

RADIO PROJECT

Historical Information

- It is unknown when current dispatch radio components were installed. RFP documents were located that suggest the current radio consoles were purchased around 1984. No records of updates or upgrades were located, however; staff remembers some modifications were made around 2001 or 2002.
- In late 2009, Southeast Instruments (R. Thynes) was commissioned to provide an inspection of and report on Petersburg Police Department electronic equipment. The report was completed and dated January 20, 2010. It was located and read beginning January 6, 2015. Existing staff was not aware that a study had taken place or deficiencies identified.
 - The purpose of the report was to inventory existing equipment, prepare as-built documentation, identify deficiencies and recommend repair or replacement as needed, and to provide estimates for suggested repairs and replacements. Grant funds were used for the project.
 - The report identified several deficiencies and suggested remedies for the deficiencies with estimated costs. Deficiencies included defective antenna systems. Further, the study indicated that, if not corrected, deficiencies could damage other components. No evidence of suggested repairs was located and staff could not remember repairs being made.
- Association of Public Communications Officers (APCO) issued initial Project 25 (P25) Statement of Requirements on January 17, 2002. The requirements were updated multiple times with the most recent update being March 3, 2010. APCO has no regulatory or enforcement authority, however, federal mandates require P25 compliance to receive grant funds for communications equipment. P25 is an interoperability standard and may be accomplished in phases.
 - Three Phase Process
 - Phase 0 – Equipment currently used prior to P25 requirements
 - Phase 1 – Common air interface using 12.5 kHz (analog) due Jan 1, 2013.
 - Phase 1.5 – Digital 12.5 kHz not specified – currently what Alaska State Troopers use via ALMR. (Unofficial phase, part of “smooth transition to digital” requirement.
 - Phase 2 – Digital common air interface 6.25kHz. No due date mandated as of yet. Industry projections suggest a timeframe of 2018 – 2022 for mandated compliance.
- City of Petersburg began process to comply with narrowband FCC mandates of APCO P25 Phase 1 requirements, due Dec 31, 2012, on Sept 12, 2012 by issuing an RFP for consultation. Section 3.2 of the RFP required the selected consultant to renew all radio licenses, or receive assistance from the City of Petersburg in renewing all license as mandated by FCC regulations.

- Sept 18, 2012 an RFP addendum was issued. The addendum required line item recommendations including, at the selected consultant's discretion, consideration of future FCC mandates to achieve the 6.25 kHz standard.
- ACE (G. Whitethorn) submits a transmittal on Sept 21, 2012. The transmittal indicates that it is understood that the selected consultant will evaluate the existing radio inventory and make recommendations for replacement of radios that cannot meet the 12.5 kHz FCC mandate. Further, the consultant will prepare bid documents for specifications and quantity of replacement equipment.
- ACE was selected and the professional services contract is signed Oct 2, 2012. Payment not to exceed \$9,800.00
- Oct 5, 2012 and Oct 11, 2012 FCC acknowledges receipt of application to modify the bandwidth (BW) designator.
- Nov 5, 2012 ACE identified 182 radios as obsolete as they could not be reprogrammed to meet the Jan 1, 2013 deadline. ACE recommended that the City of Petersburg determine which of those obsolete radios will be required beyond the deadline and prepare bid documents to replace, program, and install obsolete units.
- Nov 20, 2012 ACE was awarded a professional services contract for radio replacement and reprogramming. Payment not to exceed \$113,375.00.
- Dec 7, 2012 an amendment was issued to increase the number of replacement radios. The additional number was listed at a total not to exceed 7 mobile and 9 handheld radios. Maximum payment was listed at \$7,615.00.
- Total project estimate \$130,790.00.
- The project was completed and ACE was issued payments on Nov 21 and 29, 2012 as well as Jan 17, 2013 for a total of \$129,974.00. Equipment was purchased and installed that met the 12.5 kHz (analog) requirements listed in the RFP.
- No mention of 6.25 kHz consideration was located.

Current Situation

- Following narrow banding completion, sporadic complaints from end users tentatively identified "dead zones."
- March 2014 PVFD responded to the hatchery fire. The fire served as a reminder that emergency responses will be made, at times, outside of Service Area 1. Further the Borough provides law enforcement services contractually to the US Forest Service outside of Service Area 1, but primarily along the road system, on an ongoing seasonal basis. Brief discussions were held

regarding the need for radio coverage outside of the existing service area. No decisions were made.

- March 2014 ProComm was contacted to provide informal cost estimates of dispatch needs for building renovation project.
- Although existing public safety equipment meets narrow banding requirements it does not meet P25 Phase 1 requirements in whole and does not meet Phase 2 mandates. Further APCO suggests that, *"Phase 1 equipment facilitate a graceful and gradual migration from analog to digital."* Icom portables purchased during the 2012 narrow-banding project are not listed by Icom as P25 compliant.
- As radio components will have to be moved during the renovation of the municipal building, the decision was made to explore the feasibility of moving repeater components to the fire hall permanently as well as adding a repeated channel for Fire & EMS Operations. Repeated Fire and EMS capability would serve as a foundation in the event radio coverage needs to be expanded, and should aid in providing more consistent coverage (eliminating current gaps) within the existing service area.
- As the equipment needed to be moved, we also explored the feasibility of purchasing Phase 2 compliant equipment for installation as part of the building renovation, rather than initially installing non-compliant equipment and later uninstalling and installing compliant equipment needed to meet the upcoming deadline.
- To take advantage of digital mandates, as well as complying with backwards compatibility requirements, the decision was made to explore the feasibility of purchasing Phase 2 compliant portables for sworn staff as well as Fire and EMS command staff. In the spirit of interoperability and cost, Motorola APX radios were selected. In addition, the Motorola portables are able to be digitally secured which would allow confidential transmissions. APX radios are *standard equipment* across the state as they are used by Alaska State Troopers and many other government agencies. Further, the APX radios are Western States Contracting Alliance (WSCA) approved for purchasing. Using standardized equipment will allow us to enjoy familiarity as well as share components and accessories with other agencies that may respond to Petersburg to provide assistance.
- Funding was requested and approved during the budgetary process to purchase APX portables and to move radio components to the fire hall, as well as adding a repeated Fire/EMS channel. The amount approved was \$82,429.00. The amount included purchasing and full installation of equipment as well as reprogramming and tuning all public safety radios.
- It was later determined that the existing tower at the fire hall could not sufficiently support new repeater components, though they could be mounted directly to the building. In response to this discovery, grant funding was requested and awarded for installation of a new tower at the fire

hall that would support current and future needs. Grant funds were awarded for the tower portion of the project only and did not cover the purchase of additional portable radios.

- Southeast Instruments study was located and reviewed. Staff was contacted as part of the review. No current staff remembered the study and none remember any sort of action or repairs to the radio system that would have corrected identified deficiencies. The tower project recommended to the assembly in 2014 included new antennas as were identified in the 2010 study.
- On 1/15/15 G. Whitethorn and I met to discuss our current system and proposed changes. We agree that our current coverage issues are most likely due to the condition and location of existing antennas or cabling. New portable radios themselves will not solve coverage deficiencies. Whitethorn indicated he did not consider the transition to 6.25kHz in future APCO / FCC mandates as there was no deadline requirement for the transition. If or when a deadline is set for Phase 2 as currently written, new radio components will be required to maintain compliance.
- Whitethorn and I both believe moving current antennas to a more suitable location and adding a repeated Fire/EMS channel will provide adequate coverage for Service Area 1 and could be expanded to provide extended coverage for outlying areas if need be. Whitethorn prioritized four locations he believed would be suitable for repeater / antenna locations.
 - Lindenberg
 - Mountain top location should provide comprehensive area-wide coverage.
 - Tower space would need to be rented.
 - Power provided by generator system. Current generators may not be adequate and additional generators could be required.
 - Requires helicopter support for maintenance and refueling and as such would require an accessible secondary system to cover in the event of outages.
 - Initial costs are unknown as of yet.
 - Annual costs: \$9,000.00 based on current PML&P rental rates for their antennas.
 - Hammer & Wikan
 - Tower is already constructed and provides higher antenna placement than other local options.
 - Tower is managed by SBA and space may need to be rented.
 - Annual costs: \$24,000.00 based on estimate provided by SBA.
 - Space for public safety equipment may be available without cost due to pending property disputes; however, there is no specified timeline defining when space would be available.
 - Propagation studies have not been completed to determine actual suitability.
 - Fire Station
 - Provides higher antenna placement than current location which would increase coverage.
 - Borough owns and maintains the facility.
 - Grant funding already authorized for construction costs.
 - FEMA location approval granted.

- RFP has been released and closed without receiving bids
- Initial costs not covered by grant have been budgeted and approved.
- No propagation issues.
- No significant annual costs.
- Public Works
 - Current location; owned and maintained by borough.
 - Tower elevation should be higher.
 - Deficiencies exist that were identified in 2010 study.
 - No significant annual costs.
- On 1/27/15, Whitethorn came to the police department and began initial trouble shooting which revealed one base station at the police department is not transmitting. The issue may stem from deficiencies Thynes identified in 2010. There is a secondary base station in place and in service. Further, antenna connections were also checked and tightened and transmission quality seems better, but more investigation is required. Whitethorn also attempted to locate reported dead spots and to duplicate issues related to earlier complaints. We are not yet able to recreate those deficiencies.
- March 23, 2015 – Email from ProComm to Ryan Welde regarding programming of new fire department mobile. A ProComm check of our channel lineup indicated potential licensing issues that could violate FCC guidelines and/or regulations, resulting in significant fines to the Borough. ProComm was contacted to determine if actual violations exist and if corrective steps need to be taken. ProComm will provide an estimate for a formal assessment to evaluate existing equipment.
- As of April 27, 2015 there have been no bids on the tower project. Ofc. Holmgren continues to coordinate with grant officials and vendors to ensure the tower is constructed.

Recommendations

- Complete tower project as budgeted to serve as a foundation for future expansion.
 - Replace defective antenna systems as identified, or repair base station as needed, and move current components to the fire station for \$23,468.00 as previously approved.
 - Add repeated channel to Fire/EMS line up.
 - Purchase 20 Motorola portable as previously identified for \$58,960.00. As a price has been pre-negotiated with the Western States Contracting Alliance (WSCA), no bid process is required under PMC 4.04.040(G).
 - Suggested Motorola radios are Phase II compliant.
 - Per Icom Government sales, Phase II compliant radios are not available from them. Icom is the brand provided by the local vendor.
 - Reprogram radios as needed and ensure all mobile (vehicle mounted) antennas are properly tuned. Associated costs are included in the cost of purchasing and installing repeater components at Station One.

- These steps should reduce our current issues and will serve as a foundation for future projects required for P25 compliance.
- Correct licensing issues identified by ProComm.
- Issue a Request for Specifications for comprehensive communication needs of the renovated municipal building. Components to be purchased should comply with current and anticipated P25 and FCC mandates to ensure public safety standards are met and to maintain grant eligibility.
- Potential grant funding for this equipment has been identified and the application process should be complete before June 1, 2015.