Flagler County
Board of County Commissioners
Workshop
(Special Meeting to Follow)
Monday, November 13, 2017 at 3:00 p.m.
Emergency Operations Center, Building 3, 1769 E. Moody Blvd., Bunnell, FL 32110

Workshop Agenda

1. Call to Order
2. Pledge to the Flag and Moment of Silence
3. Welcome: Flagler County Board Chair
4. 800 MHz Radio System P25 Phase II Upgrade Discussion
5. Public Comment
6. Adjournment

While this is a workshop only and no decisions are expected to be made by any of the governmental bodies, if a person decides to appeal any matter that may be discussed for a future proceeding, a record of the workshop may be needed and, for such purposes, the person may need to ensure that a verbatim record of the workshop is made.
Flagler County
Board of County Commissioners
Special Meeting
Monday, November 13, 2017 Following Workshop
Emergency Operations Center, Building 3, 1769 E. Moody Blvd., Bunnell, FL 32110

Special Meeting Agenda

1. Call to Order
2. Public Comment
3. Request the Board take actions as deemed necessary regarding issues discussed at the workshop this date.
4. Adjournment

Section 286.0105, Florida Statutes states that if a person decides to appeal any decision made by a board agency, or commission with respect to any matter considered at a meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.
Public Safety Communications Network Consultant

P25 Radio System
Needs Assessment and Recommendations

Jarrod Shupe
Flagler County IT
Project Manager

Lew Phillips
Omnicom Consulting Group, Inc.
AGENDA

• GOALS OF NEW RADIO SYSTEM
• AGENCIES INVOLVED IN THE PROJECT
• TECHNICAL OVERVIEW OF RADIO COVERAGE TERMINOLOGY
• TOWER SITES SELECTED FOR THE COVERAGE STUDY
• BACKHAUL NETWORK DESIGN OBJECTIVES
• PRELIMINARY COVERAGE DESIGN MAPS
• QUESTIONS AND DISCUSSION
OVERVIEW OF THE NEW RADIO SYSTEM

• REPLACE OUR EXISTING PROPRIETARY HARRIS EDACS, 8 CHANNEL SYSTEM THAT IS AT IT’S END-OF-LIFE WITH AN ASSOCIATION OF PUBLIC SAFETY COMMUNICATIONS OFFICIALS (APCO) PROJECT 25 (P25) PHASE 2 OPEN STANDARD ARCHITECTURE, 10 CHANNEL SYSTEM.

• THIS P25 PHASE 2 STANDARD ALLOWS FOR DOUBLE THE TALK PATHS, INCREASING FROM 7 TO 18, THUS ALLOWING US FOR FUTURE GROWTH AND TO MEET ANY FUTURE FCC MANDATES ON SPECTRUM EFFICIENCY!
OVERVIEW OF THE NEW RADIO SYSTEM

• THIS SYSTEM ALLOWS FOR CHANNEL DATA ENCRYPTION FOR SENSITIVE OPERATIONS (LAW ENFORCEMENT, ETC.).

• THIS SYSTEM INVOLVES APPROXIMATELY 2100 RADIOS AND 15 DISPATCH CONSOLES AT THE PRIMARY AND BACKUP DISPATCH CENTERS.
GOALS OF NEW RADIO SYSTEM

• ORIGINAL SCOPE WAS TO PROVIDE A MINIMUM SERVICE AREA RELIABILITY (SAR) OF 90% PORTABLE (WORN AT THE HIP, STANDING) OUTDOOR COVERAGE WEST OF US1 AND 95% PORTABLE INDOOR (15DB LOSS) COVERAGE EAST OF US1.

• BASED UPON DISCUSSIONS AND DOCUMENTED FINDINGS FROM THE NEW PROPOSED TOWER PLACEMENTS, WE BELIEVE WE ARE ABLE TO PROVIDE A MINIMUM SAR OF 97% FOR PORTABLES OUTDOORS WEST OF US1, AND 95% -15DB BUILDING PORTABLE IN-BUILDING COVERAGE EAST OF US1.
GOALS OF NEW RADIO SYSTEM

(Cont’d)

• Improve the overall reliability of the radio system

• Improving system core redundancy by requiring geo-redundant cores at 2 different tower sites

• Improving microwave backhaul reliability by utilizing ring topology (redundancy) and incorporating county-owned fiber into the network design

• Build new multi-tenant towers that are Cat 5 rated upwards of 160+mph wind speeds

• Install a conventional P25 repeater at 3 towers for backup redundancy.

• Plan for existing big box stores, schools, and the hospital coverage needs by utilizing bi-directional amplifiers for public safety radio system usage indoors.
PROPOSED SYSTEM COVERAGE
GOALS OF NEW RADIO SYSTEM (CONT’D)

• IMPROVE INTEROPERABILITY WITH AGENCIES FROM SURROUNDING COUNTIES
  • INTERCONNECT OUR SYSTEM WITH ST. JOHNS’ EXISTING P25 SYSTEM
  • INTERCONNECT OUR SYSTEM WITH PUTNAM’S SYSTEM (IN PROGRESS).
  • INTERCONNECT OUR SYSTEM WITH VOLUSIA’S SYSTEM AT A FLAGLER COUNTY CO-LOCATED TOWER LOCATION (IN PROGRESS).
  • ALLOW FOR CONNECTIVITY TO STATE AND FEDERAL AGENCIES, AS NECESSARY.
  • INCREASE OUR 800 MHZ NATIONAL MUTUAL AID CAPABILITIES FROM 1 CHANNEL TO 4 DISTRIBUTED CHANNELS.
GOALS OF NEW RADIO SYSTEM (CONT’D)

• INCREASE OUR COST EFFICIENCY

• INCORPORATE NEW COUNTY OWNED TOWER FACILITIES ON COUNTY PROPERTIES

• COST SAVINGS FROM RENTING ON NON-PUBLIC SAFETY GRADE TOWERS, SAVING OVER $4.2 MILLION OVER 15 YEARS.

• ALLOW FOR SPACE ON MOST NEW TOWER SITES TO BE AVAILABLE FOR RENT BY WIRELESS PROVIDERS, RADIO SYSTEM OPERATORS, AND OTHER FEDERAL, STATE, AND UTILITY PROVIDERS.

• POSSIBLY RENT OR LEASE RADIOS TO AGENCIES, ALLOWING FOR COST SAVINGS UPON SYSTEM PURCHASE, AS WELL AS INSTITUTE A RADIO SUBSCRIBER FEE TO ALL SYSTEM USERS TO ASSIST WITH STAFFING AND RADIO MAINTENANCE COSTS.
GOALS OF NEW RADIO SYSTEM (CONT’D)

• UPGRADE OUR EXISTING TECHNOLOGIES

  • REPLACE OUR AGING, END-OF-LIFE SYSTEM WITH THE MOST MODERN STANDARD

  • REPLACE OUR AGING, END-OF-LIFE RADIOS WITH THE MOST MODERN EQUIPMENT FINANCIALLY POSSIBLE. FIRE, LAW ENFORCEMENT, AND NON-PUBLIC SAFETY ALL HAVE DIFFERENT RADIO NEEDS WHICH SAVES MONEY!

  • ADD FEATURES LIKE GPS TRACKING, NOISE CANCELLING MICROPHONES, OVER-THE-AIR PROGRAMMING, VOICE ENCRYPTION, AND WIFI PROGRAMMING
GOALS OF NEW RADIO SYSTEM (CONT’D)

• UPGRADE OUR EXISTING TECHNOLOGIES

• ALLOW FOR UPGRADES TO NEWER TECHNOLOGY AS IT BECOMES AVAILABLE LIKE LTE DATA SYSTEMS AND ENHANCED PUBLIC SAFETY NETWORKS (I.E. FIRSTNET)

• FUTURE PROOF THE SYSTEM BY PREPLANNING FOR FUTURE SOFTWARE UPGRADES, HARDWARE/SYSTEM UPGRADES, AND RADIO REPLACEMENTS ON PREDETERMINED SCHEDULES.

• ALLOW FOR EXTRA DATA BANDWIDTH ON THE SYSTEM TO BACKHAUL NETWORK TRAFFIC FOR USE AT PARKS, COMMUNITY STATIONS, FIRE STATIONS, ETC. FOR CAMERAS AND INTERNET.
AGENCIES INVOLVED

WE HAVE BEEN HAVING TEAM MEETINGS AT LEAST MONTHLY WITH THE FOLLOWING ENTITIES:

- FLAGLER COUNTY BOCC (INNOVATION TECHNOLOGY, EMERGENCY MANAGEMENT, TRANSPORTATION, FLEET, LAND MANAGEMENT, PUBLIC WORKS, SOLID WASTE, PARKS, AIRPORT, ADMINISTRATION)
- FLAGLER COUNTY FIRE RESCUE
- FLAGLER COUNTY SHERIFF’S OFFICE
- CITY OF PALM COAST (FIRE, PUBLIC WORKS, ETC.)
- CITY OF BUNNELL (POLICE, PUBLIC WORKS)
- CITY OF FLAGLER BEACH (POLICE, FIRE)
- FLAGLER COUNTY SCHOOL BOARD - TENTATIVE
OVERVIEW OF COVERAGE

TERMINOLOGY

• DELIVERED AUDIO QUALITY (DAQ)
  • RECOMMEND DAQ 3.4 FOR PUBLIC SAFETY. THIS MEANS THAT SPEECH IS UNDERSTANDABLE WITHOUT REPEATING A TRANSMISSION. SOME NOISE OR DISTORTION MAY BE PRESENT

• SERVICE AREA RELIABILITY (SAR) (SERVICE AREA = FLAGLER COUNTY)
  • 97% TO THE WEST OF US1
  • 95% TO THE EAST OF US1
OVERVIEW OF COVERAGE TERMINOLOGY (CONT’D)

• BUILDING LOSSES
  • LIGHT, MEDIUM, AND HEAVY BUILDINGS (-10DB, -15DB, AND -20DB)
    (I.E. THE HUMAN BODY IS -3, A CONCRETE WALL IS -10 TO -15, A METAL DOOR IS -6, A WOODEN DOOR IS -3, A SHEETROCK WALL IS -6, A GLASS WINDOW IS -3)
TOWER SITES SELECTED FOR COVERAGE STUDY

WE LOOKED AT AVAILABLE LAND THROUGHOUT THE COUNTY AND CAME UP WITH THESE STRATEGICALLY PLACED TOWER LOCATIONS:

• NEW 250’ TOWER ON THE COUNTY PARCEL AT MATANZAS WOODS PARKWAY NEAR I-95
• NEW 350’ TOWER ON THE COUNTY PARCEL NEAR CODY’S CORNER
• NEW 190’ TOWER ON THE COUNTY PARCEL AT PLANTATION BAY
• NEW 350’ TOWER ON THE COUNTY PARCEL NEAR THE INTERSECTION OF HIGHWAY 100 AND COUNTY ROAD 305
• NEW REPLACEMENT 215’ TOWER AT THE COUNTY JAIL ADMINISTRATION PARCEL
• NEW REPLACEMENT 160’ TOWER AT THE COUNTY MOODY BLVD CAMPUS
BACKHAUL NETWORK DESIGN

OBJECTIVES

• IMPROVING MICROWAVE BACKHAUL RELIABILITY BY UTILIZING RING TOPOLOGY

• THIS ALLOWS FOR A REDUNDANT CONNECTION TO AND FROM EACH TOWER

• FIVE 9’S RELIABILITY (NO MORE THAN 5.26 MINUTES DOWNTIME PER YEAR)

• INCORPORATE COUNTY-OWNED FIBER INTO THE NETWORK DESIGN

• RESERVE BANDWIDTH FOR FUTURE COUNTY PROJECTS LIKE WIFI, INTERNET, AND CAMERAS AT COUNTY FACILITIES AND PARKS
PROPOSED MICROWAVE BACKHAUL NETWORK
TENTATIVE SCHEDULE

• NOVEMBER 2017 – RELEASE RFP
• JANUARY/FEBRUARY 2018 – RFP’S RESPONSES DUE AND BID AWARD
• 2018 – SITE WORK AND BUILD TOWERS, COUNTY STAFF APPROVAL OF SYSTEM AT VENDORS TESTING SITE
• QUARTER 1 & 2 2019 – RADIO SYSTEM INSTALLATION
• SUMMER 2019 – RADIO SYSTEM TESTING
• FALL 2019 – RADIO SYSTEM IMPLEMENTATION
• EARLY 2020 – REMOVE OLD RADIO SYSTEM TOWERS, EQUIPMENT, AND SHELTERS
• 2021 – END OF LEASES WITH EXISTING TOWERS
COSTS AND FINANCING

• WE ARE STILL FINALIZING OUR COST ESTIMATES.

• STAFF WILL BRIEF EACH COMMISSIONER INDIVIDUALLY AS THEY ARE FINALIZED.

• WE WILL NOT BE RELEASING COST ESTIMATES UNTIL AFTER THE RFP RESPONSES HAVE BEEN RECEIVED AND PRESENTED TO THE BOARD FOR APPROVAL.
QUESTIONS AND DISCUSSION