Public Safety Radio System

Harold Theus, Chief

Background

- **Owners on December 28, 2023**
- **Evaluating the status of the equipment and system**
  - Radio Tower Inspections
  - Monthly meetings with Motorola, Tri-Communications and our consultant
  - Hiring search for a Radio System Manager
  - Executed User Agreements with the 9 partners of the system
  - Moving and isolation of equipment at the 3-colocation sites

Background

- **Alachua Sheriffs Office**
  - Heavily involved-early on Radio Technician Shop
  - Subject Matter Experts
  - Radio Maintenance Program and Oversight of the County's Radio Trunking System- September 2024

Tower Site- Maintenance

- **Ongoing Maintenance of County operated sites**
  - UPS system repair
  - UPS Replacement at another site
  - Generator maintenance at all sites (new agreements)
  - Addition of Back-up Firewall server
  - Transfer Switch replaced
  - HVAC repairs

Tower Site Enhancements

- **Needs- 5 sites**
  - Updated Fire Alarm System
    - (ACFR & Public Works)
  - Monitoring systems
    - Environmental
    - System
    - Security

Co-Location Tower Sites (GRU)

- **Prime site**
  - Replacement of ATS switch
  - Replacement of UPS batteries
  - Autonomous monitoring devices of power supply
  - Generator repair, maintenance and load testing

Radio System Update

- **In 2024, Alachua County acquired from GRU, a 6 site, 13 channel, trunked simulcast ASTRO 25 (P25 Phase 1) system utilizing Motorola Solutions' G-Series (GTR 8000 Based Radio) equipment configuration at its simulcast sub-sites**
  - The last major system overhaul took place in 2018, upgraded to P25
  - Multi year service agreement established in 2020, expires October 2026
  - Today, GRU provides all network and fiber for the radio system (5 Yr Agreement)

Radio System Challenges

- **System Resilience**
  - Today, the Master Site, Prime Site, are all in the same location
  - Risk of system outages, failure, down-time and lack of coverage
- **Redundancy and backup**
  - The County relies solely on the GRU Network and monitoring of that network for the radio system
- **Coverage**
  - Increased growth since the system was designed has caused coverage gaps in certain parts of the county.
- **Lifecycle Upgrades**
  - Planning for required upgrades for 5 to 10 year life cycle.

Radio System Solutions

Maximize Efficiency, Increase Reliability, Minimize Footprint

- **Virtual Prime**
  - Creates fewer potential points of failure. Requirement for future software enhancements.
- **Geographically Redundant Prime**
  - Continuity of simulcast subsystems in event of prime site failure.
- **Multiprotocol Label Switching (MPLS)**
  - Backhaul system to reduce dependency on GRU's MPLS system.
- **Cirrus Central Core**
  - Backup system for CCC in the event of failure. Geo-redundant cloud backup maintains P25 communications.

Costs

- **Option 1**
  - Virtual Prime, Geographically Redundant Prime, MPLS
    - Approximately $2,100,000
- **Option 2**
  - Virtual Prime, Geographically Redundant Prime, MPLS, Cirrus Central Core
    - Year 1- Approximately $2,750,000
    - Year 2-5- Approximately $175,000 per year
    - Tower sites- Approximately $125,000 (all sites)
    - Recurring expense for connectivity
- **Option 3**
  - Virtual Prime, Geographically Redundant Prime, MPLS, Cirrus Central Core
    - Five Year package price- $3,107,711
    - Tower Sites- Approximately $125,000 (all sites)
    - Recurring expense for connectivity

Future Enhancements

- **5-year plan and upcoming expenses:**
  - Cyber Security for Astro
  - SUA Agreement-Renewal 10/2026
  - AXS Dispatch Consoles- 2029
  - Tower Expansion-2030
    - APX Next Radio’s

Funding Options

- Infrastructure Surtax
- Resiliency Grants (Federal & State)
- Increase to Law Enforcement MSTU
- Increase to Fire Special Assessment
- One time User Assessment Charge
- Bonds