FB04 Department of Information Technology – Capital

Capital Budget Summary





GO: general obligation GF: general funds PAYGO: pay-as-you-go

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Key Observations

- *Existing Motorola Contract Expected to Be Extended:* The existing Maryland First Responders Interoperable Radio System Team (MD FiRST) contract with Motorola is set to expire in November 2025. The current Motorola contract includes both project work and system maintenance. The Department of Information Technology (DoIT) is planning to exercise a no-cost extension for one to two years for Motorola to complete the work currently under contract for the new radio sites that received funding in fiscal 2024 and 2025 as part of the Coverage Improvement Program. This extension does not extend the maintenance support portion of the contract.
- New Sole-source Motorola Maintenance Contract Under Review: During the 2024 session, DoIT noted that it was in the process of drafting and issuing a new request for proposals (RFP) with nine RFP functional areas to replace the current contract with Motorola that expires in November 2025. Since then, of the nine RFP functional areas, DoIT has determined that seven RFP functional areas are Motorola proprietary or situationally proprietary, as Motorola would be the only prospective bidder able to provide the services. As a result, the remaining two RFP functional areas have been incorporated into the Radio Master contract, and DoIT has received a sole-source six-year maintenance contract from Motorola. DoIT is currently reviewing the proposed new contract and expects to send the proposed contract to the Board of Public Works for approval in spring 2025. As DoIT expects to extend only the project work component of the current Motorola contract for one to two years at no cost, DoIT should comment on its contingency plan to cover MD FiRST's system maintenance component if the review and approval process for the proposed new Motorola maintenance contract extends beyond November 2025. DoIT should also comment if this contingency plan would accrue additional costs to the State.
- **Replacement Costs Not Included in Fiscal 2026 Budget:** DoIT notes that Motorola recently announced end-of-support dates for its dispatch consoles starting December 31, 2030, and base station radios starting December 31, 2032. The State currently has approximately 200 dispatch consoles at 52 sites that are owned by nine different State agencies. There are approximately 1,064 base station radios at 150 radio sites. The replacement costs for these components are not included in the fiscal 2026 budget or out-years, as DoIT is working with the Department of Budget and Management to determine the replacement costs for these components. Additionally, all initially procured subscriber mobile and portable radios will be over 15 years old between fiscal 2027 and 2034, and approximately 435 tower antennas will reach their 20-year lifespan between fiscal 2031 and 2040. DoIT notes that these components will need to be replaced as they reach the end of their lifespan.

• Large Unexpended Balance: As of July 1, 2024, the MD FiRST program had an unexpended balance of \$82.8 million, of which approximately \$35 million is from State appropriations from fiscal 2022 and earlier. With the initial build out complete, the unexpended funds should be mostly attributable to the ethernet conversion phase, which is anticipated to close out in November 2025. DoIT should brief the committees on its anticipated timeline for expending these older State funds and whether the closeout of the ethernet project is likely to result in unexpended funds that can be used to offset funds budgeted for fiscal 2026.

GO Bond Recommended Actions

1. Approve \$14,909,000 in general obligation bonds to continue construction of the statewide Maryland First Responders Interoperable Radio System Team. The authorization supports adding tower, in-building amplifiers, redundant control sites, and fiber optic network.

Summary of Fiscal 2026 Funded State-owned Projects

Maryland First Responders Interoperable Radio System Team

The DoIT fiscal 2026 capital budget includes one project, the MD FiRST project. This provides an interoperable statewide public safety radio communications system for public safety first responders throughout the State. The system uses the Public Safety 700 megahertz (MHz) spectrum licensed to the State by the Federal Communications Commission. MD FiRST was previously referred to as the Public Safety Communications System.

MD FiRST provides the primary operating radio system for all State agencies, providing a communications platform for State agencies and seamless interoperability among users and first responders at all levels of government. Interoperable communication is the ability for first responders to transmit voice and data communications in real time, regardless of agency or jurisdictional boundary. The system supports local jurisdictions as primary and interoperability users as well as supporting Maryland jurisdictions, jurisdictions from neighboring states, and federal partners as interoperability users. The backbone of the project initiated in calendar 2010. Upon completion, the infrastructure consists of a communication backbone of approximately 170 radio sites, which include communication towers, equipment shelters, radio equipment, and data communication equipment. According to DoIT, the system currently supports approximately 32,000 primary users and 91,000 interoperability users as of December 2024.

Initial Project Buildout Plan Complete

This project was divided into five phases, with counties grouped geographically within a given phase, as seen in **Exhibit 1**. All phases of the project have been completed and are operational.





FiRST: First Responders Interoperable Radio System Team

Source: Department of Information Technology

Ethernet Conversion Update

The 700 MHz system vendor no longer supports the T-1 technology. While Phase 5 of the system for the nation's capital area and Southern Maryland was designed using ethernet technology, Phases 1 through 4 were implemented using T-1 technology to leverage existing State assets and contain project costs. An upgrade to ethernet is required because MD FiRST will no longer be able to receive system upgrades. These upgrades include updates to software and hardware, security patches, and bug fixes. As T-1 equipment ages and replacement equipment and support are not available, the system would atrophy in place if it is not upgraded.

Ethernet is the current radio industry standard for backhaul and provides capabilities that T-1 technology did not offer. Ethernet has the capability of carrying more data throughout the system, as it has greater bandwidth than T-1. In addition, it provides greater resilience due to the nature of its routing capabilities.

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DoIT initiated a plan with Motorola to convert Phases 1 to 4 to ethernet technology before the system reaches end of life support. T-1 to Ethernet design was completed in April 2023. The equipment inspections were completed in November 2023, and the site installation and implementation work are underway. The funds needed to complete T-1 ethernet conversion have already been authorized in prior capital budget bills. The project is on track to be completed in June 2025, with the project closeout activities completed by November 2025, including transition of inventory data, site documentation, and delivery of all outstanding work streams from Motorola to the State.

MD FiRST Focus Shifts to Filling Gaps

The infrastructure build of the 700 MHz radio communication system is complete and operational as of April 2023. MD FiRST has identified three deficiencies in the existing emergency communications systems: (1) the lack of interoperability between State, local, and federal agencies; (2) poor coverage in certain geographic areas; and (3) the expense of maintaining multiple incompatible radio systems. The identification of gaps has now shifted the program's focus to construct improvements to meet current and future requirements of the State under the Coverage Improvement Program. Four new subprograms started in fiscal 2024 to provide additional functionality to system users and improve system operability, resilience, and performance. The new planned features include additional radio sites, installation of in-building antenna systems, redundant control sites, and an expansion of fiber optic to replace microwave transmission.

Ethernet conversion is an ongoing subprogram and is fully funded from previously authorized State funds. **Exhibit 2** shows new planned features to fill the gaps in the existing emergency communication system and their estimated costs for coverage and site improvements from fiscal 2025 to 2030. The estimated costs total \$97.8 million through the end of fiscal 2030. This is consistent with the estimate presented last year. Fiscal 2029 and 2030 costs for redundant control sites are approximately \$1.5 million higher each than in previous years because those costs include two additional prime sites compared to one additional prime site.





MD FiRST: First Responders Interoperable Radio System Team

Source: 2025 Capital Improvement Program

Planned Radio Sites to Improve Coverage

The system's infrastructure consists of a communication backbone of approximately 170 radio transmitter sites (including towers and shelters), radio equipment, fiber and microwave transport, and data communications equipment. The system is designed for on-street radio coverage but also provides a level of in-building coverage in many areas. DoIT has gathered system radio coverage data across most of the State. The department has found some deficiencies in that coverage and the backend infrastructure that are addressed in the *Capital Improvement Program* (CIP).

To mitigate these deficiencies, DoIT is adding additional transmitter radio sites to the system in areas with demonstrable coverage gaps. DoIT prepared a master plan that identified

areas with poor coverage that could benefit from improvements. This objective was allocated \$9.8 million in fiscal 2024 and \$10 million in fiscal 2025. In fiscal 2026, this objective would receive an additional \$6.6 million and a total of \$16.2 million from fiscal 2027 through 2029. No radio frequency site is planned for fiscal 2030. **Exhibit 3** shows planned radio sites for fiscal 2024 and 2025 with funding already approved and the planned radio sites for fiscal 2026 through 2029 that will require funding.

Fiscal Year Site Name or Identifier County Site Status Garrett Oakland Existing 2024 Greenfield Allegany Cumberland 2024 Greenfield Howard/Baltimore Patapsco SP 2024 Oueen Anne's Queenstown Greenfield 2024 Montgomery Fire Station 30 Existing 2025 Allegany Barton Valley Greenfield 2025 Greenfield Garrett New Germany SP-E 2025 Talbot St Michaels To Be Determined 2025 Montgomery Bretton Woods Existing 2026 Montgomery Burtonsville Existing 2026 Accident Garrett Existing 2026 Prince George's Ourismann Existing 2027*Carroll Harvey Gummel Existing 2027* Garrett New Germany SP-E Greenfield 2027* Flinstone Allegany Existing 2028* 2028* Charles Charles -To Be Determined (To Be Determined) 2028* St Mary's St Mary's -To Be Determined (To Be Determined) 2028* Dorchester Dorchester To Be Determined 2029* Montgomery Elmer School Road To Be Determined

Exhibit 3 Planned Radio Sites Fiscal 2024-2029

*Sites are subject to change pending further site investigation activities.

Note: Funding for fiscal 2024 and 2025 sites is already approved. A greenfield site is a site where a new tower must be built.

Source: Maryland Public Communication System Capital Master Plan, June 2023

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DoIT attempts to use or build towers on State-owned properties to minimize the cost of purchasing or leasing real estate. The costs to develop transmitter sites can vary substantially by site, depending on the available assets and site geography. These variable costs include the costs to build the tower and shelter, remediate an existing tower, purchase and install equipment, and implementation of fiber and/or microwave backhaul. When preparing its master plan, the department prioritized locations based on the factors to maximize available funding. These key factors, in order of highest to lowest, are:

- locations where a State tower, equipment shelter, and backhaul communication equipment already exist;
- locations where a county or commercial tower exists; however, backhaul and/or equipment shelters may not be present;
- greenfield sites where there is no tower, equipment shelter, and existing backhaul; however, a partner may provide funding for a new tower; and
- greenfield sites where there is no tower, equipment shelter, and existing backhaul communication equipment and no outside funding is available.

Fiber Optic Expansion

MD FiRST uses fiber and microwave backhaul to transmit voice and data between transmitter sites and often over large geographical distances. The backhaul network was constructed using existing State microwave and fiber assets wherever possible. While microwave is a reliable means of data transportation, there are opportunities to expand the use of fiber optics to supplement or replace the reliance upon microwave. This mitigates performance issues during weather conditions like storms and extreme heat. DoIT is using revenues from resource- sharing agreements to improve the existing backhaul network. The capital program supports large-scale improvements costing more than \$1 million. Dark fiber included in these runs could also benefit and support rural broadband initiatives.

The expansion of the fiber optic infrastructure was allocated \$5.5 million in fiscal 2024 and \$5.7 million in fiscal 2025. This project would receive an additional \$6.0 million in fiscal 2026 and a total of \$17.3 million from fiscal 2027 through 2030. The fiscal 2026 budget includes 3 fiber optic projects, including Indian Head to Smallwood (estimated at \$1.5 million), Smallwood to Douglas Point (estimated at \$3 million), and Lusby (Route 235) to Leonardtown (estimated at \$1.5 million). There are a total of 12 projects planned from fiscal 2027 to 2030.

In-building Antennas

The system was designed for on-street coverage. As the system has been implemented, MD FiRST has identified areas with in-build coverage gaps. The use of adjunct technology, such as bi-directional amplifiers (BDA), may be used to supplement radio coverage in buildings and

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within smaller and discrete geographic areas to improve on-street and inbuilding coverage. Adding BDAs can be a cost-effective solution that reduces coverage gaps and enhances radio coverage in schools, State parks, tunnels, and critical infrastructure like hospitals and government buildings. This project element was allocated \$1.0 million in fiscal 2024 and \$1.1 million in fiscal 2025. The project receives an additional \$1.1 million for two BDA installations statewide in fiscal 2026 and a total of \$4.8 million from fiscal 2026 through 2030.

Georedundant Prime/Control Sites

Maryland FiRST radio towers are grouped into 22 geographical areas, usually within a county, to form a connected cell. Each cell has a prime site that controls and manages information while connecting that cell to the rest of the network. Adding a second and geographically located prime/control site within each cell provides redundancy in the event the primary controlling site is disabled due to planned or unplanned events. This reduces the risk of a large-scale radio coverage outage.

This objective was allocated \$2.2 million in fiscal 2024 and \$1.1 million in fiscal 2025. The CIP programs an additional \$3.8 million for fiscal 2026 to 2028 to add one georedundant prime each year and \$5.7 million to add two georedundant primes each in fiscal 2029 and 2030. The order for adding them is prioritized by (1) the number of users affected should the simulcast cell go down and other considerations such as the location of the seat of government; (2) the amount of coverage (or lack thereof) a simulcast cell area has from the surrounding cells and independent radio towers not tied to a cell (for example, counties that are located in the corners of the State have little to no beneficial coverage from surrounding sites); and (3) counties that are primary users since they do not have another radio system. Based on these priorities, DoIT proposes the following schedule from fiscal 2026 to 2030:

- \$1.2 million for the Garrett County simulcast cell;
- \$1.26 million for the Cecil County simulcast cell;
- \$1.33 million for the Allegar (partial Allegany County and partial Garrett County) simulcast cell;
- \$1.39 million each for simulcast cells in Worcester/Somerset County and Montgomery County; and
- \$1.44 million each for simulcast cells in Prince George's and Howard counties.

Summary of Out-year State-owned Projects

• *Fiber Optimization Program:* The fiber optimization program transitions the current last mile leased circuits to network Maryland-owned fiber, which is a State-owned infrastructure. This program aims to increase broadband access and bandwidth, improve public safety and promote digital equity in unserved and underserved areas by connecting government buildings, schools, libraries, health care centers, and police and fire facilities to State-owned fiber infrastructure. This project is expected to start beginning in fiscal 2030 and be complete by fiscal 2034. The estimated cost for this project is approximately \$3.2 million in fiscal 2030.

Appendix 1 Executive's Operating Budget Impact Statement – State-owned Projects Fiscal 2026-2030 (\$ in Millions)

| | | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|--------------------------|----------|----------|----------|----------|----------|
| Maryland First Responders Interoperable Radio System Team | | | | | | |
| | Estimated Operating Cost | \$19.900 | \$22.200 | \$23.800 | \$24.900 | \$26.000 |
| | Estimated Staffing | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |

The fiscal 2026 allowance includes \$19.9 million in operating costs for the MD FiRST radio program. The budget also includes 8 regular positions to operate the program, with 7 positions filled and 1 vacant position being actively recruited. Cost increases are primarily attributable to expiring warranties and contractual increases. Costs for contracts total \$17.5 million, which is 87.9% of the operating budget.

State agencies using the system are charged the radio program's operating expenses, but non-State organizations are not charged. The State is encouraging non-State agencies to use the system and is concerned that charging them would discourage use. Hence, operations are funded through reimbursable funds from State agencies. These charges are based on the number of subscriber radios that each agency has registered on the system, with agencies that have more radios registered being charged more. Additional costs related to replacing subscriber radio equipment will be borne by the agencies and will be appropriated in the agencies' budgets.