

E.B. 3/9/16 Agenda Item A-2

## **MARIN EMERGENCY RADIO AUTHORITY**

c/o Novato Fire Protection District  
95 Rowland Way, Novato, CA 94945  
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**Draft: 2/17/16**

### **MERA COVERAGE ANALYSIS WORKSHOP**

### **Minutes of January 26, 2016 Special Joint Meeting**

#### **Call to Order:**

The meeting was called to order by President Pearce on January 26, 2016 at 8:05 a.m. in the Manzanita Room at the Marin Center -10 Avenue of the Flags, San Rafael, CA 94903.

#### **Governing Board Members & Alternates Present:**

Central Marin Police Authority	Todd Cusimano
Inverness Public Utility District	Michael Norton (Alternate)
Town of Ross	James Fox
Marin Community College District	Tom Gaffney
Town of Fairfax	Todd Kidder
Tiburon Fire Protection District	John Adams (Alternate)
Stinson Beach Fire District	Chris Morin
Bolinas Fire Protection District	Richard Pearce
City of Larkspur	Kenny Stevens
City of Mill Valley	Anita Tyrrell-Brown
Novato Fire Protection District	Steve Marcotte (Alternate)
Marin Municipal Water District	Scott Shurtz
City of San Rafael	Jacqueline Graf-Reis (Alternate)
	Steve Metcho
	Bill Hogan (Alternate)
	Bob Sinnott (Alternate)

#### **Governing Board Member Agencies Absent:**

Town of Corte Madera  
Town of San Anselmo  
Town of Tiburon  
County of Marin  
Southern Marin Fire Protection Dist.  
City of Belvedere  
Marinwood Community Services Dist.  
Ross Valley Fire Department

Kentfield Fire Protection Dist.  
Marin Transit  
City of Novato  
City of Sausalito

**Executive Board Members Present:**

Fire Services  
Police Departments  
Special Districts

Richard Pearce  
Todd Cusimano  
Bill Hogan

**Executive Board Members Absent:**

County of Marin  
City of San Rafael  
Southern Marin Cities/Towns  
County of Marin, Sheriff  
City of Novato  
Ross Valley Cities/Towns

**Finance Committee Members Present:**

Town of Ross  
Tiburon Fire Protection District

Tom Gaffney  
Richard Pearce

**Finance Committee Members Absent:**

County of Marin  
City of Novato  
County of Marin

**Next Generation Project Oversight Committee Members Present:**

Central Marin Police Authority  
  
Novato Fire Protection District  
Tiburon Fire Protection District  
Town of Ross  
County of Marin Fire

Todd Cusimano  
Michael Norton (Alternate)  
Gerald McCarthy  
Richard Pearce  
Tom Gaffney  
Jeremy Pierce (Alternate)

**Next Generation Project Oversight Committee Members Absent:**

County of Marin  
City of Novato  
City of Mill Valley  
County of Marin Sheriff

**Staff Present:**

MERA Executive Officer  
MERA Deputy Exec. Officer  
MERA Admin. Assistant  
MERA Operations Officer  
Marin Department of Public Works  
County Communications Engineer

Maureen Cassingham  
David Jeffries  
Alex Anderson  
Pat Echols  
Shelly Nelson  
Richard Chuck

**Guests Present:**

Matthew Barnes  
Mark Bleeker  
Rich Brothers  
Matt Cerkel  
Oliver Collins  
Ezra Colman  
Richard Dillman  
John Eagler  
Bill Fraass  
Chris Fuller  
Jon Gaffney  
Bryan Galli  
Scott Gamba  
Tim Grasser  
Mike Hadfield  
Steve Heine  
Mark Heine  
Aaron Jarvis  
Rajit Jhaver  
Phil Johnson  
Rob Johnstone  
Rob Law  
Larry Luckham  
Tom Marksbury  
Erik Masterson  
Greg Miller

**Representing:**

Southern Marin Fire Department  
County Communications  
Novato Police Department  
Marin Municipal Water District  
Novato Police Department  
Larkspur Fire Department  
Inverness Public Utility District  
Harris PSPC  
Sausalito Police Department  
San Rafael Police Department  
Marin Transit  
Ross Valley Fire Department  
Marin County Fire  
Ross Valley Fire Department  
Kentfield Fire  
Marinwood Community Services Dist.  
Novato Fire Protection District  
Marin County Fire  
Federal Engineering  
Marin Municipal Water District  
Town of San Anselmo  
Tiburon Police Department  
San Rafael Fire Department  
Belvedere Police Department  
Ross Valley Police Department  
Department of Public Works

Adam Nelson  
Kai Pasquale  
Mark Pomi  
Randy Saxe  
Craig Scardina  
Bob Simmons  
Rico Tabaranza  
Erik VanRenselaar  
Tom Welch

Federal Engineering  
Southern Marin Fire Department  
Kentfield Fire Department  
Marin EMS  
Marin County Sheriffs Department  
CPX Wirless  
Fairfax Police Department  
Corte Madera Fire Department  
Mill Valley Fire Department

### CALL TO ORDER AND INTRODUCTIONS

MERA President Richard Pearce convened the meeting at 8:05 a.m. and welcomed everyone to the workshop.

Pearce gave a brief overview of the objectives of the meeting and introduced MERA Operations Officer Pat Echols. Echols gave a brief overview of the MERA Next Generation Project progress to date and introduced Project Consultant Rajit Jhaver from Federal Engineering (FE). Jhaver elaborated on the objectives of the workshop, describing the baseline coverage of the current UHF system and the goal to improve coverage with the new 700 mhz system. Jhaver then introduced his colleague Adam Nelson from Federal Engineering. Nelson provided meeting participants with a Go To Meeting link to follow along with the presentation.

1. MERA Coverage Analysis Workshop: MERA Next Generation System Existing and Additional Sites Coverage Impacts (Federal Engineering, Inc.)

Nelson began the presentation with an overview of the existing coverage on the current MERA UHF system with a series of coverage map slides. He then introduced a series of google map slides which analyzed the possible coverage of seven proposed additional sites. A series of slides were shown which overlaid the UHF coverage by 700mhz predicted coverage.

Nelson discussed the differences between UHF and 700mhz systems, noting that the switchover would result some reduction in coverage, but some improvements as well. He also noted enhancements could be made with different antenna configurations.

Nelson explained that the preferred site list would be given to the vendor, but he stressed that the vendor will have to evaluate and guarantee the coverage. He said the vendor could also come back with different ideas, including variations of tower site locations, different types of antennas (180 degrees, 360 degrees, omni-directional, etc.) and other design details.

Neslon discussed challenges to tower site placement, including topography, bodies of water, distance, and FCC regulations. For example, the tower signal must not go further than five miles beyond operating area per FCC rules.

Jeffries explained that the more feedback received during the coverage workshop, the better the final Request for Proposal when submitted to vendors. He also noted that the intent of the Coverage Analysis Workshop was not to finalize tower sites, but to provide as much information as possible to build a comprehensive Request for Proposal

2. Questions and Answers

Nelson was asked to more closely examine a number of coverage areas and potential tower sites, including but not limited to: West Marin coverage and potential Muir Beach tower site; Martha potential tower site; Tomales potential tower site; Wolfback potential tower site; Golden Gate area tower site; Highway 101 corridor and potential Corda tower site and landfill tower site; West Fairfax area around base of White's Hill; Central San Rafael and problem areas due to terrain; Kentfield area; Indian Valley area; Marin General Hospital area; Tamalpais and Sir Francis Drake area.

For each area, Nelson overlaid coverage maps and compared and contrasted coverage of UHF system and 700mhz system, as well as examining the impact of various iterations of tower site configurations.

Jeffries was asked why we were moving to 700mhz system. He explained that MERA could not stay on current frequency given new FCC regulations.

Nelson discussed benefit of 700mhz system penetrating buildings. He also explained that the public safety industry standard was 95% to 97% coverage, and what that meant, especially as measured based on a portable radio on the hip transmitting into the MERA system.

There was also a discussion of Delivered Audio Quality (DAQ) and that the current system maps were based on DAQ 3.0 and the new system maps based on a newer and higher DAQ 3.4 level of quality.

3. Open Time for Items Not on Agenda

None

4. Adjournment

Meeting was adjourned at 11:35 A.M.

Minutes prepared by:



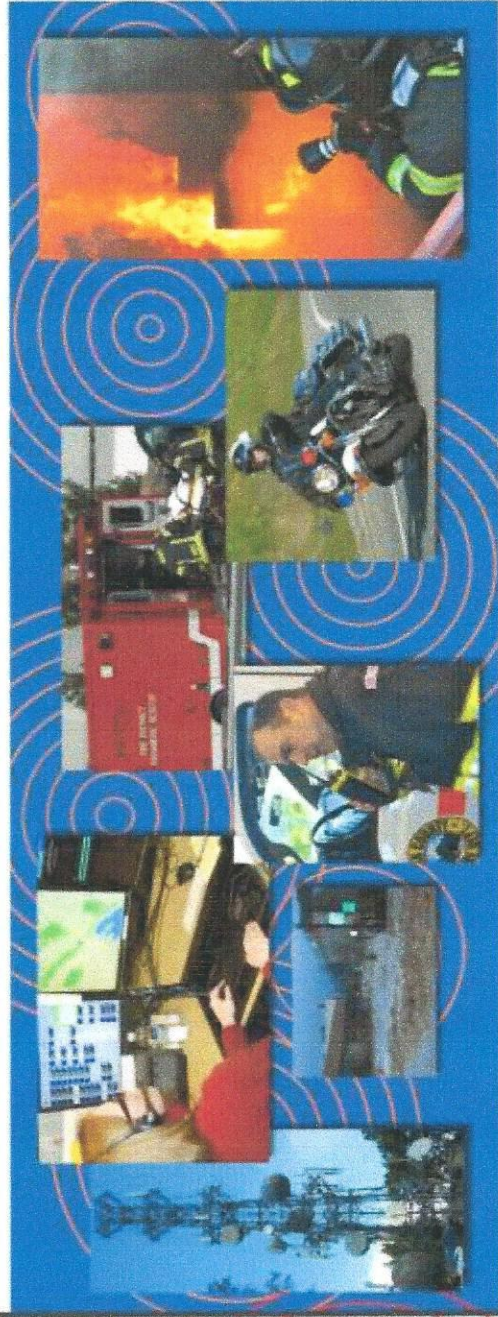
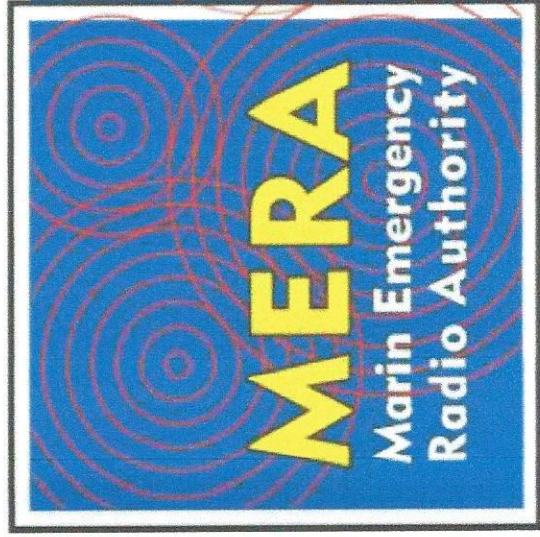
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Alex Anderson,  
MERA Administrative Assistant – MERA Next Generation Project

# **MERA: COVERAGE WORKSHOP 01/26/2016**

Selected Coverage Slides

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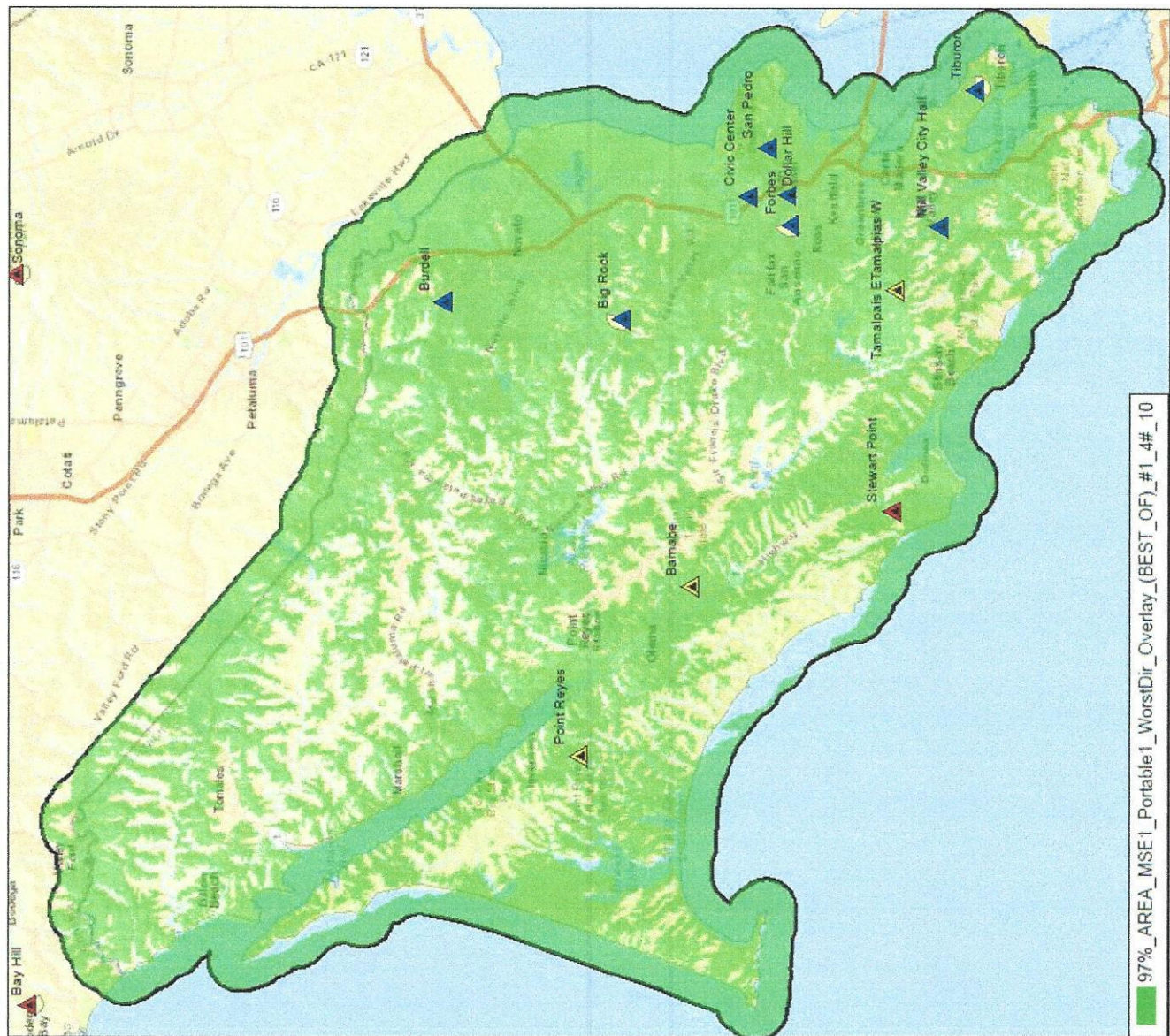
## Comments:

- The slides that follow are based on computer modeling of selected sites based on conversations at the Coverage Workshop on 01/26/2016.
- Final sites have not been selected.
- Coverage may differ from these graphics based on the exact sites chosen, antennae details and other engineering issues.
- Please take note that the reliability percentages mentioned refer to reliability in selected areas (highlighted in green in these slides) rather than to a percentage of coverage across the county.
- Coverage slides refer to DAQ. This is Delivered Audio Quality. The current system uses the DAQ 3.0 standard and the proposed system modeling is based on DAQ 3.4, a higher standard.



# Current UHF -T Band Coverage

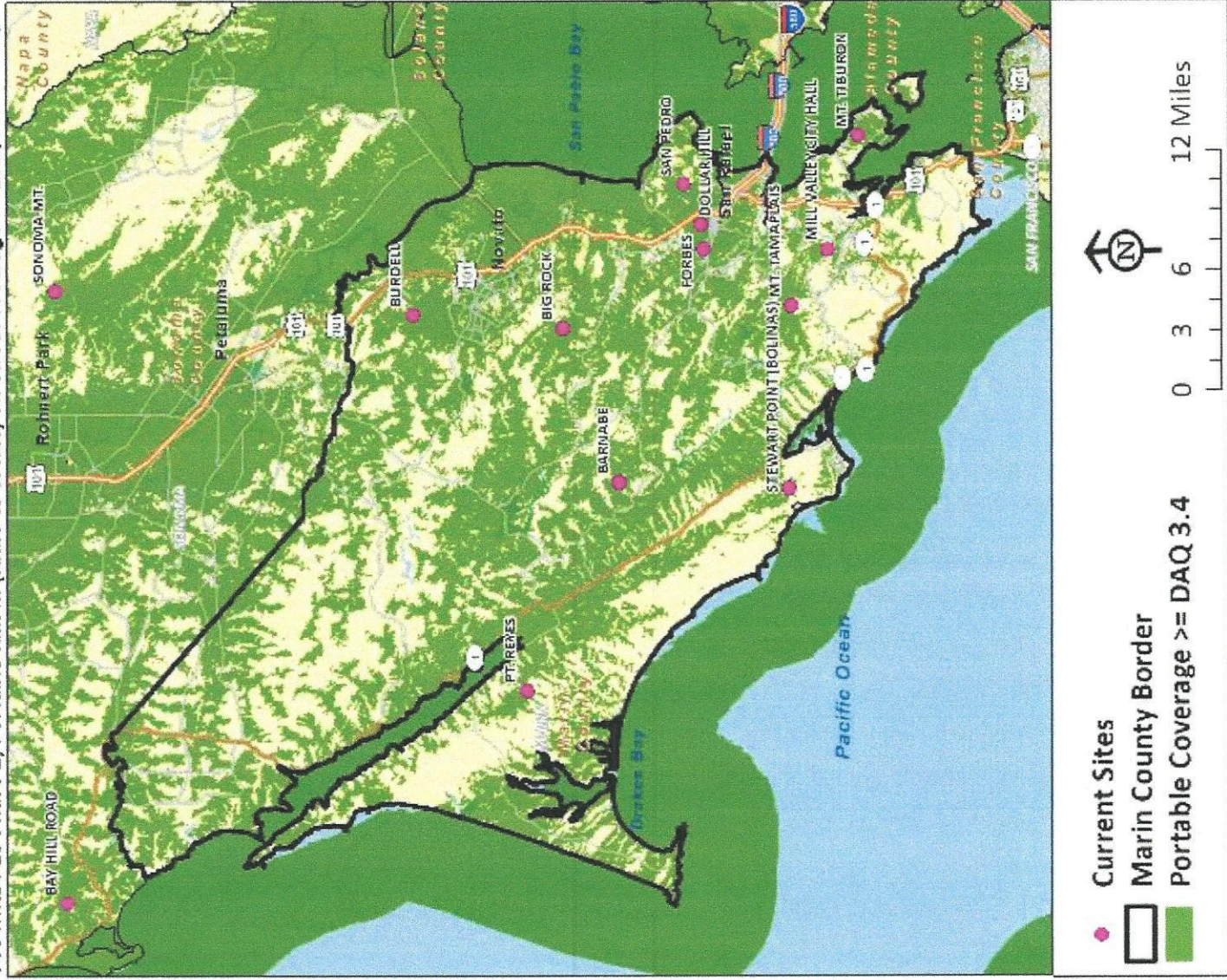
**This graphic depicts coverage for portable radio on the hip (XTS5000) to towers. Areas in green depict areas with 97% reliability to DAQ 3.0.**



# Potential 700 MHz Coverage Using 13 Existing Sites

Portable talk-in from portable to tower assuming radio on hip. Areas in green depict 97% reliability to DAQ 3.4.

Marin, CA - Potential 700 MHz Coverage from 13 Existing Sites  
700 MHz P25 Phase 2; Portable talk-in (radio to tower) on-street coverage >= DAQ 3.4



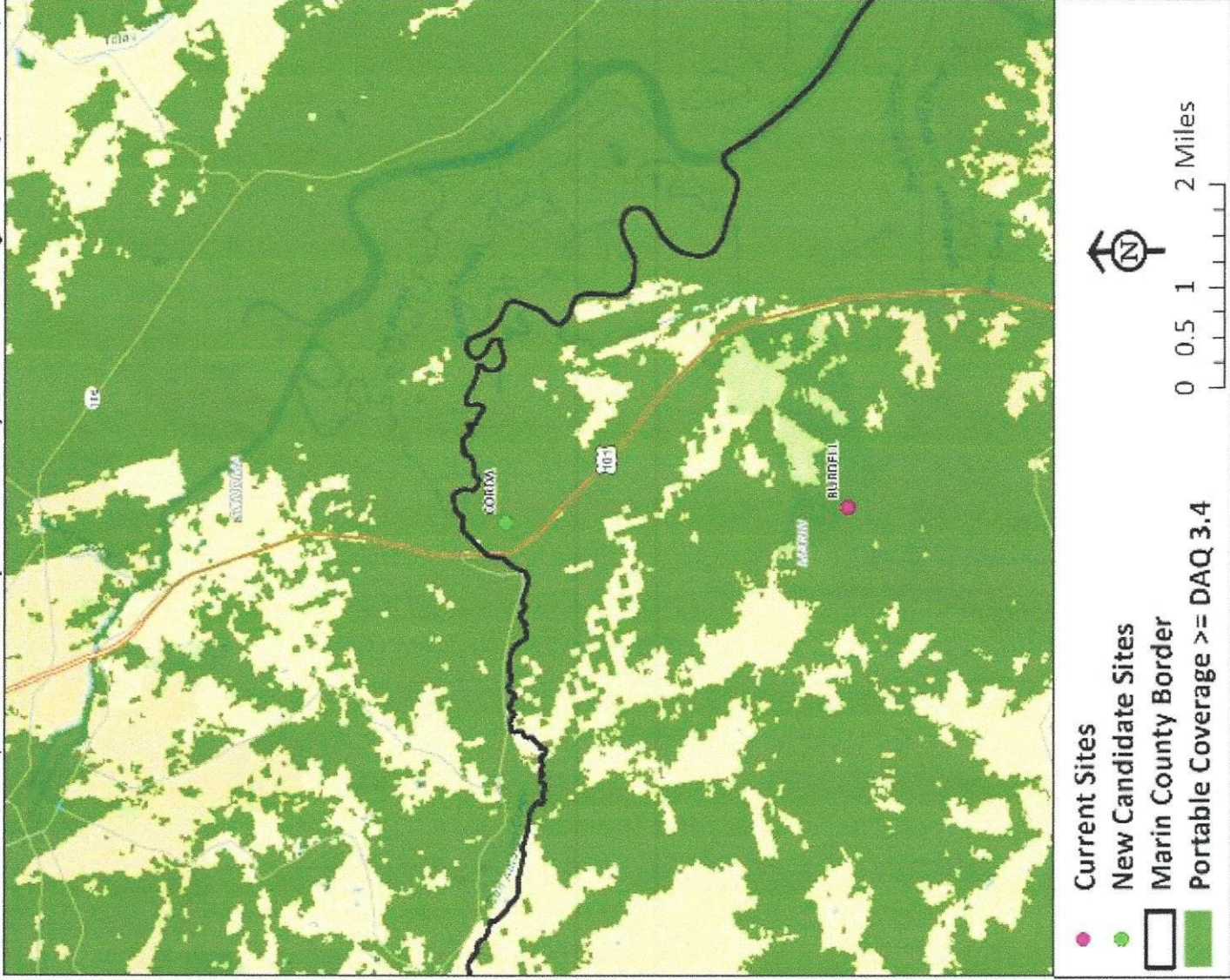




# Potential 700 MHz Coverage: Impact of Potential Corda Site

Portable talk-in from portable to tower assuming radio on hip. Areas in green depict 97% reliability to DAQ 3.4.

Marin, CA - Potential 700 MHz Coverage from 13 Existing + 5 Candidate Sites  
700 MHz P25 Phase 2; Portable talk-in (radio to tower) on-street coverage >= DAQ 3.4



# Example of Signal Degradation



**Example of potential signal strength in areas below 97%. In other cases, signal may be absent as it is today in many of these areas.**