June 2024

Vermont Department of Public Safety – COPS TEP Grant Analysis

Background

- VT Department of Public Safety (DPS) received funding of $9,000,000 through DOJ's Office of Community Oriented Policing Services (COPS) in December 2022.
  - ""To provide funding for projects which improve police effectiveness and the flow of information among law enforcement agencies, local government service providers, and the communities they serve."
- The original budget and project periods extended through calendar year 2024 but were extended through 2025.
- Revisions to the originally approved programs have been developed and proposed to DOJ in March 2024 but have not yet been approved.

Proposed Projects (as of March 2024)

Project Number	Description	Amount
1A, 1B	Co-Location Site Resilience/Expansion	$550,279
2	Standby Generators	$240,000
3	P25 Simulcast Engineering	$621,000
4	Microwave System Improvements	$675,545
5	Battery and Rectifier Improvements	$294,462
6	Test Equipment	$300,000
7	Antenna Combiner Systems	$354,000
8	Grounding Improvements	$49,500
9A, 9B	Dispatch Improvements Consoles, Telephones	$748,504
10A, 10B	Statewide P25 Simulcast Hardware, Antennas	$4,703,902
11	Network Security	$75,069
12, 13	Project Management, Administration	$337,739
14	Independent Review	$50,000

Proposed Projects Grouped - Admin

Item	Project	Estimated Cost	Description
12	Project Management	$200,000.00	Administrative support to oversee execution of all projects
13	Administration	$137,739.04	In addition to the project manager, the initial proposal included support for a temporary state employee to assist with project fulfillment. This project would provide administrative support to execute the project as a Limited Service Position to support this project.
14	Independent Review	$50,000.00	Individual projects may require independent review pursuant to Vermont Statutes. ADS may, at its discretion, require IRs for specific individual projects if it deems that they are IT-related. Individual projects that may require IR are identified above.

Comments – Admin Projects

- These projects appear reasonable and necessary
- Independent review of grant proposals has been performed
- PM task is under contract

Proposed Projects Grouped - Reliability

Item	Project	Estimated Cost	Description
1A	Colocation Site Resilience	$124,161.25	This project consists of deployment of a redundant backhaul connection to nine (9) tower sites where RTS presently has only a single connection - 1 VELCO, 1 MW, 7 Cellular
2	Standby Generators	$240,000.00	This project calls for deployment of generators at nine sites, including delivery and installation
4	Microwave System Improvements	$675,545.00	This project calls for replacement of 27 existing microwave antennas. The current microwave antennas deployed throughout the network are susceptible to ice build-up. New high-performance antennas provide better performance and are less susceptible to ice build-up, which improves reliability. The project also includes a hardware upgrade of the 58 Nokia SAR routers, necessary to allow future software updates.
5	Battery and Rectifier Improvements	$294,462.00	This project includes Rectifiers and Batteries. It originally called for deployment of new batteries at 29 existing RTS sites. This project will be expanded to include the 10 VELCO expansion sites.
6	Test Equipment	$300,000.00	This project includes portable service monitors (10) with Vendor Network Analyzer (VNA).
8	Grounding Improvements	$49,500.00	This project involves services to analyze the site, determine necessary improvements, and implement these improvements at nine sites

Comments – Reliability Projects

- These projects appear reasonable and valid to improve site and network reliability
- These projects can be considered “foundational”
- The improvements will benefit:
  - VSP
  - Agencies that use the VSP network as their primary system
  - Agencies that use the VSP network for backup or when their primary system is unavailable:
- Recommendation: Ensure proper procedures are in place for non-VSP agencies to use the VSP network
- Recommendation: Explore opportunities for other agencies to co-locate on sites and/or share backhaul

Proposed Projects Grouped - Dispatch

Item	Project	Estimated Cost	Description
9A	Dispatch Improvements: Consoles	$576,678.20	This project includes the upgrade of the existing dispatch system in the VSP PSAPs in Westminster and Williston to incorporate telephone service within the LMR dispatch console
9B	Dispatch Improvements: Telephone	$171,825.98	This project includes the upgrade of the existing dispatch system in the VSP PSAPs in Westminster and Williston to incorporate telephone service within the LMR dispatch console
11	Network Security	$75,069.20	Projects 1 and 9 both require integration of the RTS MPLS network with other data networks. ADS maintains a separate network that reaches most police departments throughout the state. The ADS network and RTS network are currently not interconnected. With proper security management, these networks could be integrated.

Comments – Dispatch Projects

- Projects 9A and 9B address a dispatch issue in the two VSP PSAPs:
  - Entails updating existing consoles, replacing outdated internal phone system and streamlining dispatcher processes
  - This does not affect the handoff from E9-1-1 to dispatch
  - This change could benefit other PSAPs/Dispatch Centers
  - Recommendation: MCP should document this project, DPS's approach, and its potential applicability statewide

Comments – Network Security Project

- Project 11 address network security:
  - This project addresses security concerns associated with connecting the RTS MPLS network with other data networks
  - This project is necessary and reasonable
  - Similar projects will likely be necessary at other PSAPs/Dispatch Centers, especially for:
    - Regional dispatch capability
    - Dispatch backup/redundancy with multiple dispatch centers
  - Recommendation: MCP should document this project, DPS's approach, and its potential applicability statewide

Proposed Projects Grouped – P25 Upgrade

Item	Project	Estimated Cost	Description
1B	Colocation Site Expansion	$426,117.45	This project consists of expansion of the network by adding new tower sites. These sites would be connected with microwave backhaul links to existing RTS sites.
3	P25 Simulcast Engineering	$621,000.00	The scope of this project will be expanded to include determination of requirements for simulcast digital P25 operation in UHF LMR service for each of the VSP troop zones. Phase 1, Propagation analysis to determine optimal digital P25 simulcast parameters. Phase 1, Recommendation for antenna and combiner specifications to be deployed at all sites. Phase 2, Simulcast optimization configuration assistance including identification of proper timing and signal levels for all sites. These services will be provided after completion of Project 10.
7	Antenna Combiner Systems	$354,000.00	This project includes 22 RF combiners for the UHF antenna path. Combiners are required to enable multiple radios to transmit and receive using a single antenna mounted high on a tower. The move to simulcast increases the quantity of radios at each site, which increases the benefits of deploying combiners. Specifications for these combiners will be produced through the P25 engineering work, project 3.
10A	Statewide P25 Simulcast Hardware	$2,858,101.88	This proposed project would upgrade the existing VSP UHF LMR network. That network is currently operated as an analog multicast network. This upgrade would enable digital P25 simulcast service.
10B	Statewide P25 Simulcast Antennas	$1,845,800.00	Project assumes 136 antennas for 49 sites

Comments – P25 Upgrade/General

- Migration to P25, coverage and clarity improvements are all valid and beneficial
- The improvements will benefit:
  - VSP
  - Agencies that use the VSP network as their primary system
  - Agencies that use the VSP network for backup or when their primary system is unavailable
  - Agencies that leverage radio sites being upgraded
- Must have P25 capable radios to take advantage of benefits – confirm capability
- Ongoing maintenance costs need to be captured and budgeted
- Recommendation: DPS retain P25 engineering expertise to assist with the design and implementation of the upgrade

Additional Questions/Comments

Any additional modifications to the proposed grant activities must be carefully navigated - could negatively impact the implementation schedule and the grant funding

- Current projects under review to determine if they require environmental assessment

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