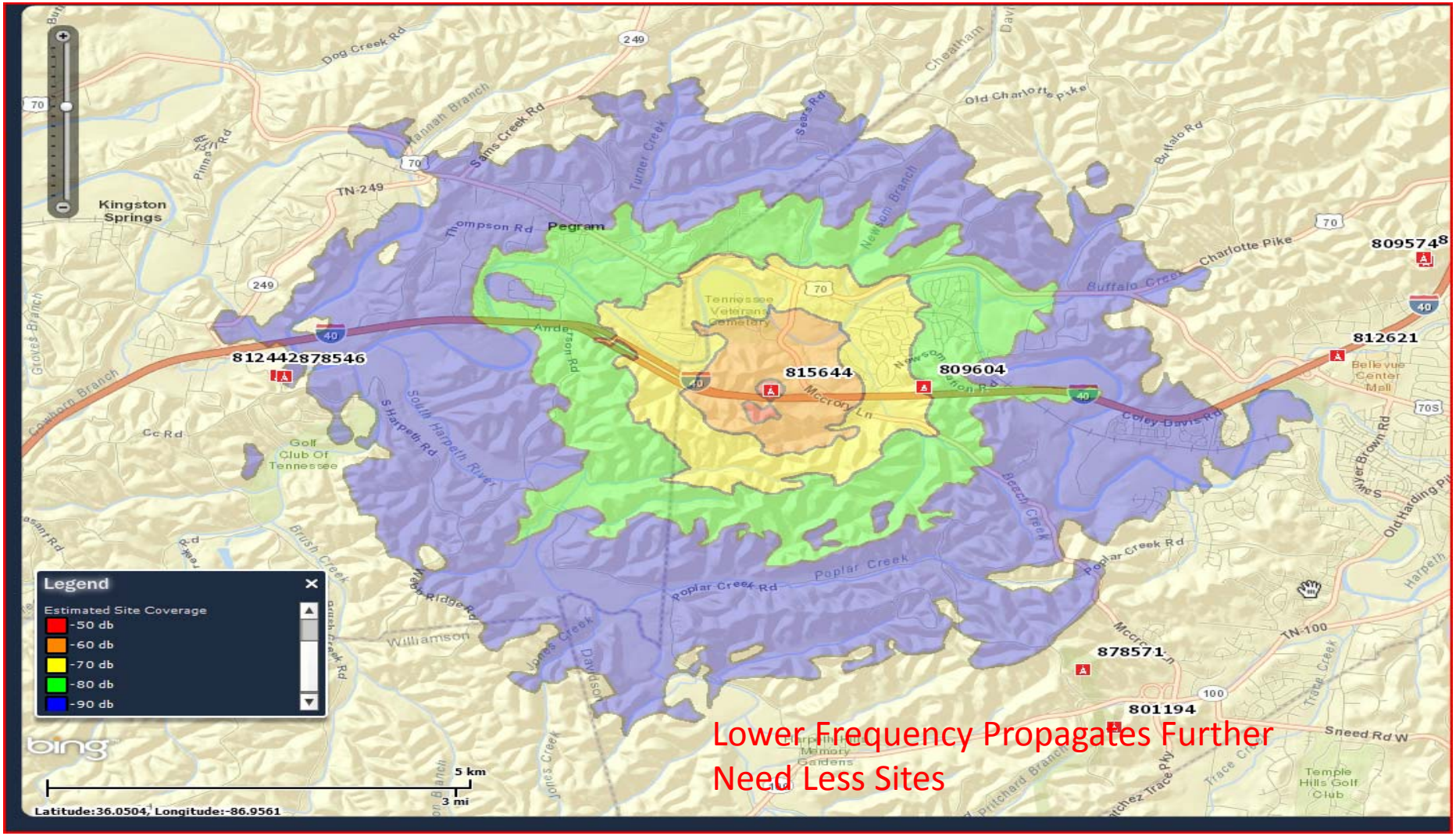
- Lower frequencies propagate further than higher frequencies requiring less sites to cover the same geographic area.

- Example
  - FM Radio Stations (102.5 MHz) can transmit and cover approximately 40-50 mile radius
  - Cellular Site (850 MHz) can cover approximately 8-10 mile radius
  - PCS Site (1900 MHz) can cover approximately 3-5 mile radius

Frequency Propagation



Site Coverage 815644 – 800 MHz



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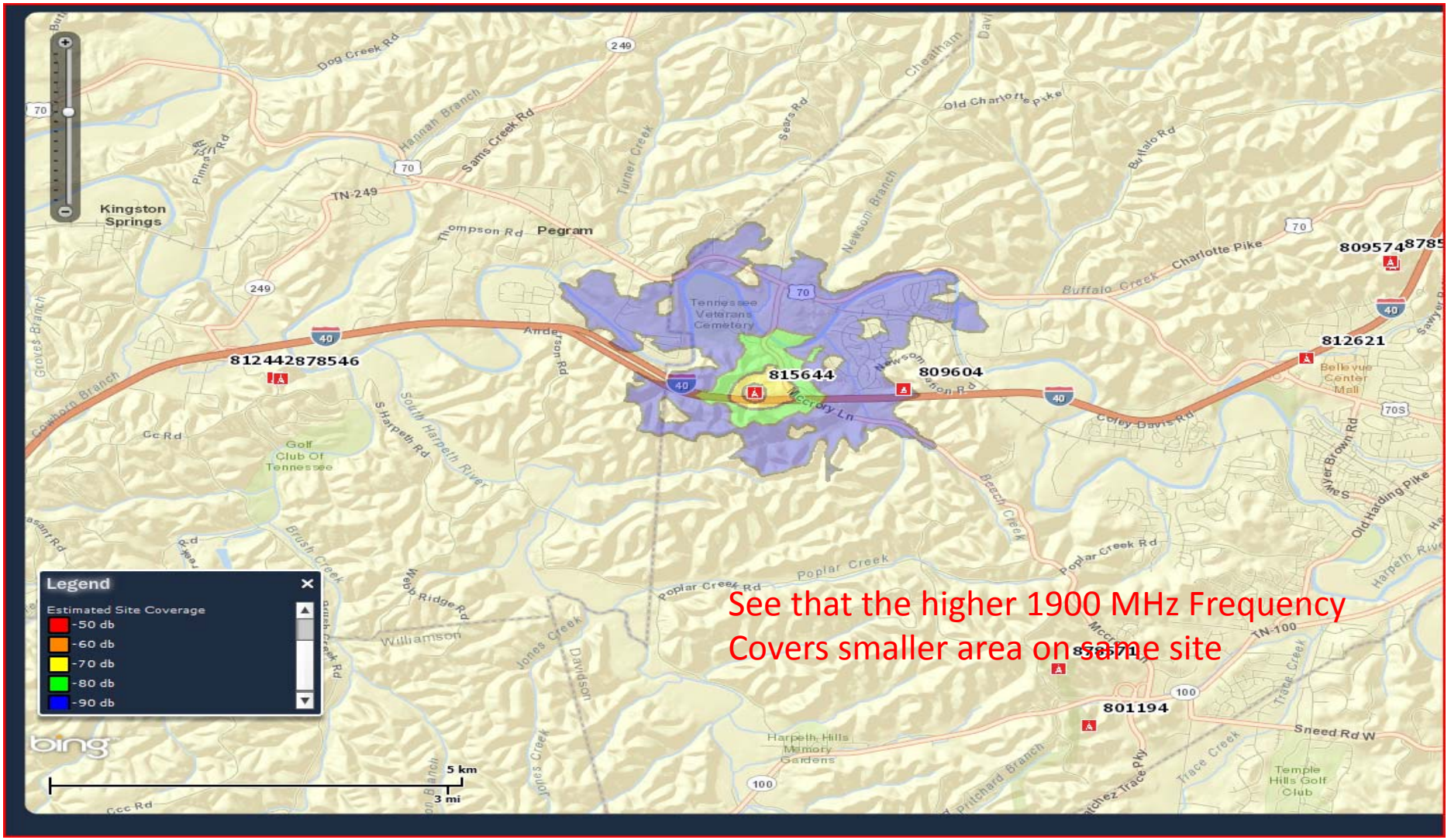
Site Coverage 815644 – 1900 MHz



See that the higher 1900 MHz Frequency Covers smaller area on same site

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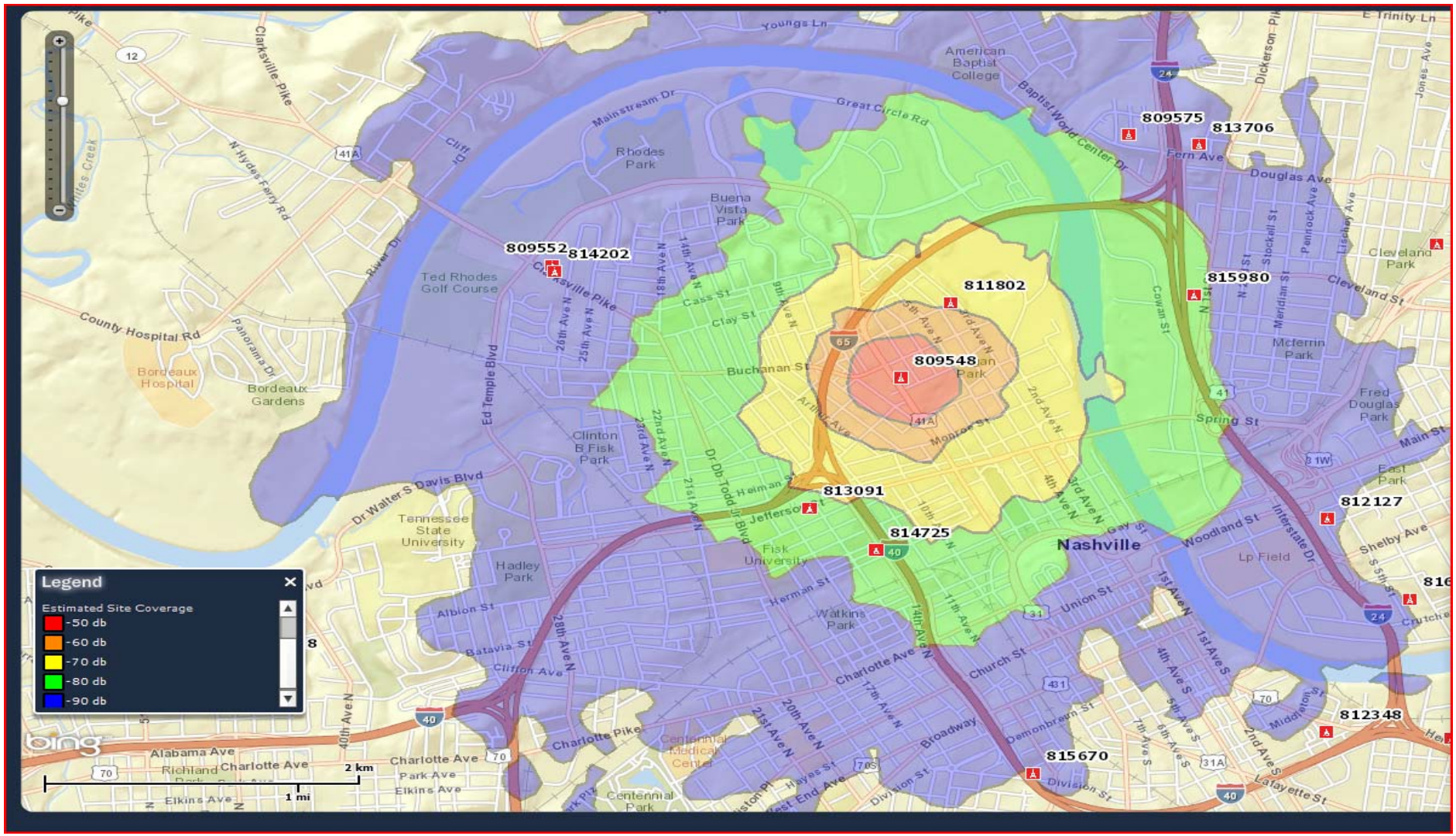
Site Coverage 809548 – 800 MHz



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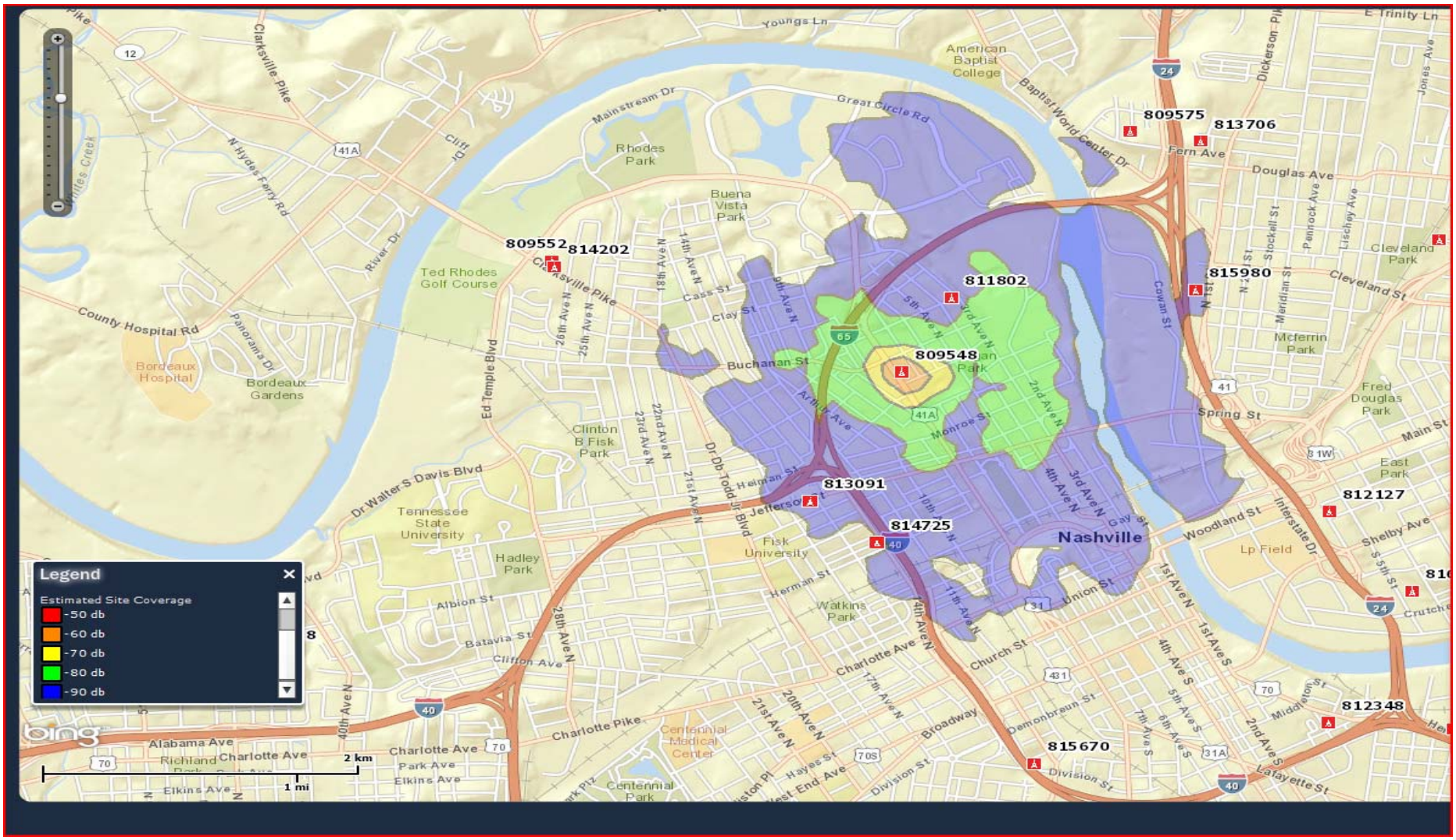
Site Coverage 809548 – 1900 MHz



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Carrier Frequency Ownership - Nashville

Carrier	Total	700	800	1900	2100
39 Rotunda Dr	6	6	0	0	0
ACCESS SPECTRUM LLC	2	2	0	0	0
AT&T Mobility	80	30	15	35	0
Cellular South	22	12	0	0	10
Cricket Communications	25	0	0	15	10
Sprint PCS	35	0	0	35	0
T-Mobile	40	0	0	20	20
US Cellular	10	0	0	0	10
Verizon Wireless	102	22	25	15	40

Other Cell Spacing Considerations

- How much frequency does the carrier own ?
  - -- The lower the amount of frequency, more reuse of spectrum, requiring more sites
- How many subscribers in the coverage area ?
  - -- Greater usage, more sites required
  - -- Data requires larger blocks of spectrum
- Quality of the carrier's network?
  - -- Stronger signal/coverage requires more sites

Other Cell Spacing Considerations

- Initial towers constructed by carriers, with minimal co-location
  - As tower aggregators acquired carrier sites, more co-location, as aggregators marketing sites
- Some sites still owned by carriers or only recently sold to tower aggregators-not as leased as more mature sites that have been owned longer by tower aggregators

Contact Information

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