

NERA:

WHEN SECONDS SAVE LIVES

An Orientation to the
Marin Emergency Radio Authority



Before MERA



MERA was developed following a series of frustrating incidents in the 1990's where one agency could not communicate effectively with another agency working on the same emergency.

Problems were:

- Multiple radios were required
- Signals were dropped
- Radio static caused delays
- Sometimes, radio traffic from the Midwest US would carry on local channels

What Is MERA Today?

The Marin Emergency Radio Authority (MERA) is a Joint Powers Authority in Marin County to plan, implement and manage a countywide public safety and emergency radio system for the use of all member agencies. MERA went live on January 24, 2004.

It includes:

- Six 911 Dispatch Centers
- Nearly 2,900 radios deployed across the county
- Uniform radio communications shared by every major safety agency in the county
- Instantaneous “Talk Group” capacity for incidents and events

“ Multi-Agency - Digital - Mission Critical - Public Safety Voice Communications ”

Local Government, Fire, Police, Public Works, Special Districts, Transportation and other Emergency Responders

1. County of Marin
2. City of Belvedere
3. Town of Corte Madera
4. Town of Fairfax
5. City of Larkspur
6. City of Mill Valley
7. City of Novato
8. Town of Ross
9. Town of San Anselmo
10. City of San Rafael
11. City of Sausalito
12. Town of Tiburon
13. Bolinas Fire Protection District
14. Central Marin Police Authority
15. Inverness Public Utility District
16. Kentfield Fire Protection District
17. Marin Community College District
18. Marin Transit
19. Marin Municipal Water District
20. Marinwood Community Services District
21. Novato Fire Protection District
22. Ross Valley Fire Department
23. Southern Marin Fire Protection District
24. Stinson Beach Fire Protection District
25. Tiburon Fire Protection Dist.

Key Dates in MERA's Inception

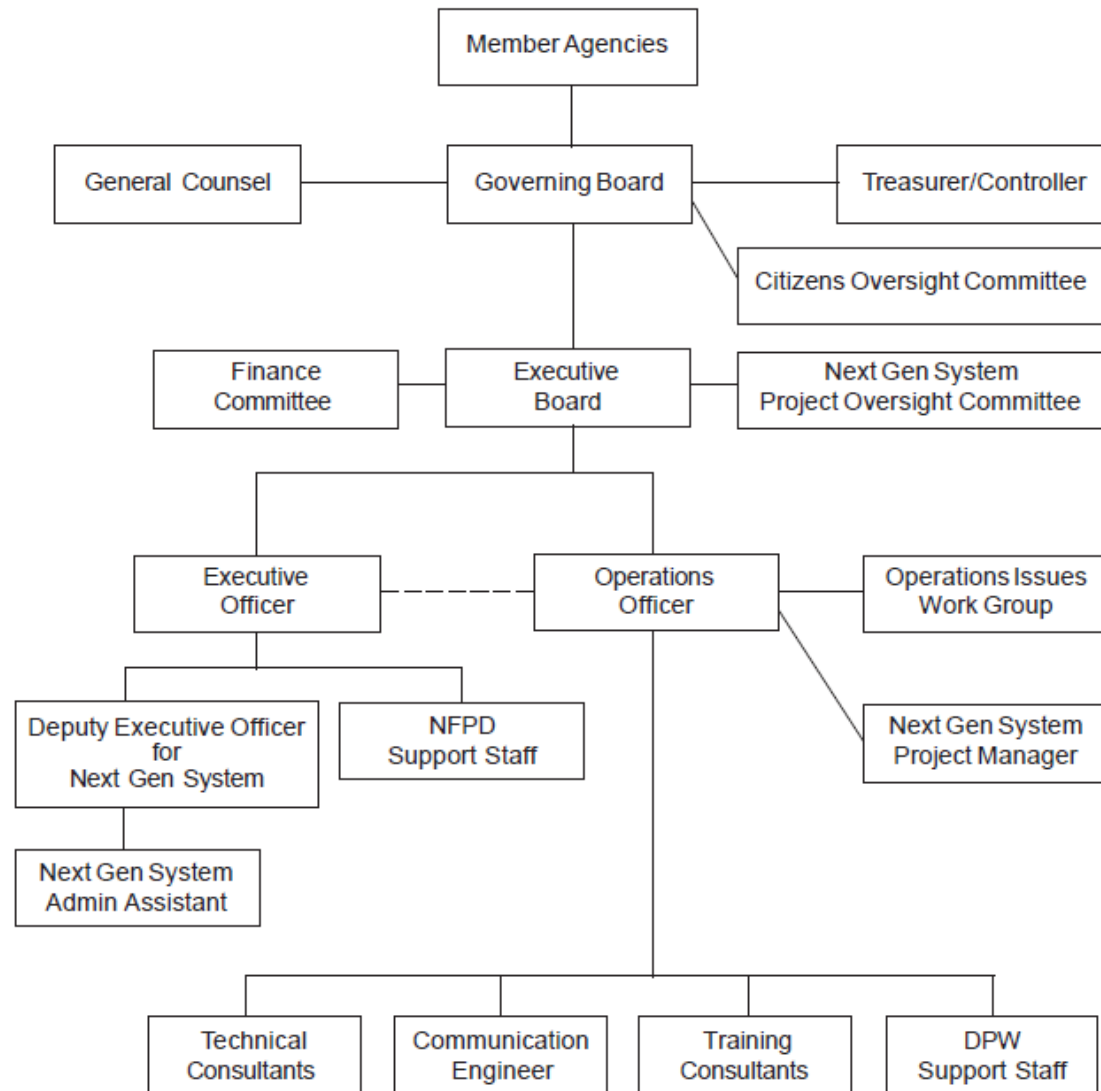
- **1995-1998** – Feasibility studies and meetings were conducted among police, fire and other major operations. Then a Communications Oversight Committee representing city managers, police and fire chiefs and special districts formed to study the options. MERA was the result of their work.
- **February 28, 1998** – The Marin Emergency Radio Authority (MERA) was formed to "...plan, finance, implement, manage, own and operate a multi-jurisdictional County-wide public safety, public service and emergency radio system."
- **February 11, 1999** – The MERA Board authorized the sale of bonds in the amount of \$26,940,000 to finance the project.
- **January 24, 2004** - Installation of San Rafael Police radios begins (first MERA agency).

Key Dates in MERA's Inception

- **November 4, 2014** – Marin voters approved Measure A to fund the Next Gen System – 67.14% approval.
- **June 30, 2015** – MERA / County Next Gen System Implementation Agreement approved for the County to deliver, “the successful on budget and timely completion of the project.”
- **August 26, 2015** – MERA selected Federal Engineering as the Next Gen Wireless Consultant. Federal Engineering is managed by the County on behalf of MERA.
- **February 2, 2017** – The MERA Governing Board approved a Radio Communications System contract with Motorola Solutions.
- **May 16, 2018** – MERA issued a Notice of Preparation and Summary Project Description to initiate the Next Gen CEQA process.

MERA Governance: Org Chart

Marin Emergency Radio Authority Next Gen System Project ORGANIZATION CHART



Proposed Preliminary from EB 03/13/19

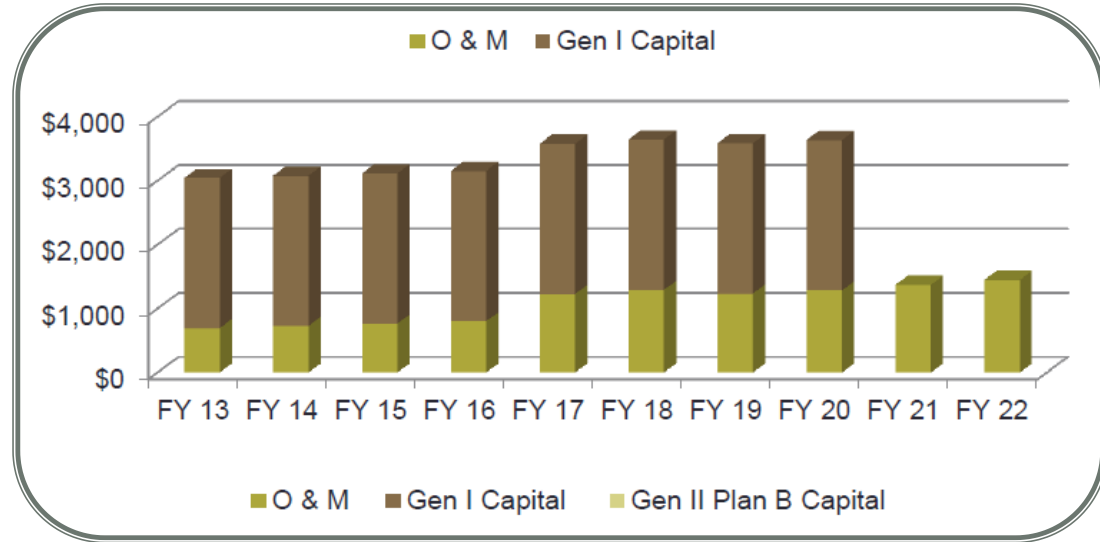
MERA OPERATING BUDGET: Audited FY 17-18, Approved FY 18-19 and FY 19-20

Fund 70030 - Operating

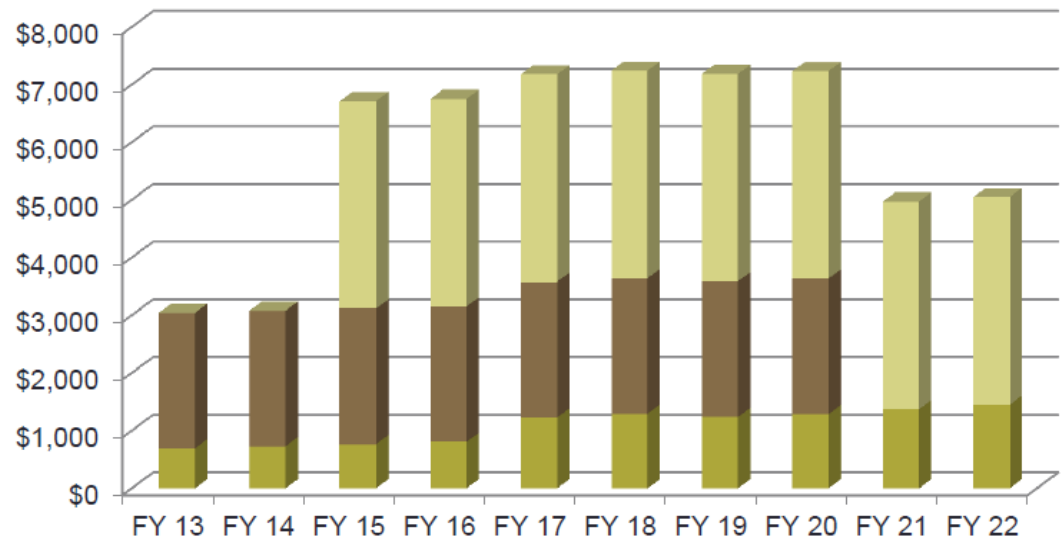
OPERATING EXPENSES	AUDITED FISCAL YEAR 2017-18	APPROVED BUDGET 2018-19	PROPOSED PRELIMINARY BUDGET 2019-20
Contract Services	\$178,127	\$191,330	\$198,500
County System Maintenance	468,205	580,694	595,212
County Technical Services	212,061	245,673	245,190
County Communication Engineering Services	214,319	220,106	225,609
Site Rentals & Leases	433,765	448,451	478,699
Site Utilities	89,755	101,900	99,300
Site Maintenance	3,098	15,000	10,000
Insurance	36,265	43,000	48,000
Auditing Services	18,445	25,000	28,000
Legal Services	14,621	20,000	22,000
Miscellaneous Expenses	209	1,000	1,000
General Contingencies	0	40,000	40,000
Total Services & Expenses	\$1,668,870	\$1,932,154	\$1,991,510 +\$59,356 (+3.1)

Comparing Costs Thru FY 2022

The first graph depicts total MERA Member costs for Gen I Bonds AND estimated O&M costs following the passage of the Parcel Tax.



The second graph depicts total MERA Member costs for Gen I and Gen II with estimated O&M costs thru FY 22 **had the Parcel Tax failed to pass.**



All figures are in thousands.

Parcel Tax Overview: Residential and Agricultural Details

Property Description	Method	Maximum Rate
Single Family Residential	Per Parcel	\$29.00
Multi-Family Residential	Per Unit	\$26.10
Agricultural – Up to 5 Acres	Per Parcel	\$29.00
Agricultural – Over 5 Acres	Per Parcel	\$58.00

Parcel Tax Categories	# of Parcels	Tax Units	Total Parcel Tax	Average per Parcel	Median
Single Family	81,107	81,107	\$2,352,103	\$29	\$29
Multi-Family	4,986	24,551	\$640,781	\$129	\$52
Agricultural	715	1,361	\$39,469	\$55	\$58

Parcel Tax Overview: Commercial, Industrial and Utility Details

Property Description	Method	Maximum Rate
Up to ½ acre	Per Parcel	\$87.00
Greater than ½ acre and up to 1 acre	Per Parcel	\$174.00
Greater than 1 acre	\$174 Per Parcel AND \$29 for each acre over 1 acre	Up to \$2,500.00

# of Parcels	Tax Units	Total Parcel Tax	Average per Parcel	Median
4,015	10,360	\$585,193	\$145	\$87

MERA Finances: Gen II Financing

Description		Current Project Budget 12/12/18	Actual Audited Expenditures 06/30/18 and posted/pending for FY18-19 thru 12/07/18
1.	Vendor Contract and FSA (w/o radios)	26,559,324	1,904,289
2.	Vendor Radios	7,410,216	0
3.	Site Acquisition/Construction/CEQA	5,300,000	552,655
4.	Project implementation staffing (DPW)	2,000,000	419,969
5.	FE Construction/Project Management	1,798,603	668,181
6.	RGS MERA staffing	1,005,000	476,472
7.	Marin DPW	25,000	11,640
8.	Other Capital costs	30,000	0
9.	MERA Legal	400,000	142,292
10.	Public Outreach	397,000	398,999
11.	Admin Fees	3,200,000	583,539
12.	Financing Costs	9,971,000	1,742,180
13.	System Upgrade Agreement (SUA)	8,940,804	0
Project Budget:		67,036,947	6,900,216
Budgeted Project Contingency		4,000,000	(5.6% of Project Total)
Unappropriated Project Reserve		963,053	(1.3% of Project Total)
Project Total:		72,000,000	

Project Funding Sources:

Source	Annual	20 Years
Parcel Tax	3,550,000	71,000,000
MERA (Non-Public Safety Radios)		1,000,000
Total:		72,000,000

Motorola Contract Milestone #	%	Estimated Date
#1 – Completion of Kick-Off Meeting	10%	Completed
#2 – Completion of Customer Design Review (CDR)	10%	Q2 2019
#3 – Completion of Shipment of Fixed Network Equipment (FNE)	45%	Q4 2019
#4 – Installation Completion	25%	Q4 2020
#5 – System Acceptance or Beneficial Use	5%	Q4 2022
#6 – Final Acceptance	5%	Q2 2023
Total:	100%	
Other – Subscriber Equipment due upon shipment		

Why the MERA Gen I System Must Be Upgraded

RELIABILITY: The existing system is aging and approaching obsolescence. The system is experiencing component malfunctions causing system reliability to decrease. Replacement equipment is being phased out by the manufacturer, with certain elements already no longer manufactured and increasingly difficult to source.

CAPACITY: MERA has nearly 2,900 users today on a system built for 1,580. The system must expand capacity to eliminate busy signals during major emergencies and to add additional mutual aid partners. The Next Generation system is planned for 5,000 potential users.

COVERAGE: Coverage must be extended to high priority areas that have limited coverage today. The Next Generation system will expand coverage with the addition of new tower sites.

FREQUENCY GIVE BACK: Currently enacted federal legislation will require that we give back our current UHF-T band frequencies in 2021.

Prior Studies



Marin County, California Request for Proposals For Radio Communications System RFP # 2617

June 7, 2010

2010

Prepared by

County of Marin

Department of Public Works, Communications Division

Engineering Report

For the

County of Marin

Licensing Potential

Of the

"Radio Frequency Compatibility Report"

2010

June 1, 2010

CSI TELECOMMUNICATIONS, INC.

MARIN EMERGENCY RADIO AUTHORITY

NEXT GENERATION RADIO SYSTEM

IMPLEMENTATION

FEASIBILITY STUDY

2013

Marin County Department of Public Works

On December 11, 2013 the MERA Governing Board reviewed this report, accepted this report, and determined that a 700 MHz P25 Phase 2 system per the estimated budget be the basis for the Next Generation system being proposed in an upcoming ballot measure



communications, inc.

Philadelphia Office: 73 Chestnut Road, Suite 301, Park, PA 19101 IV (610) 889-7470 FI (610) 889-7475

St. Paul Office: 1597 Race Street, St. Paul, MN 55102 IV (651) 340-5300 FI (651) 340-5820

www.cbgcommunications.com

MARIN EMERGENCY RADIO AUTHORITY

(MERA)

STRATEGIC PLAN

Prepared by

CBG Communications, Inc.

Thomas Robinson

President

Dick Nielsen

Senior Engineer

2010

December 2010

AECOM

April 29, 2010

2010

System Design Report

Marin County, CA





Land Mobile Radio Network Project Communications Plan

November 23, 2015

Prepared by:



"Unlocking the Power of Technology"

Federal
Engineering®

Federal Engineering, Inc.
10600 Arrowhead Drive
Fairfax, VA 22030
703-359-8200

MEMORANDUM

To: Pat Echols
Marin County DPW
From: Federal Engineering, Inc.
Subject: FCC Review Meeting Outcomes
Date: December 29, 2015

Marin County (County) on behalf of Marin Emergency Radio Authority (MERA) wishes to develop an RFP to design and deploy a 700 MHz Phase II Project 25 system to replace their current system which has reached End-of-Life status with the vendor. To assist them with this project, Marin County retained Federal Engineering (FE) to develop the RFP.

a review of the issues and requirements for meeting between Marin County personnel and 3 700 MHz plan and their relevance to the project following summarizes the discussion.

licensing and spectrum assets

FCC licenses and understand overall usage

T-band licenses restricted with regards to



Marin County on behalf of Marin Emergency Radio Authority (MERA)

Site Survey Report



Marin County on behalf of Marin Emergency Radio Authority (MERA) Request for Proposals Radio Communications System

May 6, 2016

Prepared by



"Unlocking the Power of Technology"

Federal
Engineering®

Federal Engineering, Inc.
10600 Arrowhead Dr., Suite 160
Fairfax, VA 22030
703-359-8200



Marin County on behalf of Marin Emergency Radio Authority (MERA)

System Lifecycle Report

January 18, 2016

Prepared by:



"Unlocking the Power of Technology"

Federal
Engineering®

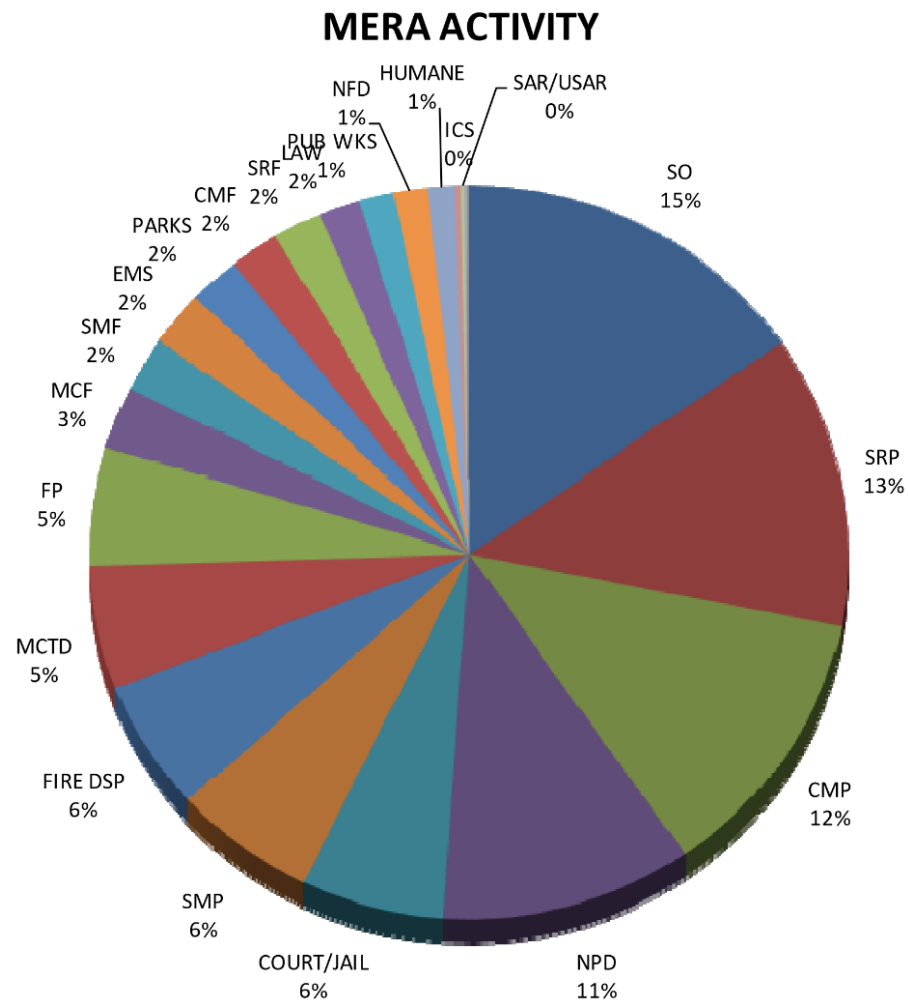
Federal Engineering, Inc.
10600 Arrowhead Dr., Suite 160
Fairfax, VA 22030
703-359-8200

System Usage in 2018

Annual Calls: 2,984,692
 Annual Call Hours: 8,486
Busy Minutes: 1:05

Top 6 Users for the year 2018

- County Sheriff 1,302 Hrs
- San Rafael Police 1,087 Hrs
- Central Marin Police 1,034 Hrs
- Novato Police 911 Hrs
- Court/Jail 517 Hrs
- Southern Marin Police 515 Hrs



East Simulcast Zone

- Big Rock
- San Pedro
- Dollar Hill
- Mt. Burdell
- Forbes
- Mill Valley CH
- Mt. Tiburon
- Civic Center (Prime)
- Mt. Tamalpais

West Simulcast Zone

- Pt. Reyes
- Barnabe
- Mt. Tamalpais

Three Intelli-Repeaters

- Sonoma Mt.
- Bay Hill
- Steward Point

28 Dispatch Consoles

2900 Radios (Approx)

33 Radio Frequencies

97% coverage on the hip
Fire Station Alerting

MERA Gen I Go Live Date:
 01/24/2004

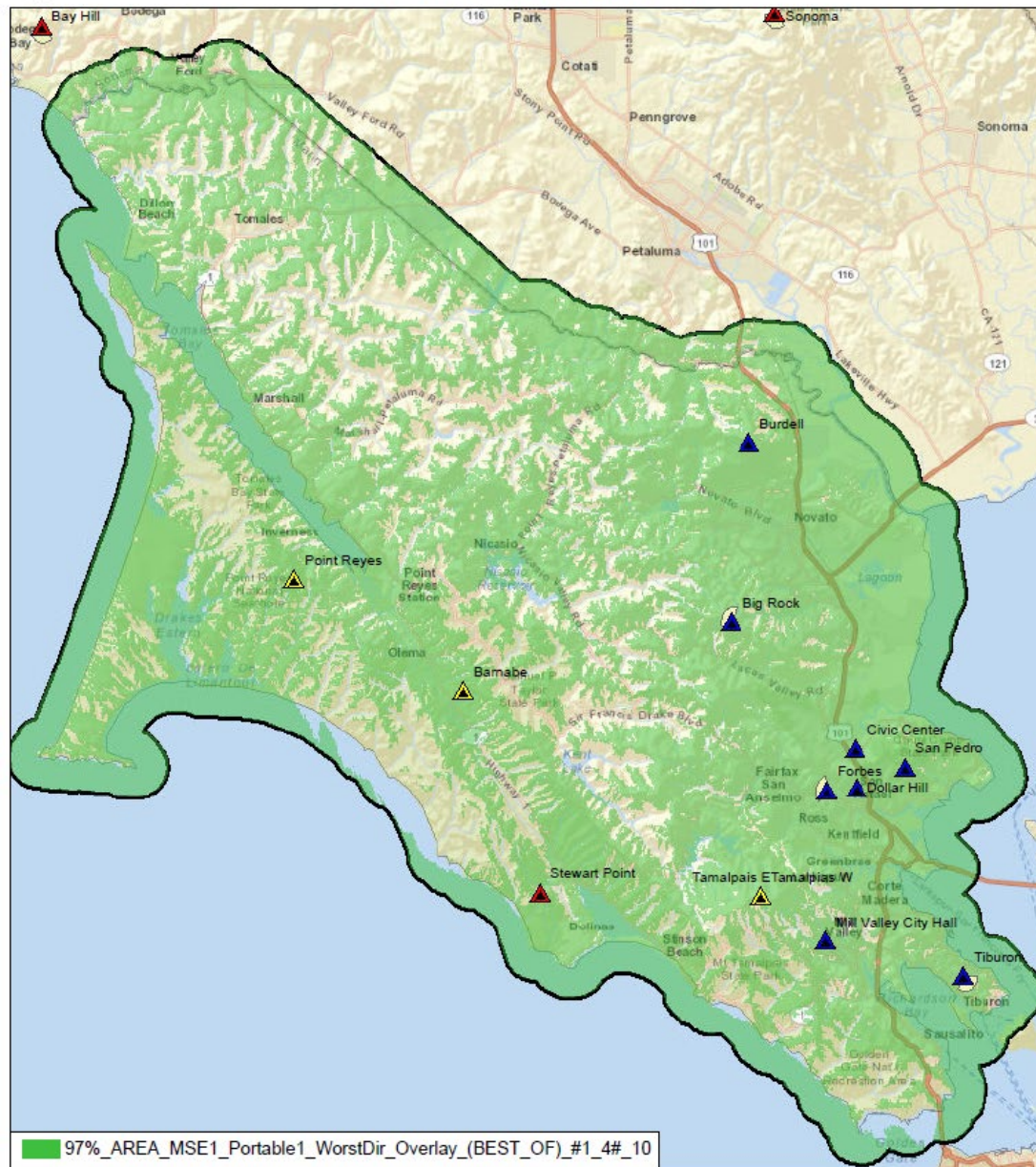


MOTOROLA

Marin County, CA

UHF 15 Site 2 Cell Simulcast System

For Informational
Purposes Only



97%_AREA_MSE1_Portable1_WorstDir_Overlay_(BEST_OF)_#1_4#_10

0 1.5 3 6 Miles
 1 inch = 4.25 miles

Worst Direction Coverage for XTS5000
 Portable Radio at DAQ 3.0

CJL069-32, Run 10
 QNP684

Nov 01, 2012

Hydra 4.4.2337.0
 Portion(s) of GIS Source Data Copyright:© 2009 ESRI, AND, TANA, ESRI Japan, UNEP-WCMC.

1295827298.15.000.1.1

NERA Sites and Channels

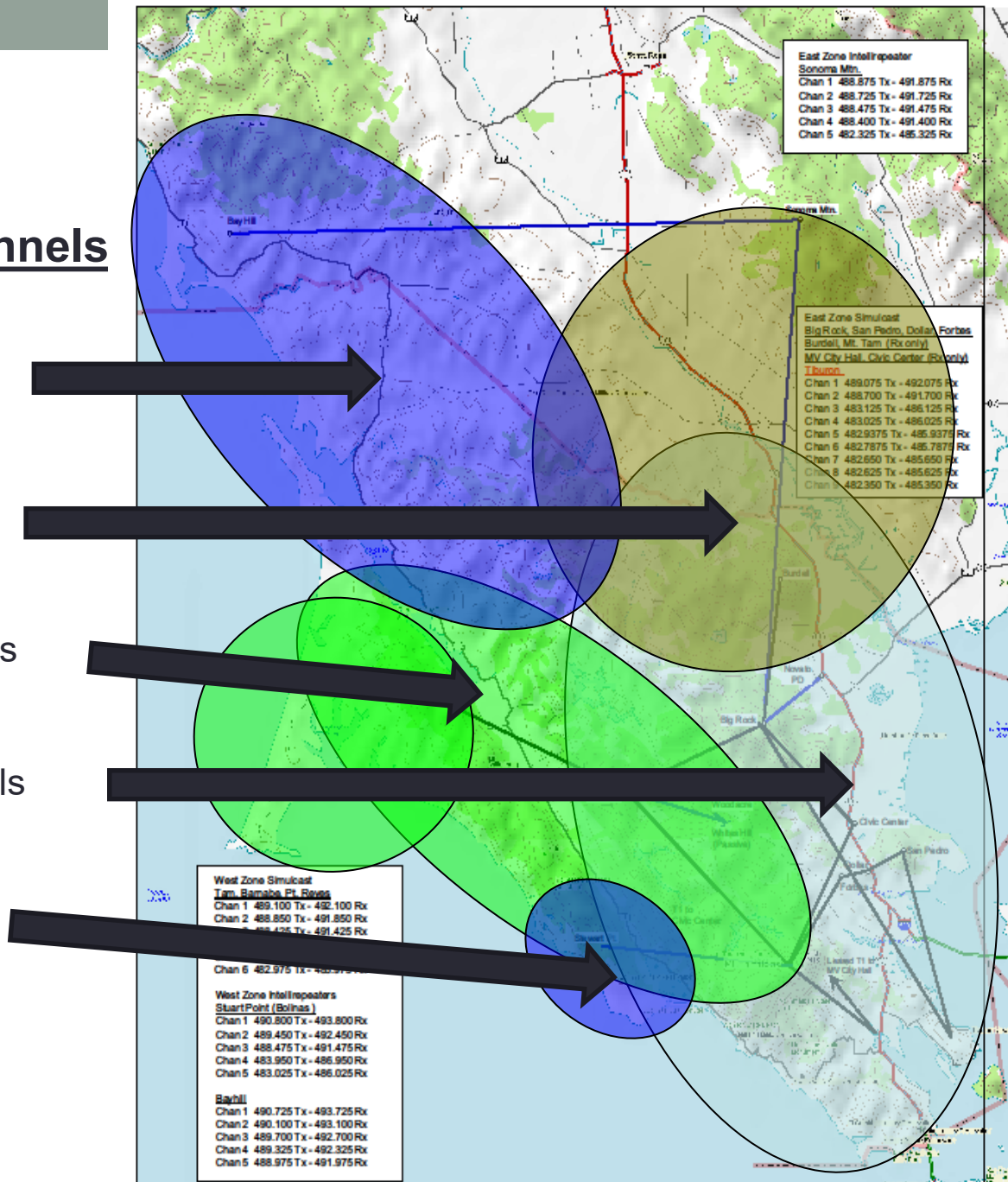
Bodega IR – 5 Channels

Sonoma IR – 6 Channels

West Simulcast – 7 Channels

East Simulcast – 11 Channels

Bolinas IR – 5 Channels



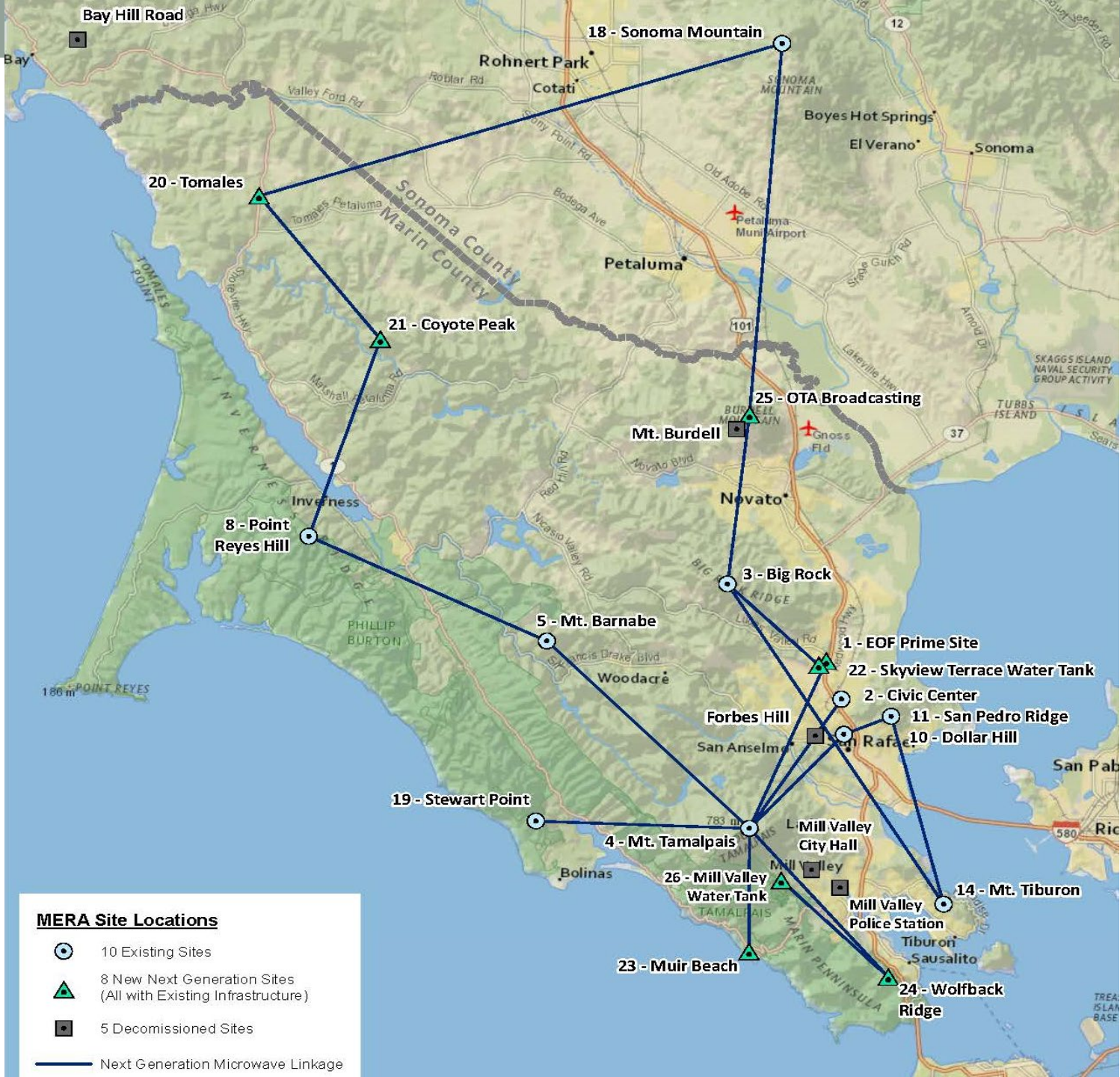
Proposed Next Gen Proposed System

Next Gen Proposed Sites

Tomales
Coyote Peak
Pt Reyes Hill
Mt Barnabe
Stewart Point
Muir Beach
Mt Tamalpais
Mill Valley WT
Wolfback Ridge
Mt Tiburon
San Pedro Ridge
Dollar Hill
Civic Center
EOF – Prime Site
Skyview Terr
Big Rock
OTA
Sonoma Mountain

Decommissioning

Bay Hill Road
Mt Burdell
Mill Valley CH
Mill Valley PSB
Forbes Hill



AMERA Gen II System: Next Steps

Proposal Received: August 5, 2016

Selection Committee Review: September 13, 2016

NGPOC and E Board Review: September 14, 2016

Proposal Negotiations: Started September 21, 2016

MERA Vendor Contract Approval: February 22, 2017

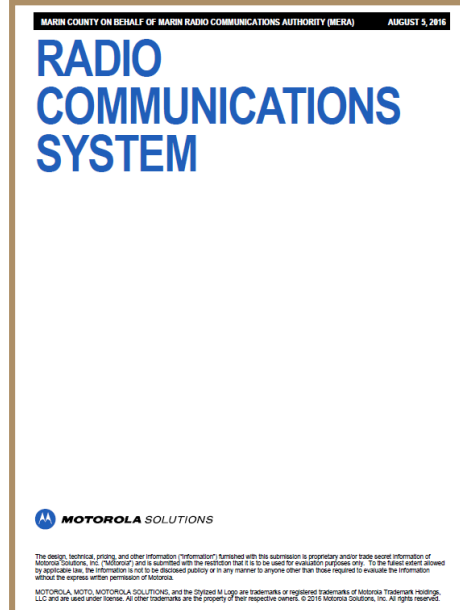
BOS Vendor Contract Approval: March 07, 2017

Detailed Design Process: March 24, 2017 in Progress

CEQA Process: May, 2018 thru Summer, 2019

System Implementation: 2022-2023

System Acceptance: 2023 (Estimate)





MERA: SECONDS SAVE LIVES

See

www.MERAonline.org

for more information