



# MARTIN COUNTY, FLORIDA DEVELOPMENT REVIEW STAFF REPORT

## A. Application Information

### KENAI TOWER EXTENSION MAJOR REVISED FINAL SITE PLAN - TOWER

Applicant:	RG Towers, LLC, Scott Richards
Property Owner:	Kenai Properties, LLC, Linda Albrecht
Agent for the Applicant:	Gunster, Robert S. Raynes, Jr.
County Project Coordinator:	Peter Walden, Principal Planner
Growth Management Director:	Nicki van Vonno, AICP
Project Number:	K041-007
Application Type and Number:	DEV2019050003
Report Number:	2020_0407_K041-007_Staff_FINAL.docx
Application Received:	05/30/2019
Transmitted:	06/05/2019
Staff Report:	07/29/2019
Joint Workshop:	08/15/2019
Resubmittal Received:	09/30/2019
Transmitted:	10/01/2019
Staff Report:	12/02/2019
Joint Workshop:	12/05/2019
Resubmittal Received:	02/05/2020
Transmitted:	02/05/2020
Date of report:	04/07/2020
BCC Scheduled meeting:	05/05/2020

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## B. Project description and analysis

This is an application for a major development, revised final site plan, including a request for a Certificate of Public Facilities Exemption. The applicant is proposing to extend the height of an approved wireless telecommunications facility (WTCF) from the approved 80 feet maximum height to 100 feet maximum height. The project is located on a parcel consisting of approximately 0.92 of an acre located on the east side of the terminus of SE Country Club Drive, approximately 1 mile north of the Martin County south boundary. The applicant proposes the tower extension to be camouflaged as a pine tree, consistent with the previous approval, with no changes proposed to the established lease area, ground compound, access, or landscaping.

The project property is located within a High Density future land use designation and has existing zoning of HR-2, Multiple-Family Residential District, which is a Category C district. In conformance with the zoning code provisions contained within Section 3.402. of the Land Development Regulations (LDR) the HR-2 zoning district is compatible with the future land use designation of High Density Residential, without requiring rezoning to a Category A district. The applicant has elected to proceed with this application under the HR-2 zoning district development standards.

The Board of County Commissioners approved, with conditions, the development of an 80-foot high wireless telecommunications facility on May 31, 2016, via Resolution Number 16-5.25 (OR Bk 2900 Pg 845). The current application proposes to add an additional 20 feet to the height, to result in a maximum height of 101.2 feet, to increase the coverage footprint providing a more robust and reliable service.

Development of the WTCF must be in conformance with the Land Development Regulations, Comprehensive Growth Management Plan and Martin County Code, including the requirements of Division 18, Article 4, LDR, governing the site development standards specific to wireless telecommunication facilities. The proposed location is classified as a Priority Four site under Section 4.795.E., LDR, due to the residential future land use designation of the site, and is required to be designed as a stealth facility as defined in Section 4.792., LDR, Martin County, Fla. (2005). The closest existing residences include a multifamily building located approximately 78 feet southeast of the subject property boundary (approximately 160 feet from the tower base) and a single-family residential lot located approximately 56 feet west of the subject property boundary (approximately 145 feet from the tower base). Review and verification of the applicant's demonstration of compliance with the applicable County regulations is a function of the County's Development Review Team, including an independent technical consultant contracted pursuant to Section 4.805., LDR. Their findings and recommendations are summarized within this Staff Report.

### **C. Staff recommendation**

The specific findings and conclusion of each review agency related to this request are identified in Sections F through T of this report. The current review status for each agency is as follows:

<b>Section</b>	<b>Division or Department</b>	<b>Reviewer</b>	<b>Phone</b>	<b>Assessment</b>
F	Comprehensive Plan	Peter Walden	219-4923	Comply
F	ARDP	Samantha Lovelady	288-5664	N/A
G	Development Review	Peter Walden	288-5667	Comply
H	Urban Design	Santiago Abasolo	288-5485	N/A
H	Community Redevelopment	Santiago Abasolo	288-5485	N/A
I	Property Management	Colleen Holmes	288-5794	N/A
J	Environmental	Shawn McCarthy	288-5508	Comply
J	Landscaping	Karen Sjolholm	288-5909	Comply
K	Transportation	Lukas Lambert	221-2300	Comply
L	County Surveyor	Tom Walker	288-5928	N/A
M	Engineering	Stephanie Piche	223-4858	Comply
N	Addressing	Emily Kohler	288-5692	Comply
N	Electronic File Submission	Emily Kohler	288-5692	Comply
O	Water and Wastewater	James Christ	320-3034	Comply
O	Wellfields	James Christ	320-3034	Comply
P	Fire Prevention	Doug Killane	288-5633	Comply
P	Emergency Management	Michele Jones	219-4942	N/A

This application meets the threshold criteria for a major development, revised final site plan pursuant to Section 10.15.C.4.a., LDR, Martin County, Fla. (2019).

Pursuant to Sections 10.1.E. and 10.2.B.2, Land Development Regulations, Martin County, Fla. (2019), it shall at all times be the applicant's responsibility to demonstrate compliance with the Comprehensive Growth Management Plan (CGMP), Land Development Regulations (LDR) and the Code.

Parcel number(s) and address:  
22-40-42-000-000-0003.0-60000      No Address  
Existing Zoning:      HR-2, Multiple Family Residential  
Future land use:      FLU-HDR, Future Land Use High Density Res 10/Acre

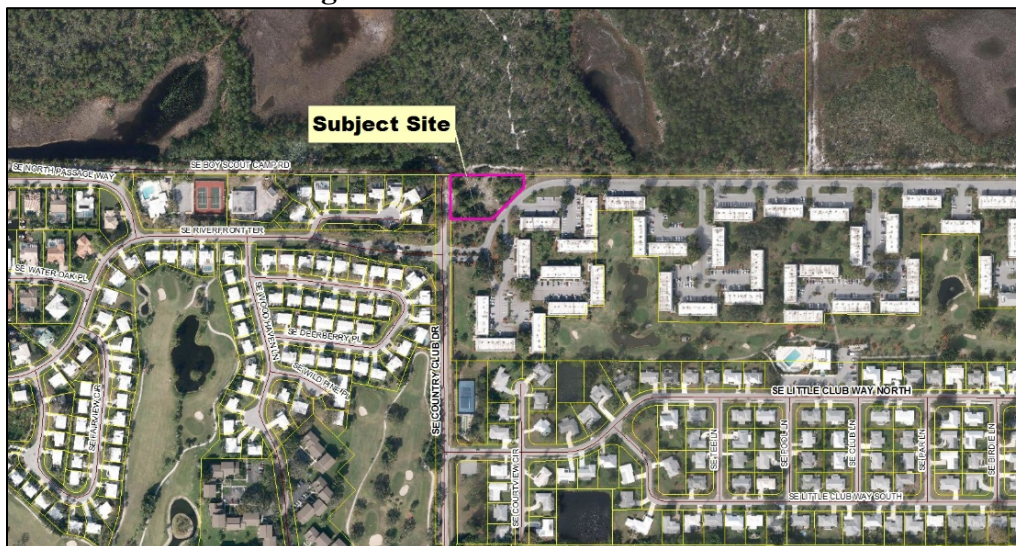
[illegible]

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To the east: Multifamily Residential  
 To the west: Single Family Residential (Across SE Country Club Dr.)

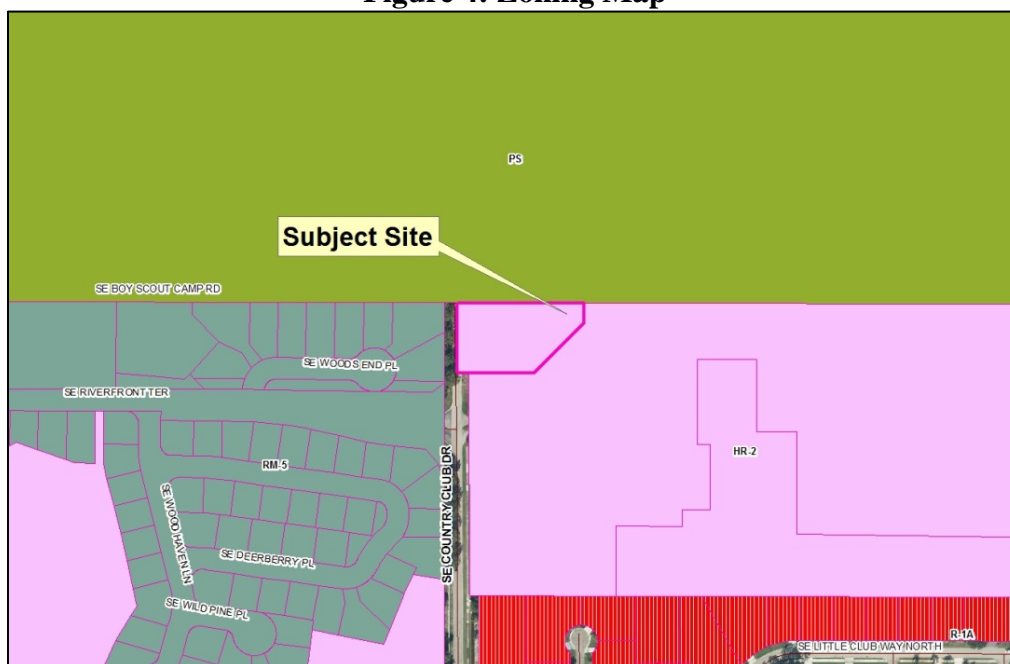
**Figure 3: Local Area 2019 Aerial**



Zoning district designations of abutting properties:

To the north: PS, Public Servicing District  
 To the south: HR-2, Multiple-Family Residential District  
 To the east: HR-2, Multiple-Family Residential District  
 To the west: RM-5, Low Density Residential District (Across SE Country Club Dr.)

**Figure 4: Zoning Map**

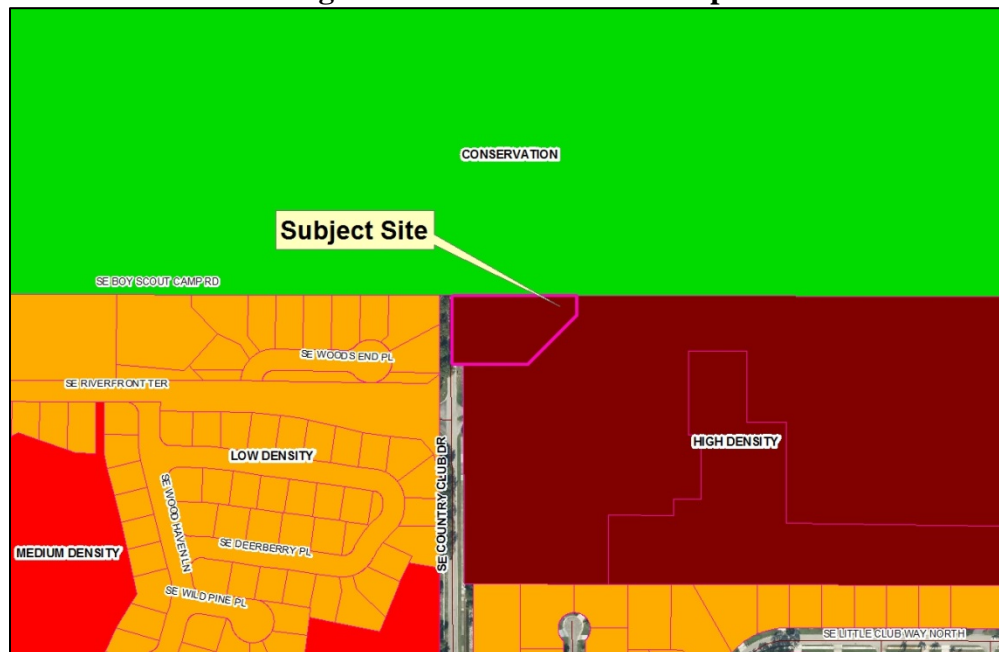


Future land use designations of abutting properties:

To the north: Conservation  
 To the south: High Density

To the east: High Density  
To the west: Low Density (Across SE Country Club Dr.)

**Figure 5: Future Land Use Map**



***F. Determination of compliance with Comprehensive Growth Management Plan requirements - Growth Management Department***

**Findings of Compliance:**

The Growth Management Department Development Review Division staff has reviewed the application and finds it in compliance with the applicable regulations. There are no unresolved Comprehensive Growth Management Plan requirements issues associated with this application.

***G. Determination of compliance with land use, site design standards, zoning, and procedural requirements - Growth Management Department***

**Findings of Compliance:**

The Growth Management Department Development Review Division staff has reviewed the application and finds it in compliance with the applicable regulations. There are no unresolved land use, site design standards, zoning and procedural requirements issues associated with this application.

**Additional Information:**

**Information #1:**

**Development Order Conditions**

1. The development order shall contain a condition that the County or its designees shall have the right to inspect, upon reasonable notice to the owner and/or permittee, any WTCF or tower for the purpose of determining compliance with this Division 18 Martin County Land Development

Regulations. [Section 4.801., LDR]

2. The development order shall contain a condition that every five years, or within 90 days following a catastrophic act of nature or other emergency that may affect the structural integrity of a tower, the tower owner or permittee shall file with the County Administrator a statement, sealed by a qualified professional engineer, licensed in the State of Florida, that an inspection has been completed and that the tower has not been structurally compromised. [Section 4.802., LDR]
3. The development order shall contain a condition that the tower owner or permittee will correct any deficiencies or remove the tower within 90 days of receipt of a Notice from the County Administrator that the tower is abandoned or declared unsafe in accordance with Section 4.803.B..and Section 4.803.D. [Sections 4.803.A.and C., LDR]
4. The development order shall contain a condition that prohibits any extension, of the tower or appurtenances, beyond the approved maximum height.

#### **Information #2:**

Timetable Of Development - Final

The timetable of development for final site plans require all permits to be obtained within one year of approval and require all construction to be completed within two years of approval. [Section 10.1 and 5.32, LDR, MCC]

#### ***H. Determination of compliance with the urban design and community redevelopment requirements – Community Development Department***

##### **Commercial Design**

The proposed project is not located within the General Commercial, Limited Commercial, Commercial Office/Residential or Waterfront Commercial Future Land Use Designations. Therefore, the Commercial Design reviewer was not required to review this application. MARTIN COUNTY, FLA., LDR SECTION 4.871.B. (2016)

##### **Community Redevelopment Area**

The proposed project is not located within a Community Redevelopment Area. Therefore, the Community Redevelopment Area reviewer was not required to review this application. MARTIN COUNTY, FLA., LDR ARTICLE 3, DIVISION 6 (2016)

#### ***I. Determination of compliance with the property management requirements – Engineering Department***

No dedication of additional right of way is required or proposed by the Applicant pursuant to the Roadway Classifications set forth in Section 4.843.B, Land Development Regulations, Martin County, Fla. (2001) which includes Table 4.19.1 that lists the minimum right-of-way requirements. Therefore, the Applicant is not required to submit due diligence materials for review by Real Property Management.

#### ***J. Determination of compliance with environmental and landscaping requirements - Growth Management Department***

##### **Environmental**

#### **Findings of Compliance:**

The Growth Management Department Environmental Division staff has reviewed the application and

finds it in compliance with the applicable land development regulations.

### **Landscape**

#### **Findings of Compliance:**

The Growth Management Department staff has reviewed the application and finds it in compliance with the applicable Land Development Regulations regarding landscaping. The applicant has proposed a height extension of a stealth communications tower currently under construction. The applicant has previously submitted landscape plans that provide 4,880 sq.ft. of landscape area which equates to 67% of the development area to document compliance with Section 4.663.A.1., Land Development Regulations, Martin County, Fla. (2013). Pursuant to this regulation a minimum of 20% of the total development area shall be landscaped. No modifications of the approved landscape plans are proposed with this revised final site plan. A final landscape inspection and certifications will be required as detailed with the previous approved development order.

Alterations cannot be made to the approved plans. Any alteration may require an application to amend the affected approved plans.

The applicant is cautioned to consider the placement of utilities and any underground or above ground site improvement that could cause a conflict with the landscaping and possibly cause a change or amendment.

As-built landscape plans submitted prior to the release of a certificate of occupancy will be checked against the approved drawings. Inconsistencies may block the issuance of the certificate of occupancy and cause the applicant to begin the application process for a change or an amendment to the development order.

#### ***K. Determination of compliance with transportation requirements - Engineering Department***

#### **Findings of Compliance:**

The Traffic Division of the Engineering Department finds this application in compliance.

#### **Compliance with Adequate Public Facilities Ordinance:**

This application satisfies the Adequate Public Facilities Standard; it has a De Minimis impact (an impact that would not affect more than one percent of the maximum volume at the adopted level of service of the affected road facility). [Martin County, Fla., LDR Article 5, Division 1, Section 5.3 (2009)]

#### ***L. Determination of compliance with county surveyor - Engineering Department***

The applicant has provided a certified boundary and topographic survey for the proposed development, pursuant to Section 10.1.E., LDR, Martin County, Fla. (2019). Therefore, the Engineering Department was not required to review this application for consistency with the Martin County Codes for survey requirements contained in Article 4, LDR, Martin County, Fla.

#### ***M. Determination of compliance with engineering, storm water and flood management requirements - Engineering Department***

#### **Findings of Compliance:**

The application was reviewed for compliance with the following Divisions of the Land Development Regulations. Staff's finding is summarized after each:

1. Division 8- Excavation, Fill, and Mining: This project does not propose excavation, fill, or mining

activities during construction, therefore, Division 8 is not applicable.

2. Division 9- Stormwater Management: Staff has reviewed the applicant's Stormwater Management Statement and Construction Plans signed and sealed by a Professional Engineer. The Engineer has demonstrated that the volume of retention is greater than the volume of runoff from the proposed improvements; thereby providing the required attenuation and water quality treatment in compliance with Division 9.
3. Division 10 - Flood Protection: This site does not fall within a Special Flood Hazard Area, therefore, Division 10 is not applicable.
4. Division 14 - Parking and Loading: On-site parking is not proposed for this site, therefore, Division 14 is not applicable.
5. Division 19- Roadway Design: The project does not propose any new roadways within the project site. Staff finds this application in compliance with Division 19.

#### **Compliance with Adequate Public Facilities Ordinance:**

This project will provide the proposed development sufficient services based upon the adopted LOS for stormwater management facilities.

#### **Development Order Requirements:**

1. The Engineering Department finds this application in compliance provided the Development Order includes conditions for the following:
2. The Owner is not authorized to haul fill off of the site. The Owner must comply with all County excavation and fill regulations.

#### ***N. Determination of compliance with addressing and electronic file submittal requirements – Growth Management and Information Technology Departments***

##### **Addressing**

#### **Findings of Compliance:**

The application has been reviewed for compliance with Division 17, Addressing, of the Martin County Land Development Regulations. Staff finds that the proposed site plan / plat complies with applicable addressing regulations. All street names are in compliance. They meet all street naming regulations in Article 4, Division 17, Land Development Regulations. Martin County, Fla. (2018).

##### **Electronic File Submittal**

#### **Findings of Compliance**

Both AutoCAD site plan and boundary survey were received and found to be in compliance with Section 10.2.B.2., Land Development Regulations, Martin County, Fla. (2019)

Both AutoCAD site plan and boundary survey were in State Plane coordinates and found to be in compliance with Section 10.2.B.2., Land Development Regulations, Martin County, Fla. (2019)

#### ***O. Determination of compliance with utilities requirements - Utilities Department***



## **Water and Wastewater Service**

### **Findings of Compliance:**

This development application has been reviewed for compliance with applicable statutes and ordinances and the reviewer finds it in compliance with Martin County's requirements for water and wastewater level of service. [Martin County, Fla., LDR, Article 4, Division 6 and 7, (2016)]

## **Wellfield and Groundwater Protection**

### **Findings of Compliance:**

The application has been reviewed for compliance under the Wellfield Protection Program. The reviewer finds the application in compliance with the Wellfield Protection and Groundwater Protection Ordinances. [Martin County, Fla., LDR, Article 4, Division 5] (2016)

### ***P. Determination of compliance with fire prevention and emergency management requirements – Fire Rescue Department***

#### **Fire Prevention**

### **Findings of Compliance:**

The Fire Prevention Bureau finds this submittal in compliance with the applicable provisions governing construction and life safety standards of the Florida Fire Prevention Code and referenced publications. This occupancy shall comply with all applicable provisions of governing codes whether implied or not in this review, in addition to all previous requirements of prior reviews.

### ***Q. Determination of compliance with Americans with Disability Act (ADA) requirements - General Services Department***

The applicant has indicated that the proposed final site plan is for an unmanned wireless telecommunications facility that is not open to the public. Therefore the ADA reviewer was not required to review this application for consistency with Title III of the Americans with Disabilities Act. [Martin County, Fla., LDR, Section 10.1.E. (2019)]

### ***R. Determination of compliance with Martin County Health Department and Martin County School Board***

#### **Martin County Health Department**

The applicant has indicated that the proposed final site plan contains no onsite potable wells or septic disposal systems. Therefore, the Department of Health was not required to review this application for consistency with the Martin County Code requirements within the Land Development Regulations or Comprehensive Growth Management Plan. MARTIN COUNTY, FLA., LDR SECTION 10.1.E. (2019)

#### **Martin County School Board**

The applicant has indicated that the proposed final site plan is for a non-residential use. Therefore, the Martin County School Board was not required to review this application for consistency with the Martin

County Code requirements for school concurrency purposes. MARTIN COUNTY, FLA., LDR SECTION 10.1.E. (2019)

***S. Determination of compliance with legal requirements - County Attorney's Office***

Review Ongoing

***T. Determination of compliance with the adequate public facilities requirements - responsible departments***

The review for compliance with the standards for a Certificate of Adequate Public Facilities Exemption for development demonstrates that no additional impacts on public facilities were created in accordance with Section 5.32.B., LDR. Exempted development will be treated as committed development for which the County assures concurrency.

Examples of developments that do not create additional impact on public facilities include:

- A. Additions to nonresidential uses that do not create additional impact on public facilities;
- B. Changes in use of property when the new use does not increase the impact on public facilities over the pre-existing use, except that no change in use will be considered exempt when the preexisting use has been discontinued for two years or more;
- C. Zoning district changes to the district of lowest density or intensity necessary to achieve consistency with the Comprehensive Growth Management Plan;
- D. Boundary plats which permit no site development.

***U. Post-approval requirements***

Approval of the development order is conditioned upon the applicant's submittal of all required post approval documents and fees pursuant to Section 10.11., LDR, Martin County, Fla. (2019).

Please submit all of the following items in a single hard copy packet and in electronic pdf format (on disk or flash drive) with the documents arranged in the order shown in the list below. The 24" x 36" plans should be submitted rolled and in separate sets as itemized below.

**Item #1:**

Post Approval Requirements List: After approval the applicant will receive a letter and a Post Approval Requirements List that identifies the documents and fees required. Submit a copy of the Post Approval Requirements List.

**Item #2:**

Post Approval Fees: The applicant is required to pay all remaining fees when submitting the post approval packet. If an extension is granted, the fees must be paid within 60 days from the date of the development order. Checks should be made payable to Martin County Board of County Commissioners.

**Item #3:**

Recording Costs: The applicant is responsible for all recording costs. The Growth Management Department will calculate the recording costs and contact the applicant with the payment amount required. Checks should be made payable to the Martin County Clerk of Court.

**Item #4:**

**Consultant Review Fees:**

The applicant is responsible for consultant review costs pursuant to Section 4.805., LDR. The Growth Management Department will contact the applicant with the payment amount required. Checks should be made payable to the Martin County Clerk of Court.

**Item #5:**

One (1) copy of the recorded warranty deed if a property title transfer has occurred since the site plan approval. If there has not been a property title transfer since the approval, provide a letter stating that no title transfer has occurred.

**Item #6:**

If there has been a property title transfer since the approval, provide an original of the Unity of Title, executed by the new property owner, consistent with the County approved format. If there has not been a property title transfer since the approval, provide a letter stating that no title transfer has occurred.

**Item #7:**

One (1) 24" x 36" copy of the approved construction plans signed and sealed by the Engineer of Record licensed in the State of Florida.

**Item #8:**

One (1) 24" x 36" copy of the approved site plan.

**Item #9:**

The original executed surety in the amount of 110% of the certified removal cost for the tower and all associated improvements.

**Item #10:**

One (1) blank USB flash/thumb drive, which will be utilized to provide the applicant with the approved stamped and signed project plans.

**V. Local, State, and Federal Permits**

Approval of the development order is conditioned upon the applicant's submittal of all required applicable Local, State, and Federal Permits to Martin County prior to scheduling the pre-construction meeting.

**W. Fees**

Public advertising fees for the development order will be determined and billed subsequent to the public hearing. Fees for this application are calculated as follows:

<i>Fee type:</i>	<i>Fee amount:</i>	<i>Fee payment:</i>	<i>Balance:</i>
Application review fees:	\$9,127.00	\$9,127.00	\$0.00
Advertising fees*:	TBD		
Recording fees**:	TBD		
Impact fees***:	TBD		
Consultant review fees:	\$1,650.00	\$2,500.00	[\$850.00] cr.

\* Advertising fees will be determined once the ads have been placed and billed to the County.

\*\* Recording fees will be identified on the post approval checklist.

\*\*\*Impact fees are required at building permit.

## **X. General application information**

Applicant: RG Towers, LLC  
Scott Richards  
2141 Alternate A1A South, Suite 440  
Jupiter, FL 33477  
561-748-0302  
[srichards@rgpartners.com](mailto:srichards@rgpartners.com)

Owner: Kenai Properties, LLC  
Linda Albrecht  
19100 SE Jupiter Rd  
Jupiter, FL 33458  
561-722-4615  
[albrecht148@aol.com](mailto:albrecht148@aol.com)

Agent: Gunster  
Robert S. Raynes, Jr.  
800 S.E. Monterey Commons Blvd., Suite 200  
Stuart, FL 34996  
772-288-1980  
[rreyes@gunster.com](mailto:rreyes@gunster.com)

## **Y. Acronyms**

ADA..... Americans with Disability Act  
AHJ ..... Authority Having Jurisdiction  
ARDP ..... Active Residential Development Preference  
BCC..... Board of County Commissioners  
CGMP ..... Comprehensive Growth Management Plan  
CIE ..... Capital Improvements Element  
CIP ..... Capital Improvements Plan  
FACBC ..... Florida Accessibility Code for Building Construction  
FDEP ..... Florida Department of Environmental Protection  
FDOT ..... Florida Department of Transportation  
LDR..... Land Development Regulations  
LPA ..... Local Planning Agency  
MCC..... Martin County Code  
MCHD..... Martin County Health Department  
NFPA ..... National Fire Protection Association  
SFWMD ..... South Florida Water Management District  
W/WWSA .... Water/Waste Water Service Agreement

## **Z. Attachments**

Propagation Map Validation report:

# Propagation Map Validation Report K041-007

Prepared for

## Martin County

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Issued on:

November 8<sup>th</sup>, 2019

Prepared by:

***Sonia Ouellet, PE #79319***

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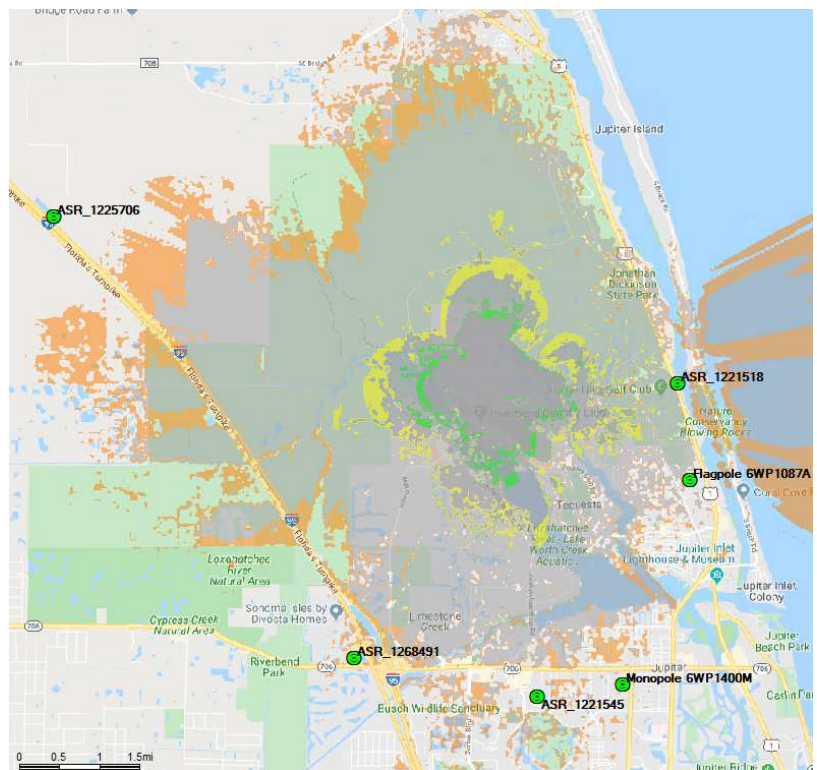
## Executive Summary

4G Unwired was hired to perform an analysis of the coverage maps provided by RG Towers, LLC for the Kenai Tower Extension request, submitted to Martin County. The Kenai tower has previously been approved and constructed at 80'. RG Towers, LLC is asking for permission to add a 20' extension to accommodate possible other T-Mobile layers and other cell phone operators interested in collocating on their tower.

4G Unwired as reviewed the eight (8) original documents provided on July 2<sup>nd</sup> 2019, the five (5) additional documents provided on October 2<sup>nd</sup> 2019 and have made these observations:

1. The antenna azimuths provided on T-Mobile's Annex A do not match what is seen on their predictions, but do not impact the conclusions of the study.
2. The results still show that an increase of 20' would provide a significant additional coverage around the Kenai site.

With the information provided, 4GU estimates at the increase of area served by each signal level as follow: 19% increase for the green "Reliable Indoor Service", 24% increase for the yellow "Reliable In Car Service", and 26% for the "Reliable Outdoor Service". The below image shows the increase of area for each of the levels.



Reliable Indoor Service	Reliable In Car Service	Reliable Outdoor Service
Signal power levels able to support a wide range of wireless services both indoors and outdoors. These services include voice calls and high-speed data.	Users may experience call quality issues depending on the signal power levels at their specific location. These issues could include dropped calls, ineffective attempts (blocked calls) or slow data speeds. Service in outdoor locations would be markedly better than indoors in many instances.	A user would encounter call quality issues especially indoors or during network busy hours due to low signal power levels. These issues could include dropped calls, ineffective attempts (blocked calls) and slow data speeds. Service may only be available in outdoor locations. In the worst case a user may not be able to place an emergency (E911) call.
>= -88dBm	>= -97dBm	>= -114dBm

## **1. Documents Provided**

Martin County provided eight (8) documents through their FTP site on July 22<sup>nd</sup> 2019. The eight (8) documents are listed below with a description of the information considered during the review.

- 2019\_0604\_K041-007\_FCC.pdf  
FCC official antenna structure registration #1309916 for Kenai from 04-05-2019. Note that there was a granted modification on 7-17-2019 modifying the Overall Height AGL from 30.5m to 24.4m and modifying the Overall Height AMSL from 33.4m to 27.3m.
- Narrative\_Pages from 2019\_0530\_K041-007\_APP.pdf  
Letter from RG Towers, LLC explaining the request for the 20ft tower extension at the Kenai site. Mention of T-Mobile between 70'-80' at 75'. Mention of AT&T maps between 70' and 100'.
- LocationMap\_Pages from 2019\_0530\_K041-007\_APP-2.pdf  
Detail of the parcel where the Kenai tower is located.
- EngineeringReport\_Pages from 2019\_0530\_K041-007\_APP-3.pdf  
Civil Engineering report for the 20' extension on Kenai.
- RFPropagation\_Pages from 2019\_0530\_K041-007\_APP-4.pdf  
ATT maps at 70' and 100'. T-Mobile existing sites around the Kenai site. Propagation with no mention of RSRP levels in dBm or antenna heights.
- FCCLicenses\_Pages from 2019\_0530\_K041-007\_APP-5.pdf  
FCC license for the CW PCS Broadband radio service.
- InventoryInfo\_Pages from 2019\_0530\_K041-007\_APP-6.pdf  
Letter from RG Towers, LLC on 3-28-2019 providing information on the Kenai tower for the requirement #56.
- Tower Map Historical.pdf  
Map with dots identifying previous inventory of towers in Martin County.

Martin County provided five (5) additional documents through their FTP site on October 2<sup>nd</sup> 2019. The five (5) additional documents are listed below with a description of the information considered during the review.

- 2019\_0729\_K041-007\_DRT\_Staff\_FINAL.pdf  
Martin County's staff report on the original 20ft extension request stating the missing items in the request.
- Written Response.pdf  
RG Towers, LLC's response to the 2019\_0729\_K041-007\_DRT\_Staff\_FINAL.pdf document stating attached documents have been modified to provide answers to the staff report.
- Priority Siting Analysis.pdf  
Demonstration that Priorities 1-2-3 are not possible options. So Priority 4 is used to request a 20ft extension to the existing 80ft tower.
- Tower Inventory.pdf  
Addition of RG Towers' ASR 1293777 to the inventory of towers, which is 7 miles away from Kenai tower.
- Propagation Map.pdf

## 2. Search Ring Area

T-Mobile identified available towers (green) around the Kenai area as shown on the picture on the left below. They are all over two miles away or more from the Kenai location (pink). The image on the right below shows the available ASR in the area. Note that the green ones are the ones used by T-Mobile. The blue ones are other Antenna Structure Registration (ASR) that do not affect the results.

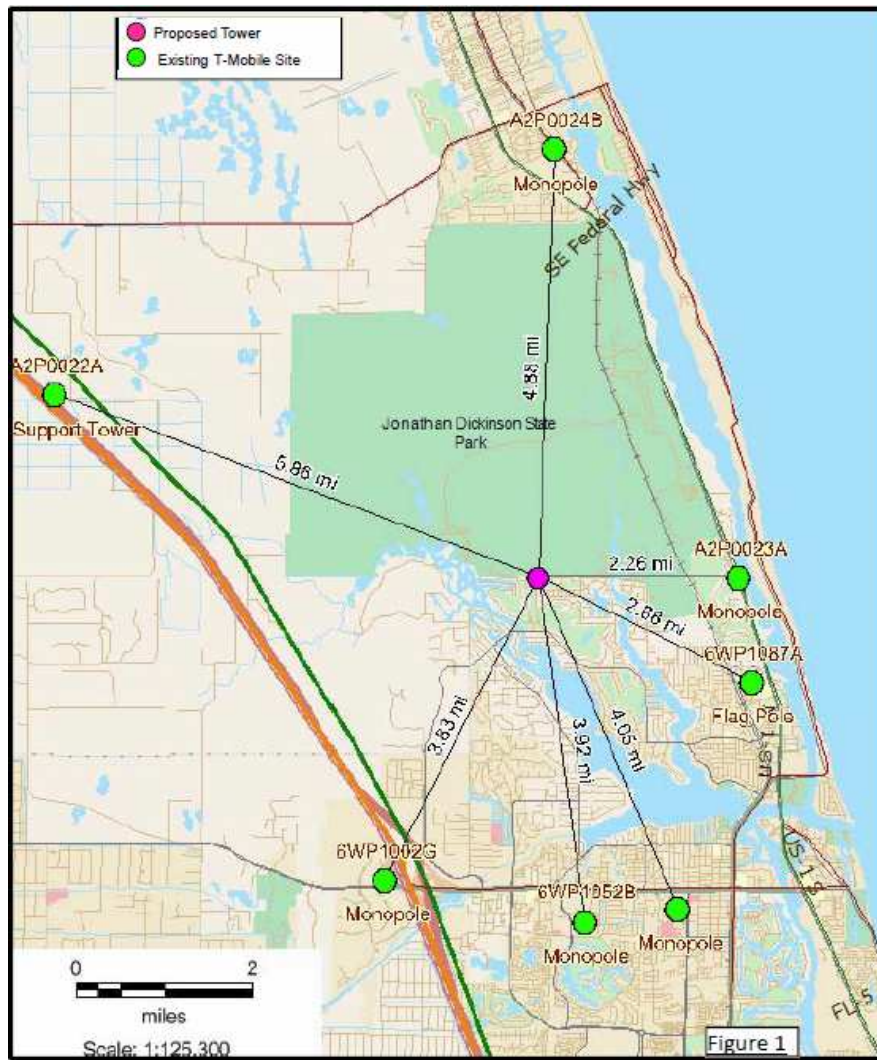


Image 1 Available sites around Kenai from T-Mobile

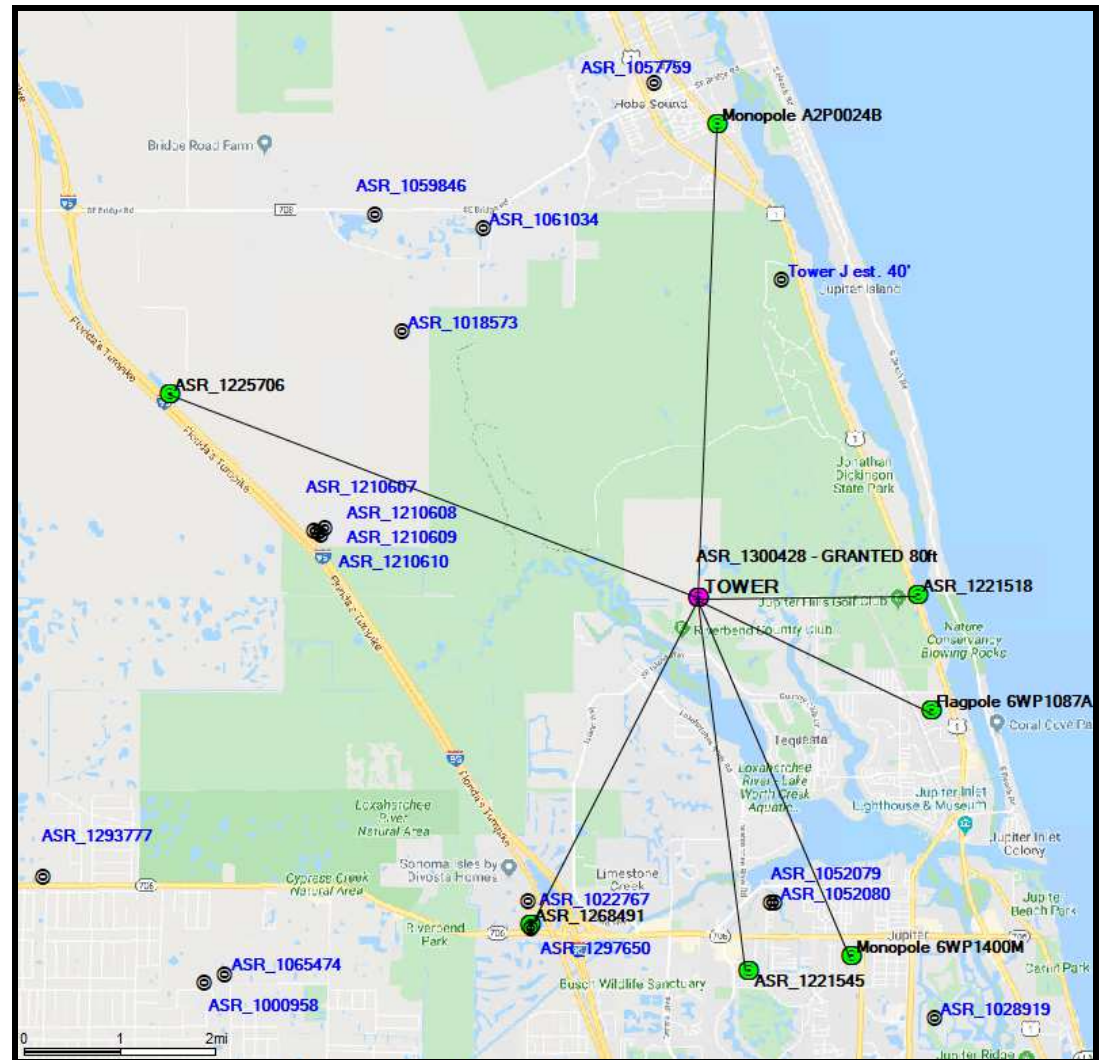


Image 2 Available ASR from the FCC database around Kenai



### 3. Sites Used In The Study

Here is part of the table provided by T-Mobile in their Appendix A with the corresponding ASR number and details in green.

Parent ID	Maximum TX Power (dBm)	Antenna Model	Antenna Gain	Antenna Vendor	Antenna Tilt	Height-Inv (m)	Abs Lon	Abs Lat	Azimuth
6WP1002G	50.8	CMA-BDHH/6521	20.2	Cellmax	2.0	42.672	080°09'27.29"W	26°56'10.49"N	60
	50.8	CMA-BDHH/6521	20.4	Cellmax	4.0	42.672	080°09'27.31"W	26°56'10.41"N	180
	50.8	CMA-BDHH/6521	20.2	Cellmax	2.0	42.672	080°09'27.40"W	26°56'10.49"N	300
ASR_1268491 Owner: PTI US Development Sites, LLC Tower Height: 145' / 44m 080°09'27.1"W 26°56'10.6"N									
6WP1052B	50.8	SBNHH-1D65B_04DT	18.2	CommScope	4.0	36.58	080°07'15.22"W	26°55'44.73"N	60
	50.8	SBNHH-1D65B_02DT	18.1	CommScope	2.0	36.58	080°07'15.22"W	26°55'44.73"N	180
	50.8	SBNHH-1D65B_03DT	18.1	CommScope	3.0	36.58	080°07'15.22"W	26°55'44.73"N	300
ASR_1221545 Owner: SBA Properties, LLC Tower Height: 165' / 50m 080°07'15.2"W 26°55'44.6"N									
6WP1087A	50.8	APX17DWW-17DWW-S-E-A20	19.5	RFS	3.0	35.662	080°05'23.39"W	26°58'5.20"N	60
	50.8	APX17DWW-17DWW-S-E-A20	19.5	RFS	3.0	35.662	080°05'23.38"W	26°58'5.19"N	180
	50.8	APX17DWW-17DWW-S-E-A20	19.5	RFS	3.0	35.662	080°05'23.39"W	26°58'5.20"N	300
Flagpole 6WP1087A Owner: Tower Height: 129' / 39m 080°05'23.4"W 26°58'5.0"N									
6WP1267G	49.01	CMA-BDHH/6520	19	Cellmax	5.0	22.87	080°07'43.81"W	26°59'7.60"N	0
	49.01	CMA-BDHH/6520	19	Cellmax	5.0	22.87	080°07'43.81"W	26°59'7.60"N	90
	49.01	CMA-BDHH/6520	19	Cellmax	5.0	22.87	080°07'43.81"W	26°59'7.60"N	180
	49.01	CMA-BDHH/6520	19	Cellmax	5.0	22.87	080°07'43.81"W	26°59'7.60"N	270
Kenai 1300428 / 1309916 Owner: RG Towers, LLC Tower Height: 80' / 24m 080°07'44.3"W 26°59'06.6"N									
6WP1400M	50.8	ADFD1820-33338-XDM	20.4	CommScope	2.0	28.96	080°06'12.89"W	26°55'52.22"N	0
	50.8	ADFD1820-33338-XDM	20.4	CommScope	3.0	28.96	080°06'12.88"W	26°55'52.20"N	60
	50.8	ADFD1820-33338-XDM	20.4	CommScope	3.0	28.96	080°06'12.87"W	26°55'52.19"N	120
	50.8	ADFD1820-33338-XDM	20.4	CommScope	3.0	28.96	080°06'12.88"W	26°55'52.20"N	180
	50.8	ADFD1820-33338-XDM	20.4	CommScope	3.0	28.96	080°06'12.91"W	26°55'52.21"N	240
	50.8	ADFD1820-33338-XDM	20.4	CommScope	2.0	28.96	080°06'12.94"W	26°55'52.24"N	300
Monopole 6WP1400M Owner: Tower Height: 135' / 41m 080°06'12.91"W 26°55'52.02"N									
A2P0022A	50.8	CMA-BDHH/6520	18.9	Cellmax	2.0	48.77	080°13'3.06"W	27°00'58.28"N	60
	50.8	CMA-BDHH/6520	18.9	Cellmax	2.0	48.77	080°13'3.10"W	27°00'58.16"N	180
	50.8	CMA-BDHH/6520	18.9	Cellmax	2.0	48.77	080°13'3.12"W	27°00'58.30"N	325
ASR_1225706 Owner: Crown Castle South LLC Tower Height: 215' / 65m 080°13'3.2"W 27°00'58.5"N									
A2P0023A	50.8	CMA-BDHH/6520	19	Cellmax	5.0	39.63	080°05'31.00"W	26°59'7.59"N	60
	50.8	CMA-BDHH/6520	19	Cellmax	5.0	39.63	080°05'31.04"W	26°59'7.51"N	180
	50.8	CMA-BDHH/6520	18.9	Cellmax	2.0	39.63	080°05'31.11"W	26°59'7.55"N	270
ASR_1221518 Owner: SBA Properties, LLC Tower Height: 170' / 52m 080°05'31.1"W 26°59'7.4"N									
A2P0024B	50.8	CMA-BDHH/6520	18.9	Cellmax	0.0	36.58	080°07'30.68"W	27°03'23.31"N	40
	50.8	CMA-BDHH/6520	18.9	Cellmax	2.0	36.58	080°07'30.68"W	27°03'23.24"N	150
	50.8	CMA-BDHH/6520	18.9	Cellmax	3.0	36.58	080°07'30.74"W	27°03'23.22"N	230
Monopole A2P0024B Owner: Tower Height: 150' / 46m 080°07'30.62"W 27°03'23.31"N									

#### 4. Current Cell Site Coverage And Predicted Improvements

Using the sites considered by T-Mobile surrounding the Kenai Tower, the image on the left shows the signal prediction provided by T-Mobile. The image on the right shows the signal prediction verification using the Atoll software, 30m terrain elevation and 30m clutter data. The two images are similar and identify a clear lack of signal around the Kenai Tower, especially in the Tequesta area.

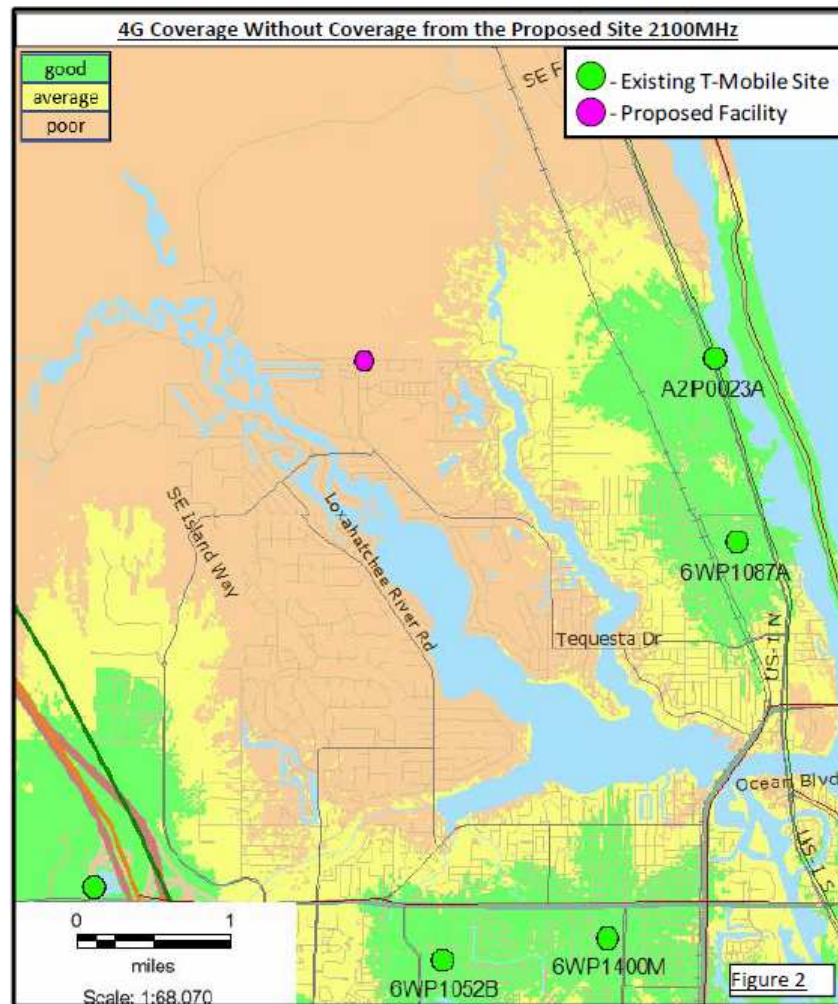


Image 3 T-Mobile coverage from surrounding sites

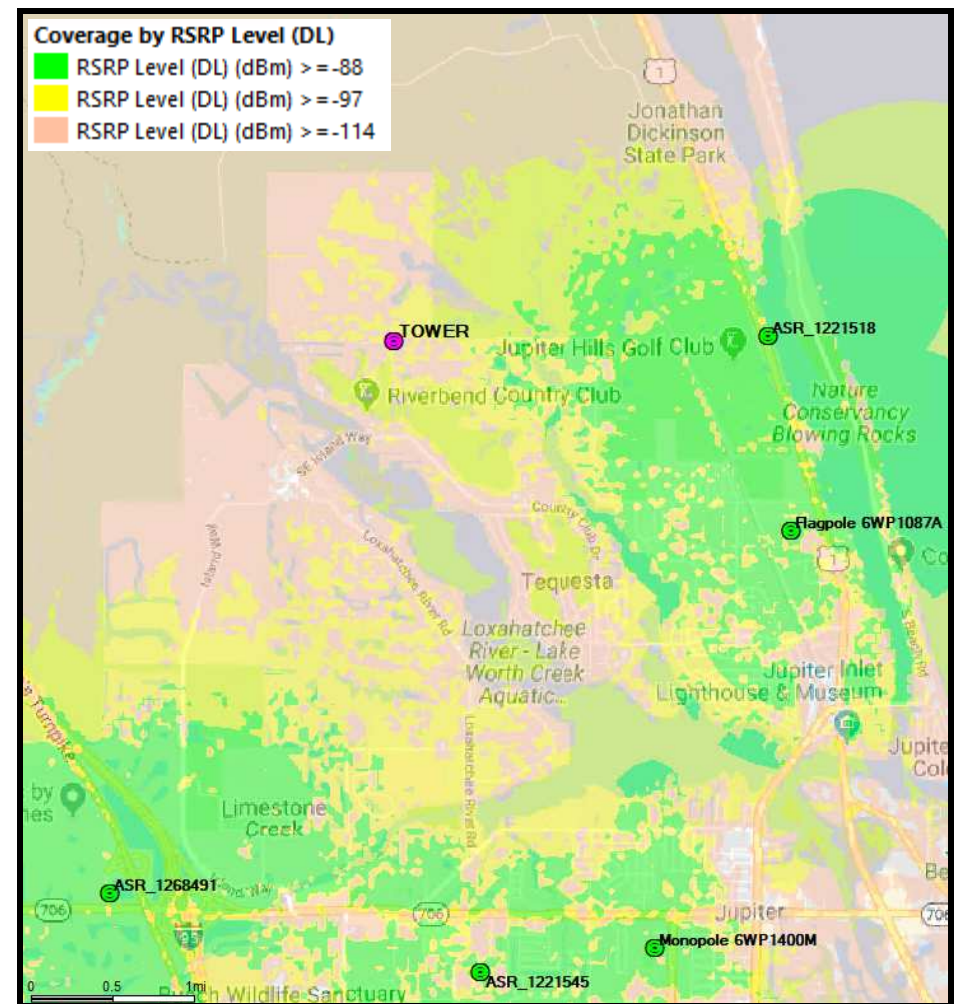


Image 4 Coverage validation from surrounding sites



## 5. 4G Coverage With Coverage From The Proposed Site 2100MHz (75')

The two images below show coverage predictions with Kenai antennas at 75', currently approved height. On the left is the T-Mobile prediction, and on the right is the prediction validation. The azimuths provided on T-Mobile's Annex A do not match what is seen on their predictions, but the results remain that this site is providing coverage in the area around Kenai.

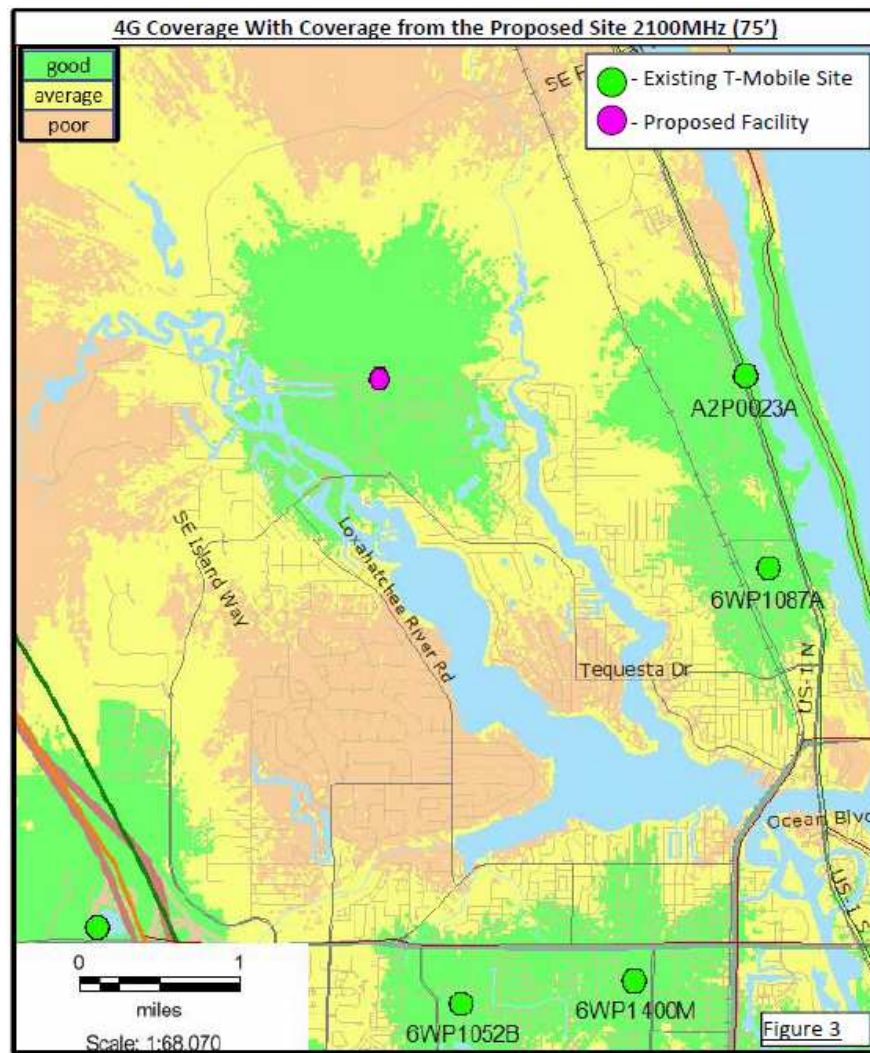


Image 5 T-Mobile coverage with Kenai antennas at 75'

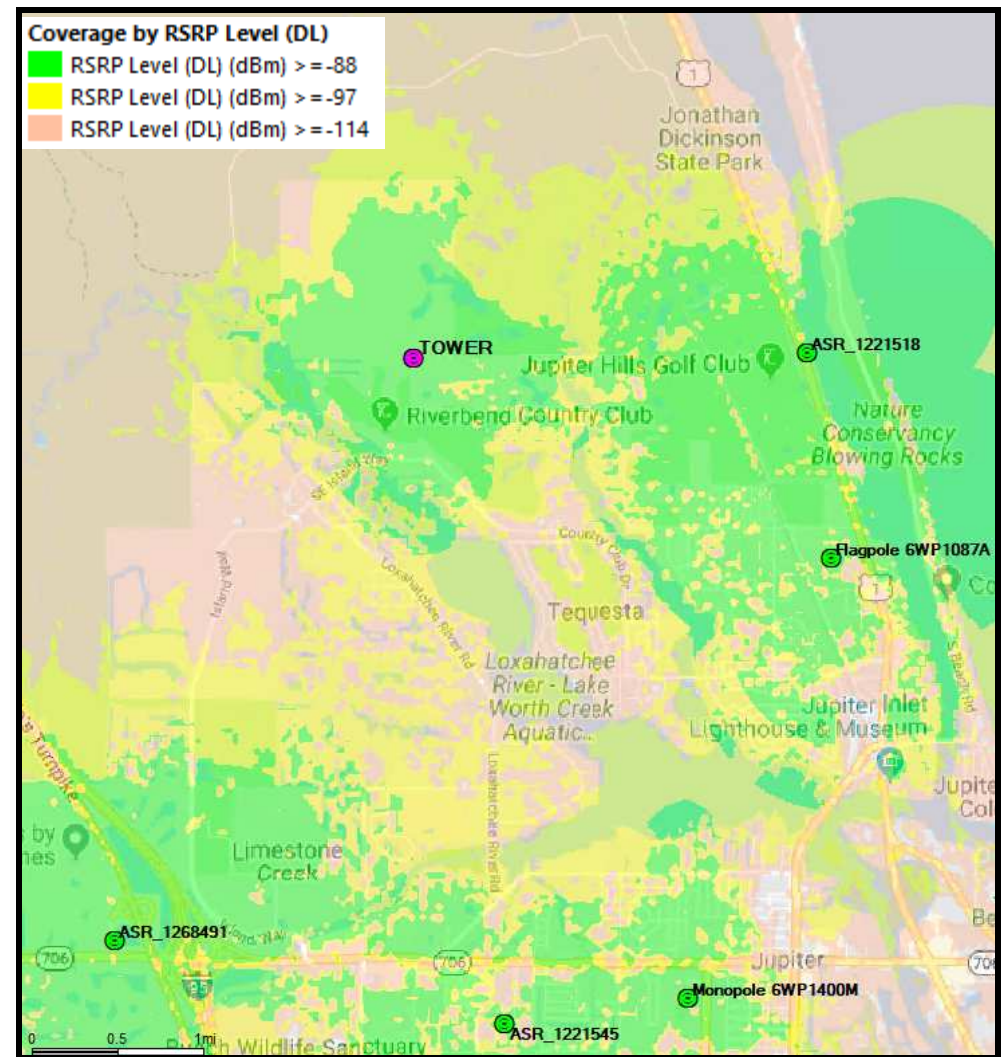


Image 6 Coverage validation with Kenai antennas at 75'



## 6. Increased Antenna Height (95') And Predicted Improvements

The two images below show coverage predictions with Kenai antennas at 95', which would be the antenna height with the 20' extension. On the left is the T-Mobile prediction, and on the right is the prediction validation. The azimuths provided on T-Mobile's Annex A do not match what is seen on their predictions, but the results remain that this site with a 20ft extension is providing improved coverage in the area around Kenai.

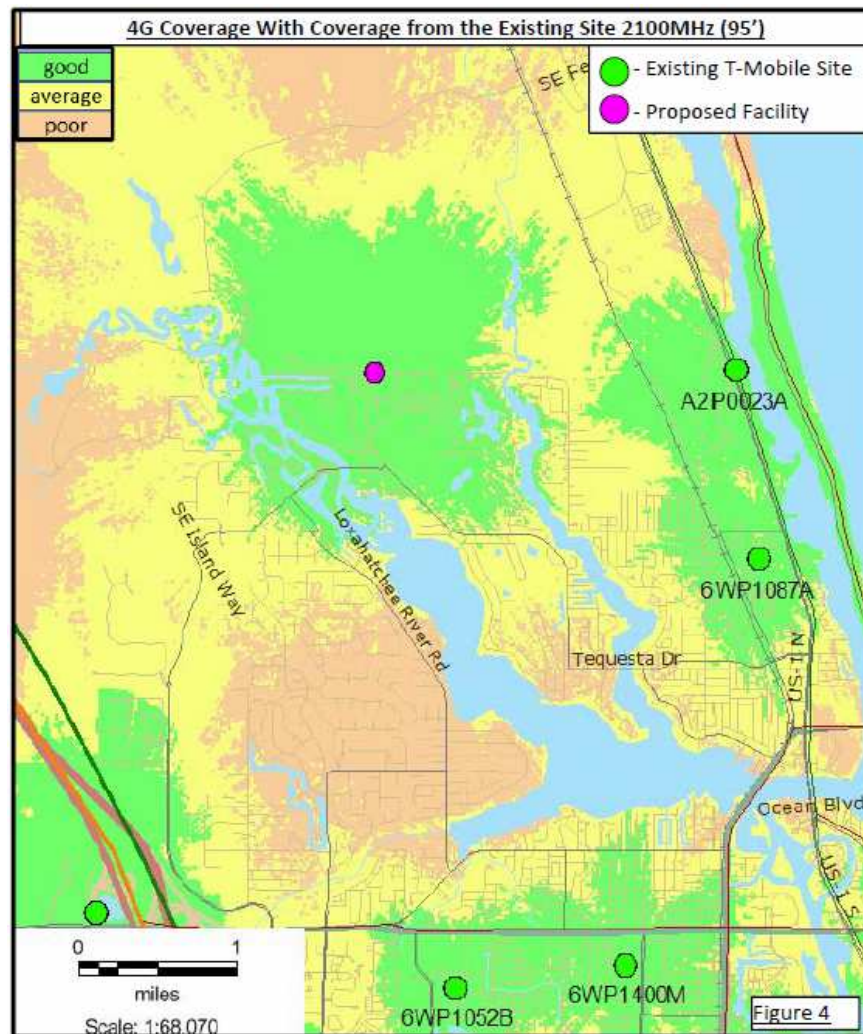


Image 7 T-Mobile coverage with Kenai antennas at 95'

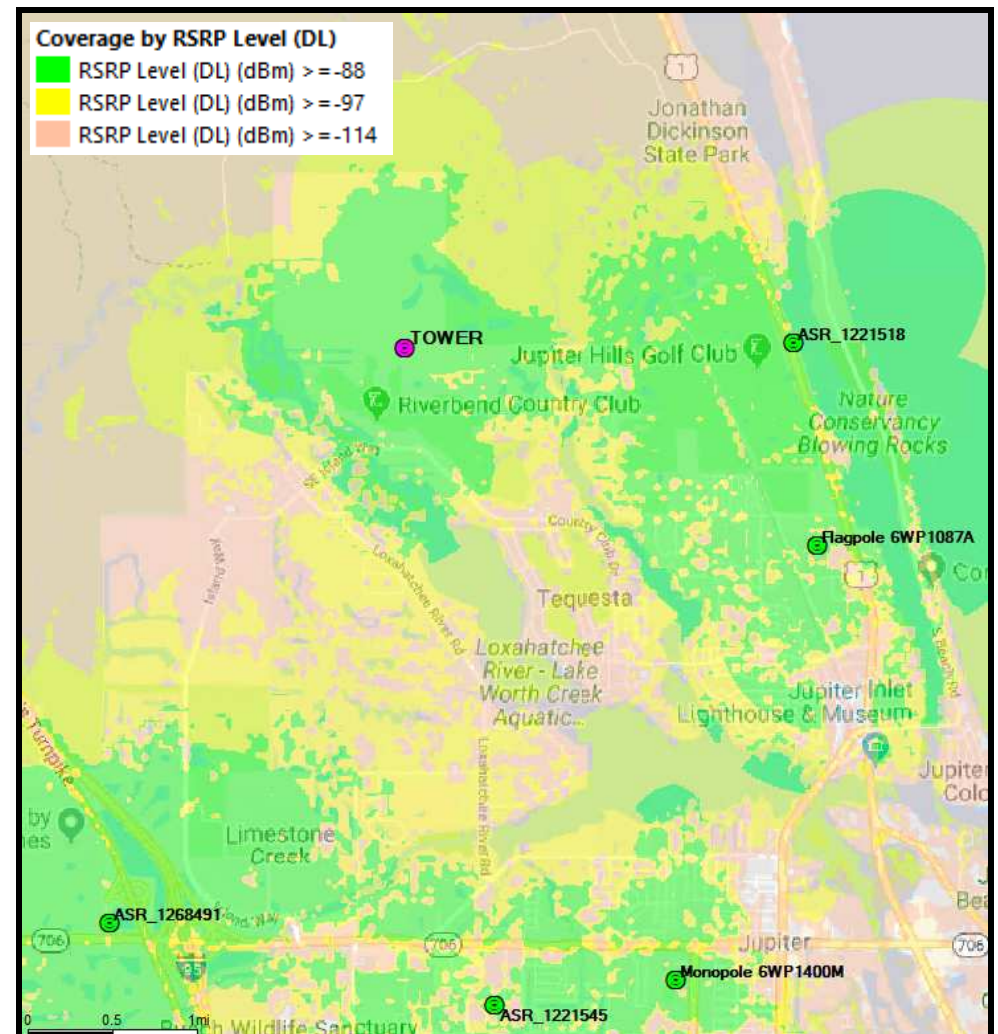


Image 8 Coverage validation with Kenai antennas at 95'



## 7. Coverage Footprint

The image 9 shows the coverage footprint estimated for the Kenai site at 75' and 95'. The image 10 provides a validation of the coverage footprint for Kenai at 75' and 95'. The azimuths provided on T-Mobile's Annex A do not match what is seen on their predictions, but the results remain that the site provides good coverage currently and would provide better coverage with a 20' extension.

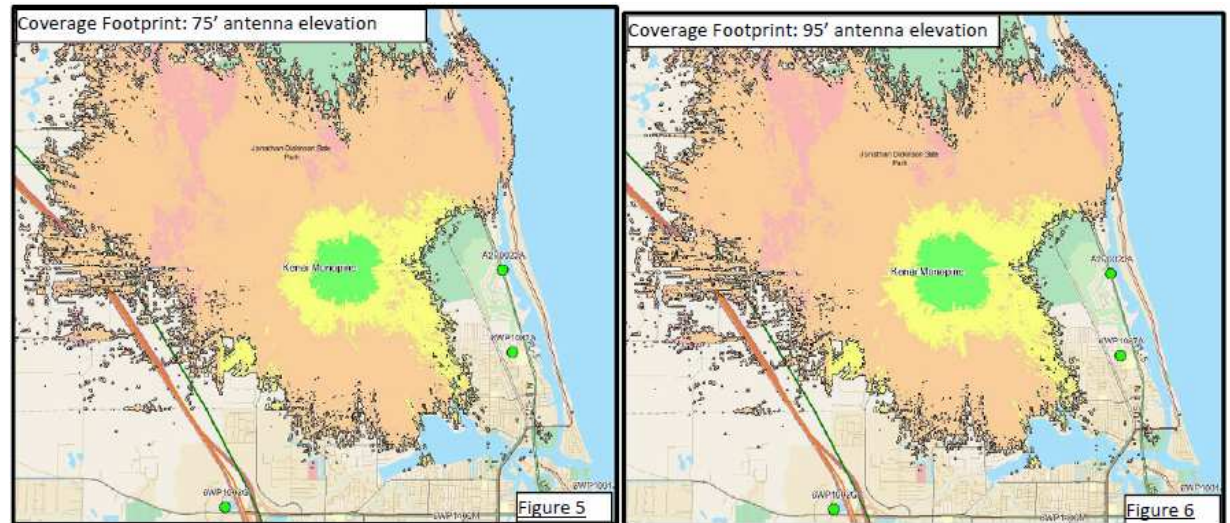


Image 9 T-Mobile Figures 5-6 showing the coverage footprint for Kenai at 75' and 95'

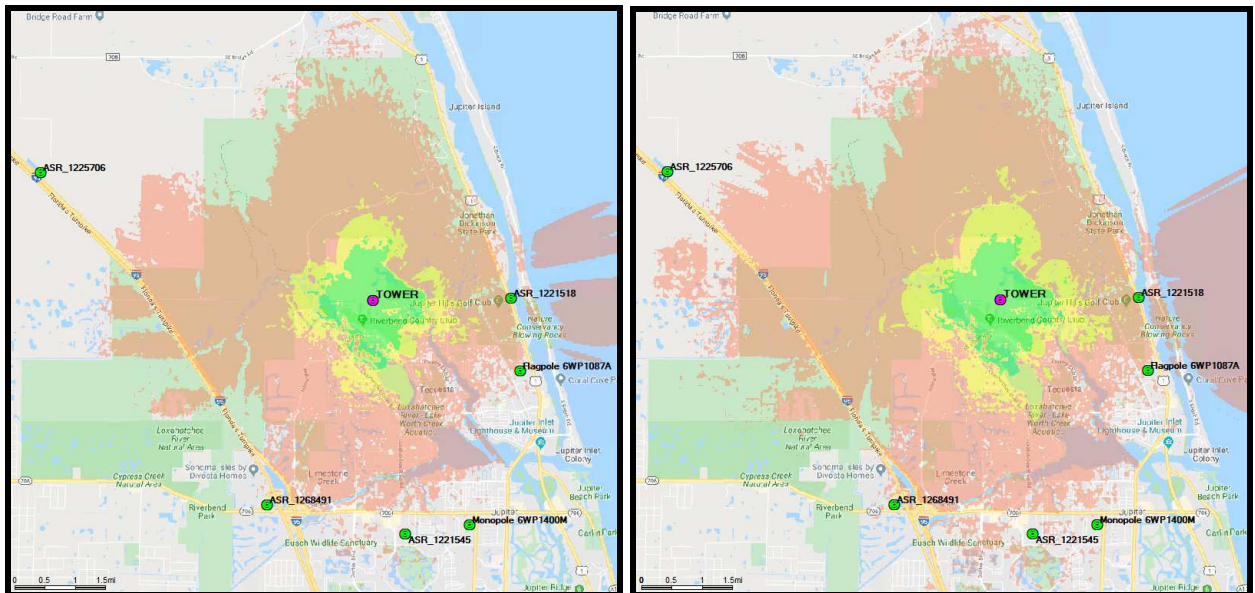
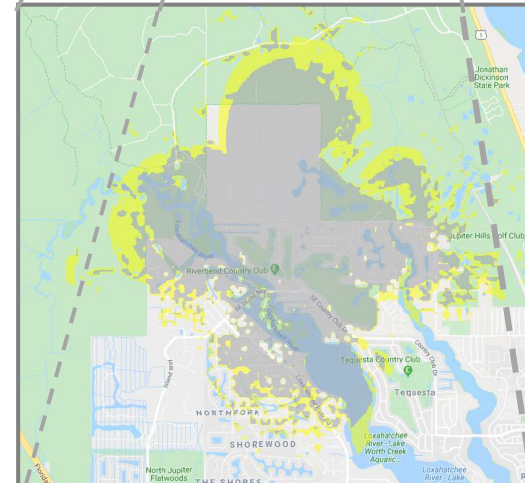
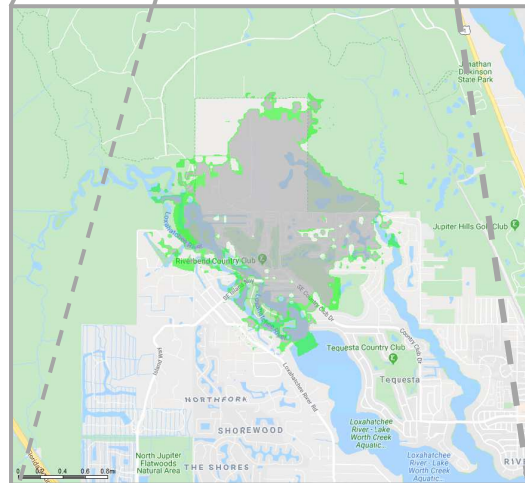
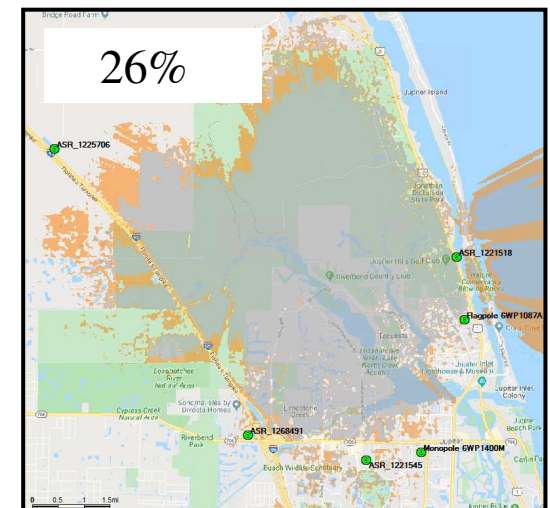
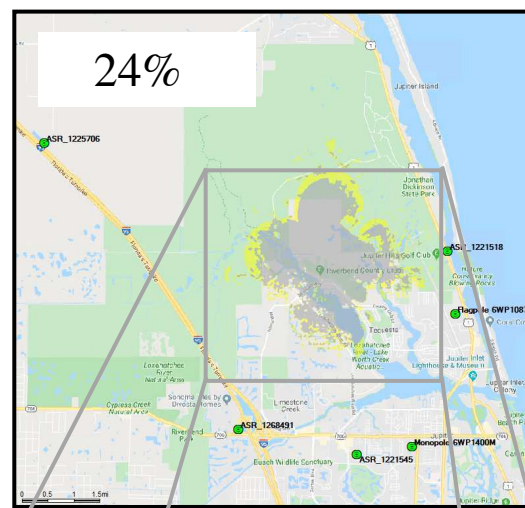
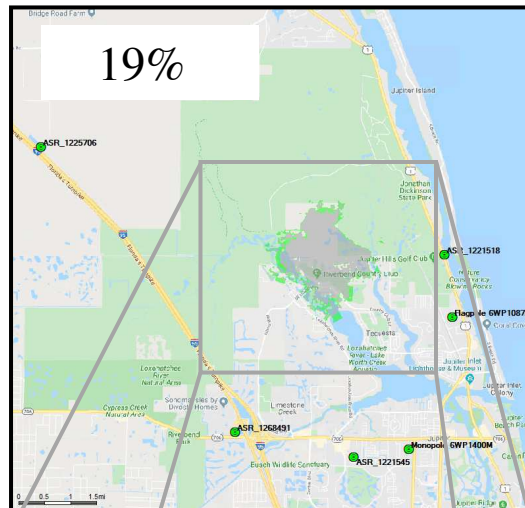
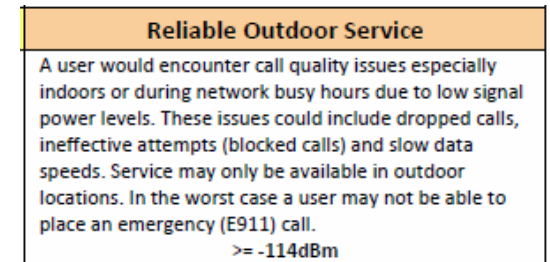
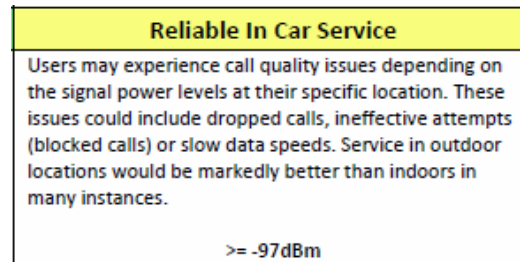
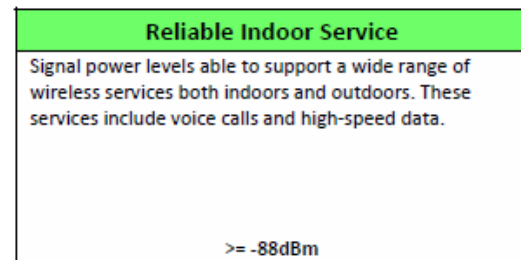


Image 10 Validation of coverage footprint for Kenai at 75' and 95'

## 8. Differences In Coverage Between Antennas At 75' And 95' For The Kenai Site



These images show the extra coverage that the 20' tower extension will provide at each signal level. With the information provided, 4GU estimates the increase of area served by each signal level as follow: 19% increase for the green "Reliable Indoor Service", 24% increase for the yellow "Reliable In Car Service", and 26% for the "Reliable Outdoor Service". The 20' extension will provide a significant coverage improvement.