Scanning America

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Santa Barbara County, California

In August, Santa Barbara County awarded a $28 million contract to EF Johnson Technologies for a new public safety radio system. As is nearly always the case, the existing radio systems are nearing end of life, use technology that has become obsolete and are not integrated or directly interoperable with nearby agencies.

Santa Barbara County is located in southern California along the Pacific Ocean, about 100 miles northwest of Los Angeles. The county is home to nearly 450,000 people and covers about 3,800 square miles of land and water, including four of the Channel Islands. The county has 110 miles of coastline while much of the interior is mountainous.

The county is currently operating several radio systems using various technologies that have different capabilities, most of which are at the end of their useful life. Some of these systems were installed as far back as 1994 and are no longer supported by their manufacturers. Routine maintenance of the aging radio equipment is becoming more difficult as the manufacturers no longer provide support and spare parts become hard to find.

Adding to the risk, each of these systems typically have a single connection to the dispatch center, leaving them vulnerable to a single failure that could prevent dispatchers from reaching users. Worse still, the dispatch center itself does not have a backup site.

The Santa Barbara County Public Safety Dispatch Center serves sheriff's deputies, firefighters, emergency medical technicians, probation officers and other agency personnel. In 2017, the dispatch center averaged more than 600 calls for service each day.

In 2019, the Santa Barbara County Board of Supervisors contracted with a consulting company to develop specifications for a new public safety system and manage the subsequent acquisition process. That same consulting company, Federal Engineering, had previously assessed the radio system and provided recommendations for replacement.

The resulting plan included upgrades to the radio system as well as the microwave backbone system to improve reliability and resilience against failure. The microwave backbone is the set of radio links and associated equipment that carry voice and data between the dispatch center and each of the repeater sites.

At the time, the cost of the new system was estimated at $48.7 million, which includes $17.7 million for radio equipment and the microwave backbone, about $2.9 million to equip two dispatch centers and another $28.2 million for mobile and portable radios.

EF Johnson will install Kenwood's ATLAS-branded Project 25 (P25) equipment, configured to support both trunked and conventional channels. The system will be fully distributed, meaning an equipment failure or outage will not cause the entire network to break down. The design is based around a ring configuration rather than the existing star topology, so if an individual link failed there would still be a path from the dispatch center to the repeater site.

Most county agencies are expected to move from the old UHF analog systems to the new digital P25 network, including law enforcement, public works crews and parks departments. However, the County Fire Department would prefer upgraded VHF radios so that firefighters can communicate directly with mutual aid partners like Cal Fire, which have not upgraded their radios. The Santa Barbara Fire Department also operates an analog radio system that is not compliant with P25.

Using P25 technology will allow county users to communicate with other agencies and jurisdictions using P25, including San Luis Obispo and Ventura counties during

mutual aid events.

By most accounts the current City of Santa Barbara convetional analog radio system works well, although there are the usual interoperability problems with agencies using digital radios that become significant hindrances during large-scale events. When firefighters from other jurisdictions arrive with their P25 radios, the current analog system cannot directly support them, creating more work for dispatchers to relay messages between the different systems.

Coverage is also a problem in certain areas, where steep slopes, narrow canyons, ridge lines or other terrain features block or reflect signals from existing repeater sites. Unfortunately, these dead spots are also locations where the likelihood of wildfires is high.

Like many areas of California, Santa Barbara County suffers from a high risk of wildfires in the fall as well as mudslides during the rainy season. Within the county, wildland fire protection is divided up into about 792,000 acres of state responsibility area (SRA), 820,000 acres of federal responsibility area (FRA), and 146,000 acres of local responsibility area (LRA). These areas are often large and difficult to access due to steep topography and a lack of roads. Santa Barbara County is contracted with the State of California to provide fire protection in SRAs, meaning the county provides the initial response to fires within the SRAs. If the fire grows beyond what the county can handle, CAL FIRE provides additional firefighting resources.

The following analog frequencies are active in the county and will remain so until the new system is installed and comes on-line. Nearly any scanner made in the last 40 years should be able to monitor activity on these frequencies. Given the density of frequencies in VHF (Very High Frequency) and UHF (Ultra High Frequency), it may be quicker and easier to use the "search" feature of your scanner rather than programming in each individual frequency. Selecting the proper low and high frequency for the search, based on this frequency list, could save you some time and keystrokes. Monitoring county activity could also be a good opportunity to dedicate an older, non-trunking scanner that might not be getting much use rather than use a newer, trunking or digital-capable scanner just to follow conventional analog transmissions.

Frequency	Description
45.0800	County Animal Control
150.9950	County Fire Command 6
151.1000	Santa Barbara Public Works
151.3775	Montecito Fire Command 12
151.4900	Montecito Fire Command 13
153.7700	County Fire Command 1 (Dispatch)
153.8300	Montecito Fire Tactical 3
153.9050	County Fire Command 2
153.9800	County Fire Command 3
154.0400	Santa Barbara Fire Command 3
154.0700	Lompoc Fire (Command)
154.0850	Santa Barbara Parks
154.1300	Wildland Residents Association Fire (Tactical)
154.1900	County Fire Tactical 13
154.2200	Guadalupe Fireground
154.3100	Santa Barbara Fire Command 2
154.3550	Montecito Fire Command 11 (Dispatch)
154.4150	Wildland Residents Association Fire (Dispatch)
154.4300	Lompoc Fire (Dispatch)
154.4450	Santa Barbara Fire (Dispatch)
154.6500	County Fire Tactical 9
154.8450	County Fire Tactical 8
154.8750	County Fire Command 5
154.9200	Sheriff Search and Rescue
155.0850	Montecito Fire Tactical 4
155.1900	Santa Barbara Fire Tactical 4
155.1600	Sheriff Search and Rescue
155.5950	County Fire Tactical 7
155.6100	Santa Barbara Fire Tactical 5
155.6400	County Fire Tactical 10
155.8800	Lompoc Fireground
155.9700	County Fire Tactical 15
156.1350	County Fire Command 4
159.0750	County Fire Tactical 12
453.0500	Santa Barbara Harbor Patrol
453.3250	Tajiquas Landfill
453.3750	Lompoc Electric Operations
453.4750	Lompoc Electric Distribution
453.5750	Lompoc Transit
453.6000	County Office of Emergency Services
453.8250	Lompoc Public Works (Channel 1)
453.9000	Santa Barbara Downtown Parking Lots
453.9750	Lompoc Public Works (Channel 2)
460.0500	Sheriff Emergency All Agencies (repeated in adjacent counties)
460.1000	Santa Barbara Police (Dispatch)
460.1250	Lompoc Police (Dispatch)
460.1750	Sheriff (South County Tactical: Carpinteria, Isla Vista)
460.2250	Sheriff (North County Tactical: Lompoc, Santa Maria)
460.2750	Sheriff (Dispatch)
460.3000	Sheriff (Tactical: Santa Ynez)
460.3250	Sheriff (Secondary and Records)
460.4000	Santa Barbara Police (Secondary)
460.4250	Lompoc Police (Tactical)
460.5500	Santa Barbara Police (Airport Patrol)
460.5125	Wildland Residents Association Fire (Remote Link)
460.6125	Santa Barbara Transfer Station (Landfill)
462.5000	Community Awareness Emergency Response (CAER)
462.9500	County Emergency Medical Services (Tactical)
462.9750	County Emergency Medical Services (Dispatch)

463.1000	County Emergency Medical Services (Santa Barbara)
463.1250	County Emergency Medical Services (Santa Ynez, Goleta)
463.1500	County Emergency Medical Services (Lom poc Community)
463.1750	County Emergency Medical Services (South County Tactical)
851.2125	County Animal Control (North)
852.2125	County Road Department (South)
853.2125	County Facilities (South)
853.7875	Countywide Public Works (North)
858.9625	Sheriff Main Jail (Santa Barbara)
866.2125	County Health Department (Hospital Coordination)

Santa Maria

Santa Maria, the most populous city in Santa Barbara County, operates the Central Regional Interoperability Communication System (Central RICS). It is a Project 25 Phase II trunked radio system operating in the 700 MHz band on eight frequencies: 769.33125, 769.59375, 770.53125, 771.05625, 771.43125, 771.75625, 772.06875 and 772.54375 MHz.

The installation of the core radio network from Motorola was completed in 2017 and uses repeater sites on Betteravia Road and at Los Flores Ranch.

Santa Maria has expressed an interest in expanding the system along the Central Coast by establishing cost-sharing partnerships with other agencies and departments to fully utilize the radio system and the dispatch center. The center has a staff of 21, including 15 dispatchers, and handles more than 100,000 calls for service each year.

City agencies use the following talkgroups (note that police transmissions are typically encrypted and thus cannot be monitored):

Decimal	Hex	Description
101	065	Santa Maria Police (Dispatch)
102	066	Santa Maria Police (Records)
201	0C9	Santa Maria Fire (Dispatch)
202	0CA	Santa Maria Fire (Command)
203	0CB	Santa Maria Fire (Paging)
206	0CE	Santa Maria Fireground
317	13D	Santa Maria Park Rangers
325	145	Los Flores Ranch
328	148	Santa Maria Solid Waste Services
329	149	Santa Maria Landfill
404	194	Santa Maria Transit Repair Shop
405	195	Santa Maria Transit Buses
407	197	Santa Maria Dial-A-Ride

In addition to the P25 Phase II system, there are conventional (non-trunked) analog transmissions carrying city activity:

Frequency	Description
150.7900	Santa Maria Fireground (Mutual Aid)
154.3550	Santa Maria Fire Dispatch (Mutual Aid)
154.4000	Santa Maria Fire Command 3 (Backup to trunked system)
154.7250	Santa Maria Fire Command 2 (Patched to trunked system)
155.1000	Santa Maria Fire Command 4 (Backup to trunked system)
453.9500	Santa Maria Area Transit

Because the city radio system is compliant with P25 standards, it will be capable of directly interoperating with the county system when it eventually becomes operational. It will be interesting to see how interoperability is established with the Santa Maria Police Department, since encryption complicates the process. In order to be able to communicate directly, either (a) the County radios would need to be loaded with the same encryption keys used in the Santa Maria radios or (b) mutual aid transmissions would be sent "in the clear" without encryption. Keeping encryption keys synchronized between agencies can be logistically challenging if the keys are changed regularly, as good security practice recommends. Although there are software tools that can deliver keys to radios remotely over the air, in the urgency of a mutual aid event some users could discover that the encryption keys they have are out of date.

Lompoc

The Federal Correctional Complex Lompoc, a medium-security federal prison, operates a Motorola Type II SmartZone system on the following frequencies: 406.6125, 406.8125, 407.0500, 408.0125, 409.4125, 409.8125 and 410.0000 MHz.

Some scanners may require a custom frequency table to track the system properly. Use a base frequency of 406.0000 MHz, channel spacing of 12.5 kHz and an offset of 380. A few talkgroups have been monitored:

Decimal	Hex	Description
16	001	Corridor Control
32	002	Compound Operations
48	003	Operations Control
64	004	Maintenance
16032	3EA	Compound 1 and Compound 2 Interoperability
16048	3EB	Front Entrance
16064	3EC	Maintenance