



POLICE RADIO ENCRYPTION AND INFRASTRUCTURE PROJECT

CITY COUNCIL MEETING

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Objective

Provide City Council with a report on the Police
Radio Encryption and Infrastructure Project

Agenda



- I. Background
- II. Issues with Current Radios and Infrastructure
- III. Importance of Projecting Well Into the Future
- IV. Components of a Viable Solution
- V. Anticipated Fiscal Impact
- VI. Questions



Background

In this section

- ▲ Reports about public safety interoperability
- ▲ Bill that informed public safety of taking of existing frequency band
- ▲ Encryption law
- ▲ Any legislation and/or reports that required/suggested changes we have not made



Background on Frequency Allocation

- ▲ September 11th, 2001, after-action drafted to Congress
- ▲ This report highlighted several points of improvement; communication interoperability, during large scale incidents
- ▲ Different public safety agencies across the country were operating on different radio spectrum frequencies



Background on Frequency Allocation

- ▲ Radio spectrum is also used by a multitude of different entities (public safety systems, cellular companies, private radio systems)
- ▲ This causes frequency availability in metropolitan areas (like San Bruno) to be very low and crowded with traffic
- ▲ The FCC designated part of the 800 MHz spectrum
- ▲ Most agencies across the country migrated to 800 MHz systems



What frequency band are we on?

- ▲ The Police Department currently uses a Land Based Mobile Radio (LMR) System that is licensed through the Federal Communications Commission (FCC) on the 400 MHZ T-Band spectrum
- ▲ The 400 MHZ T-Band spectrum sell off attempts
- ▲ Currently “OK” to stay on the T-band spectrum with last congressional bill passed last year
- ▲ Will we still be “OK” in the future?



DOJ Criminal Justice Data

- ▲ In October of 2020, the California Department of Justice issued a Mandate noticing all law enforcement agencies regarding the transmission of criminal justice data over unencrypted LMR systems
 - No longer allowed
- ▲ CA DOJ understood the potential operational impacts to this change and allowed agencies to draft a plan for becoming compliant
- ▲ Most agencies in San Mateo County provided a 3-year implementation date to encrypt their radio systems



What impact to San Bruno?

- ▲ Options other than encryption of the primary radio channel were considered, but are not viable for police operations
- ▲ The police department provided a 5-year compliance date, which was accepted by CA DOJ
- ▲ If we have until 2025, why now?
 - Lost ability to communicate with agencies
 - Time required for procurement/deployment



What impact to San Bruno?

- ▲ What does radio Encryption do?
 - It prevents anyone without the proper “key” or password to listen to LMR radio traffic
 - Allows staff to communicate essential criminal justice data over LMR system to units operating in the field



What impact to San Bruno?

- ▲ Staff undertook a project to examine our current radio system based on:
 - Encryption Mandate
 - Experienced LMR Coverage Issues
 - Potential T-Band Legislative Issues



San Bruno's Current Infrastructure

- ▲ The police department has a seven sites with radio equipment to assist with our conventional LMR coverage:
 - Sign Hill (South San Francisco)
 - Police Department
 - City Hall
 - Arbor Court
 - El Crystal School
 - Crestmoor High School
 - Skyline College



San Bruno's Current Infrastructure

- ▲ To communicate with these different sites, staff uses:
 - Portable radios worn on their person
 - Mobile radios mounted in vehicles



Issues with Current Radios/Infrastructure

In this section

- ▲ Unable to meet legal encryption requirements with current equipment
- ▲ In need of required upgrades without this
- ▲ Lack of interoperability (local and mutual aid)
- ▲ Poor condition of current sites
- ▲ Lack of key functions (GPS, etc.)
- ▲ Current License issues

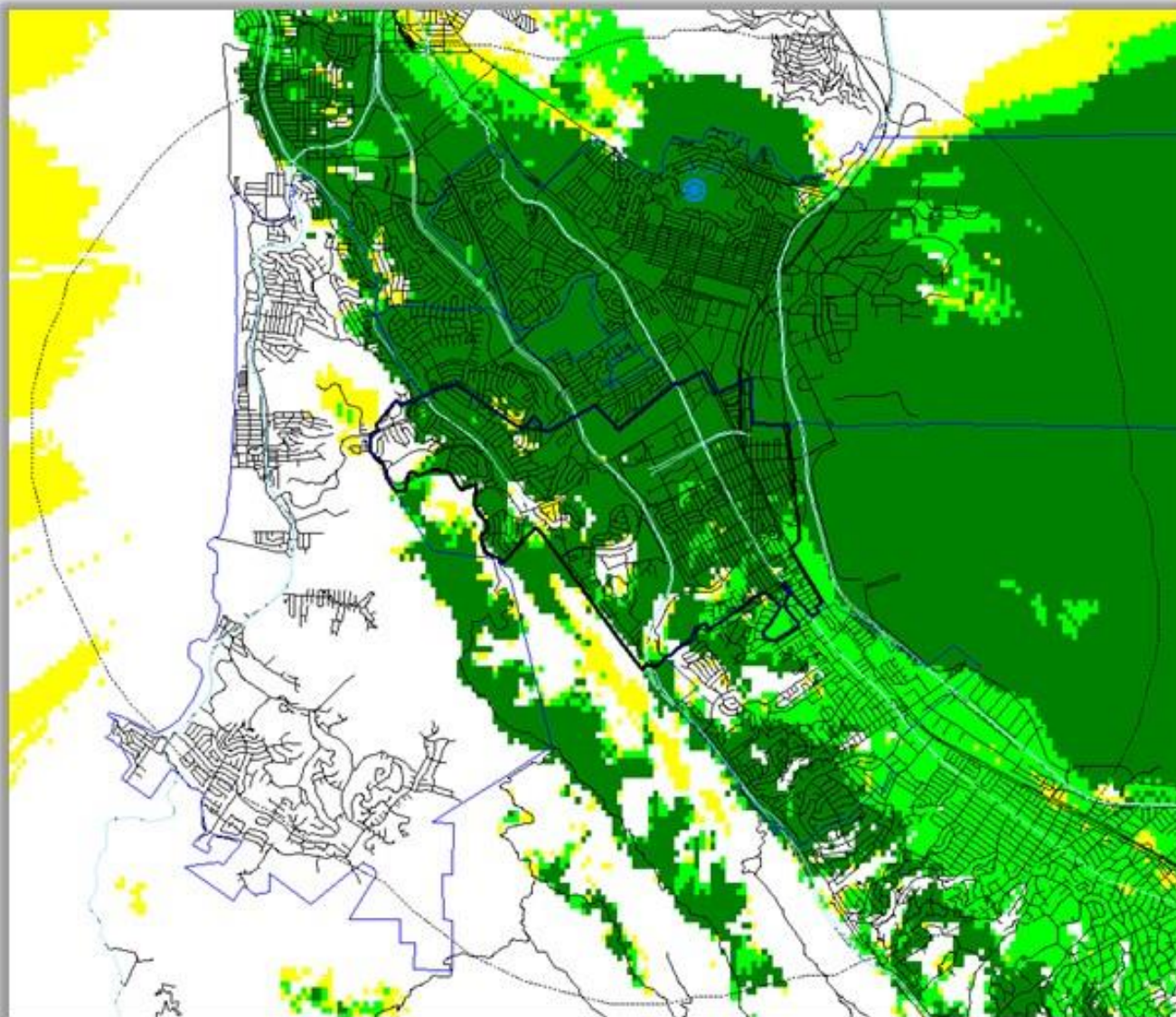


Issues with Current Radios/Infrastructure

- ▲ The current equipment (both site equipment and mobile/portable equipment) can not be encrypted as configured
 - Requires additional equipment or complete replacement of equipment



Issues with Current Radios/Infrastructure





Issues with Current Radios/Infrastructure

- ▲ Current system does not provide adequate coverage within the City of San Bruno

- Southeast corner of the city



- In commercial buildings



- No failback coverage options



Issues with Current Radios/Infrastructure

- ▲ As part of mutual aid assistance requests, officers are responding to areas outside of the County of San Mateo
 - Recent deployments
 - Napa Fires
 - Plumas County
 - Santa Cruz County
 - Sonoma County
 - Current mobile and portable radios are not capable of communicating on these local radios systems or the network of California Mutual Aid Channels



Issues with Current Radios/Infrastructure

- ▲ Radio sites were visited
- ▲ Several do not have adequate redundant electrical power in the event of a PG&E power interruption
 - This would heavily impact radio coverage
- ▲ Two are in buildings that are scheduled for demolition or are not being maintained
- ▲ Data connections to radio equipment is inferior to one of the sites, single points on others



Issues with Current Radios/Infrastructure





Issues with Current Radios/Infrastructure

- ▲ A check of San Bruno's FCC licensing:
 - Current Police primary radio channel's transmission point is registered in the center of Colma
 - Temporary fix about 10 years ago when Century Theater construction block PD local transmitter



Importance of Projecting Into the Future

In this section

- ▲ Problem with continued investment in already outdated technology
- ▲ Migration to Long Term Evolution (LTE) for all radio service
 - FirstNet
- ▲ Capability to operate on other systems in the county
- ▲ Mutual Aid comms
 - 800 mhz California Mutual Aid System



Components of a Viable Solution

In this section

- ▲ Appropriate day to day LMR Coverage
- ▲ Access to all mutual aid channels
- ▲ P-25 256 Bit Encryption capable
- ▲ Failback communication ability in areas of reduced or no LMR coverage
- ▲ Increased communication capabilities
- ▲ GPS Locating of LMR portable radio
- ▲ Re-enforced radio sites with redundant electrical power and data connections



Components of a Viable Solution

- ▲ Appropriate day to day LMR Coverage
 - Deploy a LMR solution that has radio coverage in all areas within the City of San Bruno
 - Roaming vs conventional coverage



Components of a Viable Solution

- ▲ Access to all mutual aid channels
 - Deploy a multi-band portable and mobile vehicle radio that can communicate on any public safety radio channel



Components of a Viable Solution

▲ P-25 256 Bit Encryption capable

- This is the accepted DOJ encryption standard for public safety
- Would allow for other agencies to communicate on our system if provided the encryption key
- Mobile and portable radios that allow for over the air programming
 - Update encryption keys as they change
 - Add radio channels to deployed devices remotely



Components of a Viable Solution

- ▲ Failback communication ability in areas of reduced or no LMR coverage
 - LTE coverage when portable or mobile can not transmit on LMR
 - Allows staff working outside of the city limits to have access to our primary radio (transmit and receive)
 - Deploy in vehicle repeaters to increase LMR building penetration and portable radio coverage in the event a site goes offline



Components of a Viable Solution

- ▲ Increased communication capabilities
 - Currently one channel available to San Bruno Police operations under conventional LMR
 - Digital LMR could allow for additional talk channels on the LMR System
 - LTE capability would allow for creation of an unlimited number of additional channels
 - EOC Channels
 - Investigators
 - Multiple operations at once



Components of a Viable Solution

- ▲ GPS Locating of LMR portable radio
 - Current system does not allow for tracking of radio devices
 - In the event of an emergency, a staff members location is only known by them having the ability to provide it verbally
 - This function would allow for immediate location in an emergency



Components of a Viable Solution

- ▲ Re-enforced radio sites with redundant electrical power and data connections
 - Provide two sources of power to each site to provide continued operations in power interruptions
 - Provide second source of data (how the system communicates with each piece of equipment) in the event of data outage



Anticipated Fiscal Impact

In this section

- ▲ An estimation range of potential solutions



Anticipated Fiscal Impact

- ▲ Staff has been working to identify all potential cost items for this project. This work continues today.
- ▲ This requires the coordination of several different vendors and coverage studies
- ▲ Current projected project cost to address all deficient areas of our current system is \$3-5 million dollars in one-time expenditures
- ▲ Additional ongoing yearly licensing is projected to be \$150,000 - \$250,000



Anticipated Fiscal Impact

- ▲ \$700,000 in one-time excess PD revenues available to be allocated
- ▲ \$250,000 - \$500,000 in consulting fees saved
- ▲ No government funding source available
 - Staff continuing to monitor for available grants

Questions

