



# Radio System Needs Evaluation Workshop

February 2017

# Radio System Needs Evaluation

## Purpose

- Review the Findings of the 2016 Evaluation of the City's Radio Network
- Aging Infrastructure
- City Operational Needs
- Informational/High Level

## CDX Wireless Technology Consultants

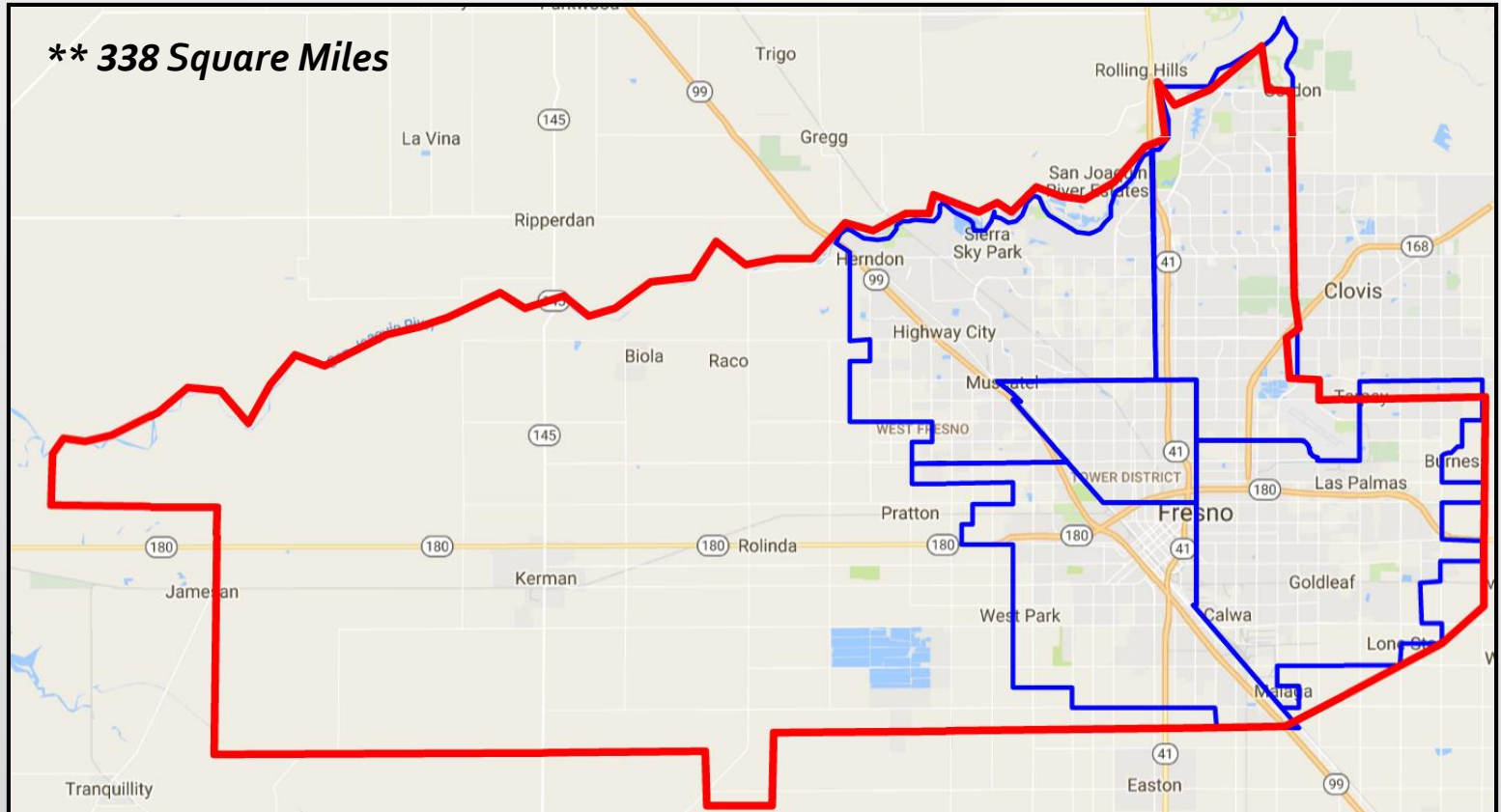
- Selected from RFP Process
- Based in Pleasanton, California
- Specialize in Radio/Microwave Planning, Upgrade & Maintenance
- Evaluated City of Fresno Systems
  - Interviewed Client Departments
  - Physically inspected all fixed equipment at 16 sites
  - Inspected dispatch centers and interviewed staff
- Produced 3 Reports (Confidential)

# Evaluation

## Departments Involved/Evaluated

- Fresno Fire Department
- Fresno Police Department
- Fresno Yosemite Airports Public Safety
- Department of Public Works
- Department of Public Utilities
- Transportation Department
- Information Services Department

# Service Areas



**Fresno Fire Department**

**North Central Fire Protection District**

**Fresno Police Department**

**City of Fresno Operations**

# Methodology

## **Evaluated City Areas of Service**

- 338 Square Miles
- Microwave Backbone

## **Evaluated Interoperability**

- Region
- City of Clovis
- County of Fresno

## **Evaluation Provided 3 Reports**

- Overview/Description of System
- Established Four Recommendations
- Offered Lifecycle/Support Plans

# City of Fresno Issues/Findings

## Aging Infrastructure

- Microwave Backbone
  - End of life/support
  - Needs upgrade replacement
  - Emergency batteries end of life
- Radio Consoles (Zetron)
  - Windows XP computers have more than 11 years of 24x7 service
  - Needs upgrade of obsolete technology

## Radio Interference

- Current frequency bands lend themselves to interference
- Other agencies using the same frequencies interfere with City communications

## Coverage Issues

- Areas of the City lacking coverage brought to a critical stage by City growth and FCC mandated narrow banding in 2012

# Covered Components

## Radio Consoles (Zetron Network)

- Network includes Sheriff, EMS, and Clovis
- Multi agency committee received presentations from four manufacturers

## Backhaul (Alcatel Microwave Network)

- System end of life and refresh of major components required
- Approximately \$3,500,000

## Fixed Two Way Radio Equipment (Tait TB9100)

- Network of voting receivers
- Transmitters

## Subscriber Equipment (Portable and Mobile Radios)

- Radio Site Infrastructure
- Towers
- Buildings
- Emergency Generators
- Backup Batteries and UPS units

# Alternatives

## **ALTERNATIVE #1: Shared 700 MHz P25 Trunked System**

- Citywide (multiple departments)
- 700 MHz Project 25 Shared Trunked Simulcast System
- Serving All Public Safety, Public Works, and Public Utilities Users

## **ALTERNATIVE #2: Fire P25 700 MHz/Police P25 UHF System**

- 700 MHz Project 25 Conventional Simulcast System for Fire
- UHF Project 25 Conventional Simulcast System for Police, Public Works, and Public Utilities Users

## **ALTERNATIVE #3: Fire P25 VHF/Police P25 UHF System**

- VHF Project 25 Conventional Simulcast System for Fire
- UHF Project 25 Conventional Simulcast System for Police, Public Works, and Public Utilities Users

## **ALTERNATIVE #4: Expanded As-Is System**

- VHF Analog Conventional Simulcast System for Fire
- UHF Analog Conventional Simulcast System for Police, Public Works, and Public Utilities Users



# Alternatives – Estimated Costs

Alternative	Public Safety, PW and DPU	All City Departments
<b>ALTERNATIVE #1:</b> Shared 700 MHz P25 Trunked System	\$22.7 Million	\$27.9 Million
<b>ALTERNATIVE #2:</b> Fire P25 700 MHz/Police P25 UHF System	\$25.1 Million	\$30.3 Million
<b>ALTERNATIVE #3:</b> Fire P25 VHF/Police P25 UHF System	\$24.1 Million	\$29.3 Million
<b>ALTERNATIVE #4:</b> Expanded As-Is System	\$23.2 Million	\$27.8 Million

- **Preferred Solution - ALTERNATIVE #1:**
- All costs are estimates – No bids have been obtained

# Next Steps

## **Further Evaluation/Engineering of Alternative #1**

- Finalize Cost Allocation and Financing Strategy
- Phased Approach
- Short Term Improvements
  - Microwave Replacement \$3.5 m
  - Vote Scan Improvements

**Ensure Interoperability with Neighboring Agencies**

**Develop Plan of Implementation**

**Determine Method of Funding**



**Thank You!**

**Questions/Comments**