

**F50**  
**Department of Information Technology**

***Executive Summary***

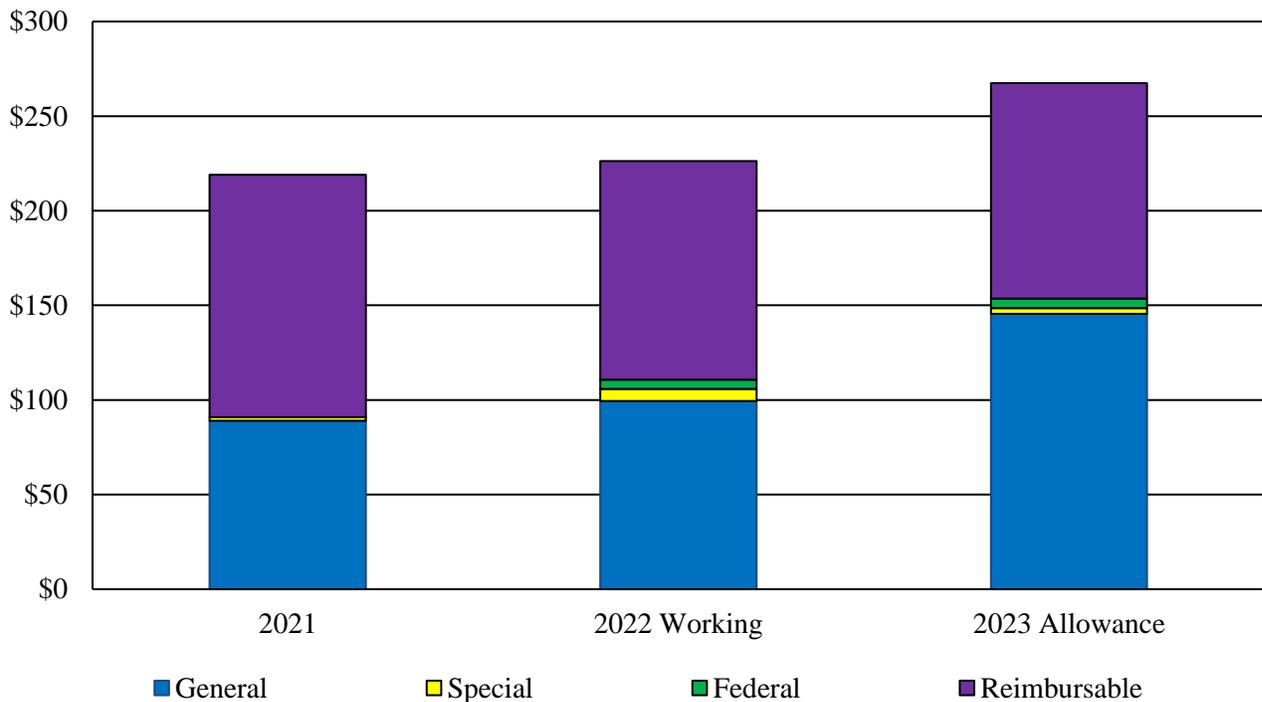
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The Department of Information Technology (DoIT) supports information technology (IT) needs in State agencies. This includes operations, major IT project development, security, web services, application management, and the State’s 700 megahertz (MHz) first responder radio system.

***Operating Budget Summary***

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**Fiscal 2023 Budget Increases \$41.2 Million, or 18.2%, to \$267.5 Million  
(\$ in Millions)**



Note: The fiscal 2022 working appropriation and fiscal 2023 allowance do not reflect funding for statewide personnel actions budgeted in the Department of Budget and Management, which include cost-of-living adjustments, increments, bonuses, and may include annual salary review adjustments.

- The fiscal 2023 general fund increase includes \$27 million for major IT projects and \$18 million in enhanced cybersecurity funding.

## ***Key Observations***

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- ***Funding for Major IT Projects Continues to Increase:*** The fiscal 2023 budget includes \$115 million for 32 projects. The total number of projects funded, including active projects funded in prior years and projects that do not receive general funds, is 53. This is the highest amount of general funds and most projects receiving general funds in any year.
- ***Cybersecurity Threats and Solutions Keep Evolving:*** Review of cybersecurity performance indicators and audits shows that there is room for improvement. The general hacking community and hacktivists are perceived to be growing cybersecurity threats.

## **Operating Budget Recommended Actions**

1. Adopt narrative requiring the Department of Information Technology’s Managing for Results goals and indicators to include value and costs, instead of limiting to workload and efficiency measures.
2. Adopt narrative requiring the Department of Information Technology to report on spending funds in the Dedicated Purpose Account to support cybersecurity efforts.
3. Adopt narrative requiring the Department of Information Technology to submit an update on the Remote Workforce Enablement Major Information Technology Development Project.
4. Adopt narrative that requires the Department of Information Technology to report on spending and planning regarding the federal Infrastructure Investment and Jobs Act.
5. Adopt narrative requiring the Department of Information Technology to review and update standard pricing schedules for over-the-air television and radio resource sharing agreements.
6. Adopt narrative requiring a report on the positions of the State Chief Data Officer and State Chief Privacy Officer.

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***Operating Budget Analysis***

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**Program Description**

DoIT contains the following programs:

- ***State Chief of Information Technology:*** Responsible for executive direction and major IT project oversight. This includes a chief operating officer and a chief data officer as well as enterprise architecture, project management, communication, and legislation.
- ***Security Management:*** Responsible for developing statewide security policies, enforcing policies, and supporting State agencies' security efforts. This includes cyber incident response, cyber risk and strategic analysis, vulnerability detection and assessment, intelligence and investigation, and software assurance.
- ***Application Systems Management:*** Responsibilities include application development, web systems, geographic information systems (GIS), and operating statewide systems, such as the Financial Management Information System (FMIS).
- ***Infrastructure:*** Responsibilities include operating networkMaryland, the State's data network, voice systems, and maintaining and supporting shared services day-to-day operations for Executive Branch agencies.
- ***Radio or Statewide Interoperable Communications Division:*** Operates the Maryland First Responders Interoperable Radio System Team (MD FiRST) that is the State's 700 MHz radio system. The system is used by State, local, and federal first responders.
- ***Chief of Staff:*** Provides departmentwide administrative support.

The department administers the Major Information Technology Development Project Fund (MITDPF). This is a nonlapsing fund that supports large IT initiatives as defined in §§ 3A-301 and 3A-302 of the State Finance and Procurement Article. Major Information Technology Development Projects (MITDP) are projects that meet one or more of the following criteria:

- the estimated total cost of development equals or exceeds \$1 million;
- the project is undertaken to support a critical business function associated with the public health, education, safety, or financial well-being of the citizens of Maryland; and/or
- the Secretary of Information Technology determines that the project requires the special attention and consideration given to an MITDP.

## ***Performance Analysis: Managing for Results***

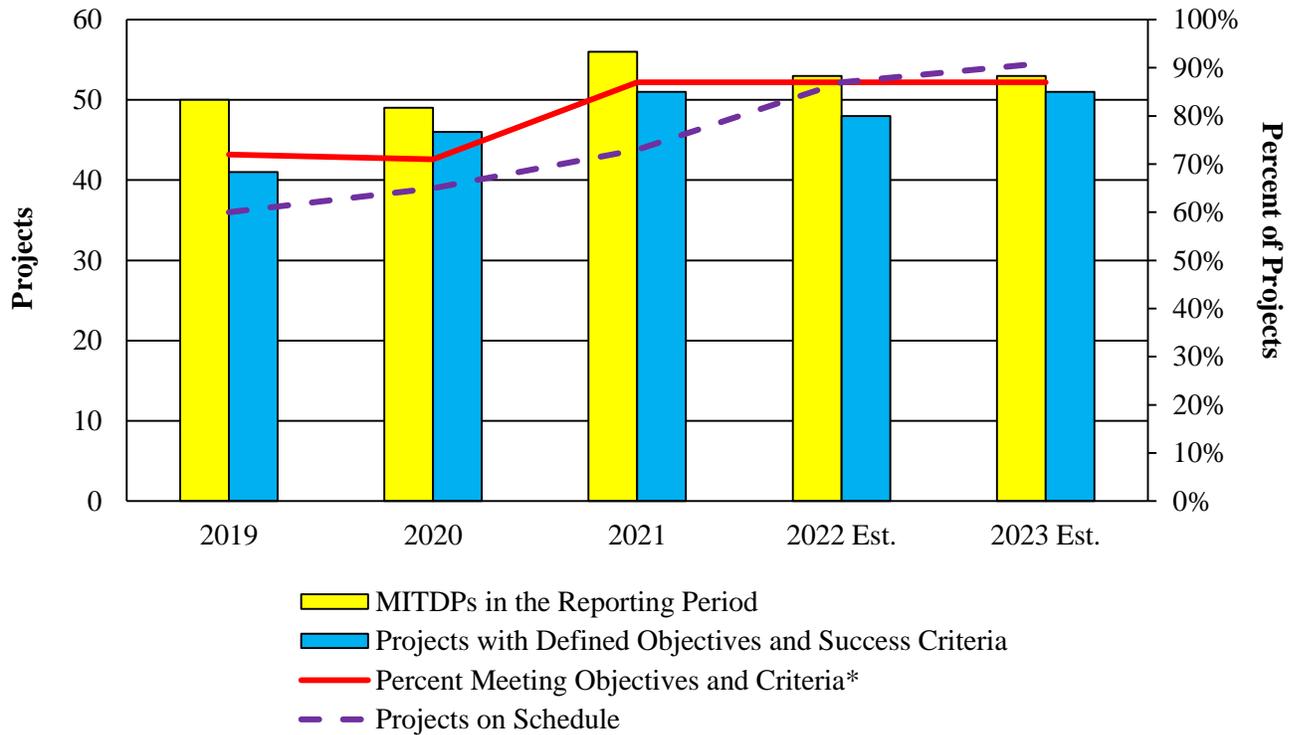
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### **1. Oversight of Major IT Projects**

The fiscal 2023 budget includes \$115 million funded by the MITDPF. DoIT expects to oversee 53 projects in fiscal 2023, including 32 funded in the MITDPF. The fiscal 2023 budget includes 9 projects not included in last year's out-year forecast. The department's Managing for Results (MFR) goal is that State agency IT systems meet State IT master plan objectives of consolidation, interoperability, and standardization. The objective is that all MITDPs executed by Executive Branch agencies are successful. The department has a series of output measures that examine the extent to which major IT projects remain on schedule and are meeting their defined objectives.

**Exhibit 1** shows that 73% of projects were on time in fiscal 2021. DoIT is now using an Agile approach to develop major IT projects, which is an iterative approach that builds usable components more quickly. Major IT projects should develop defined objectives and success criteria that can measure how well project development is progressing. DoIT has an indicator that measures the number of projects with defined objectives and success criteria and the percent that are meeting them. In fiscal 2021, 51 out of 56 projects had criteria, and 87% of them were meeting the criteria. Not all projects will be Agile projects because not all major IT projects develop information systems. For example, the MD FiRST Radio Tower and Backhaul Improvement Project improves a 700 MHz radio system, so the Agile process does not apply to this project.

**Exhibit 1**  
**Major Information Technology Development Project Indicators**  
**Fiscal 2019-2023 Est.**



MITDP: Major Information Technology Development Project

\*Percentage is of those projects with defined objectives and success criteria.

Source: Department of Budget and Management

## 2. Support Services for State Agencies

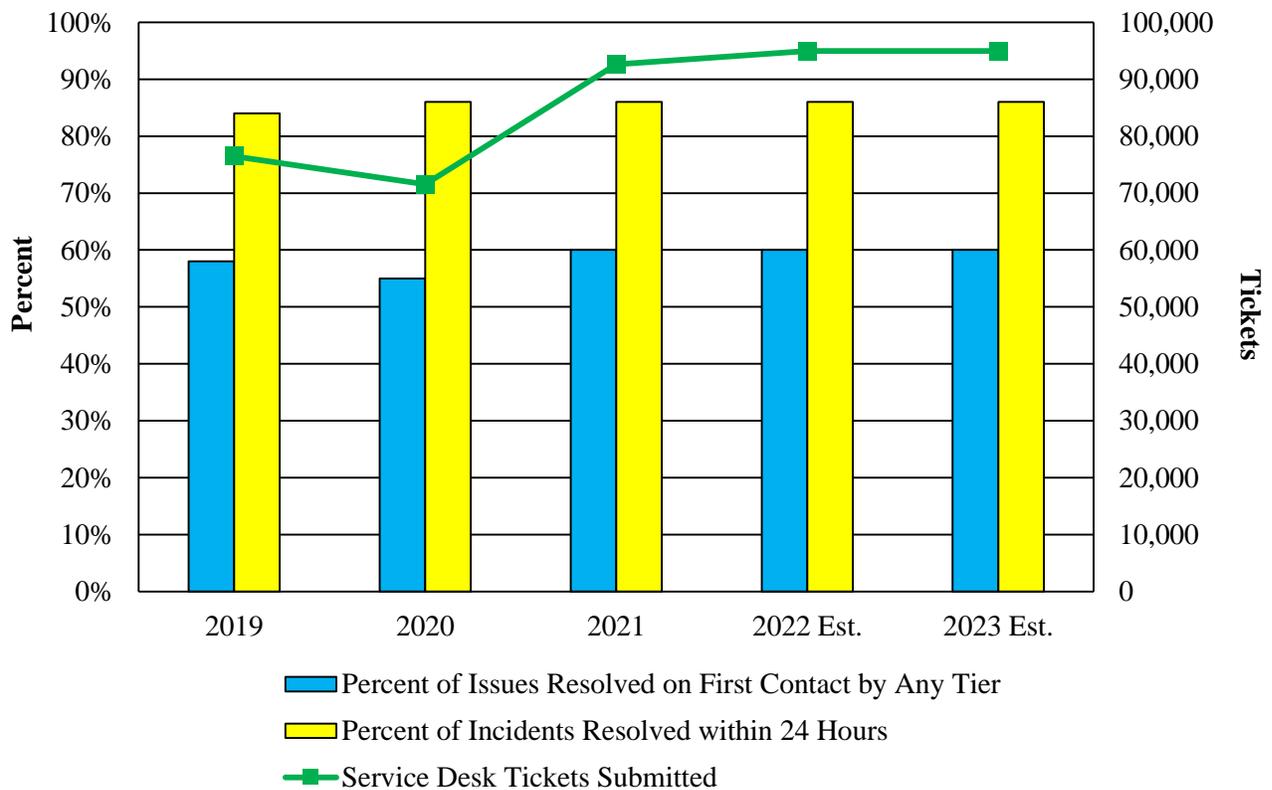
DoIT’s fourth MFR goal is to provide “efficient and high-quality IT services to State agencies.” Among other things, this addresses the State’s consolidated IT operations through the enterprise IT system. Currently, 25 Executive Branch agencies participate in this program, including the Governor’s Office, the Department of Natural Resources (DNR), and the Maryland State Department of Education (MSDE). Agencies are charged for these services, and these services are the source of a high share of reimbursable funds in the DoIT budget. For these agencies, DoIT provides full IT operations support including (1) end user hardware, applications, and support; (2) local and wide area networks; and (3) managed firewall. Agencies participating in the enterprise IT system enter into a standard memorandum of understanding with DoIT.

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DoIT also offers other IT services to agencies, such as networkMaryland internet services, GIS, and web development services. Another 75 departments and agencies receive some enterprise IT service but are not part of the system. These services are offered in the DoIT service catalog. DoIT has created service-level agreements (SLA) associated with the services in the catalog. Where appropriate, consideration is given to industry benchmarks in establishing the SLAs in the service catalog. For example, the network availability SLA for networkMaryland services is consistent with that of other network service providers.

**Exhibit 2** shows that the service desk received approximately 92,700 tickets in fiscal 2021, which is almost 30% more tickets than in fiscal 2020. The data also shows that 60% were resolved by first contact, and 86% of incidents were resolved in 24 hours.

**Exhibit 2**  
**Agency Services Indicators**  
**Fiscal 2019-2023 Est.**



Source: Department of Budget and Management

DoIT's MFR indicators provide data about the workload and how quickly incidents are resolved. The goal is to provide efficient and high-quality IT services. The goal does not mention providing value, and there are no cost indicators. From the MFR, it is unclear if DoIT's services are cost effective or if State agencies could receive comparable services from the private sector at a lower cost. **The Department of Legislative Services (DLS) recommends that the committees adopt narrative requiring DoIT to include value as part of the MFR goal and develop indicators that measure the cost of service provided compared to procuring services elsewhere.**

## **Fiscal 2022**

### **Dedicated Purpose Account Includes Deficiency Appropriation for Cybersecurity Enhancements**

Although not in DoIT's budget, the department will have access to up to \$110 million budgeted in the Dedicated Purpose Account (DPA) to support cybersecurity efforts. DoIT advises that these funds are for the next phase of the cybersecurity assessments, including ongoing cybersecurity, vulnerability risk and reduction assessments, privacy impact assessments, as well as remediation recommended by the assessments. Additionally, the funding will support security incident response efforts, like the response to the ransomware attack at the Maryland Department of Health (MDH), which is discussed in Issue 1 in this analysis. In addition to funds in the DPA, DoIT also receives additional funds in its fiscal 2023 budget to support its cybersecurity efforts. **DLS recommends that the committees adopt narrative requiring DoIT to report on its plans to spend the funds budgeted in the DPA. This should include discussions of how and when the funds will be spent; lessons learned from assessments; and progress made securing State IT hardware, software, and systems.**

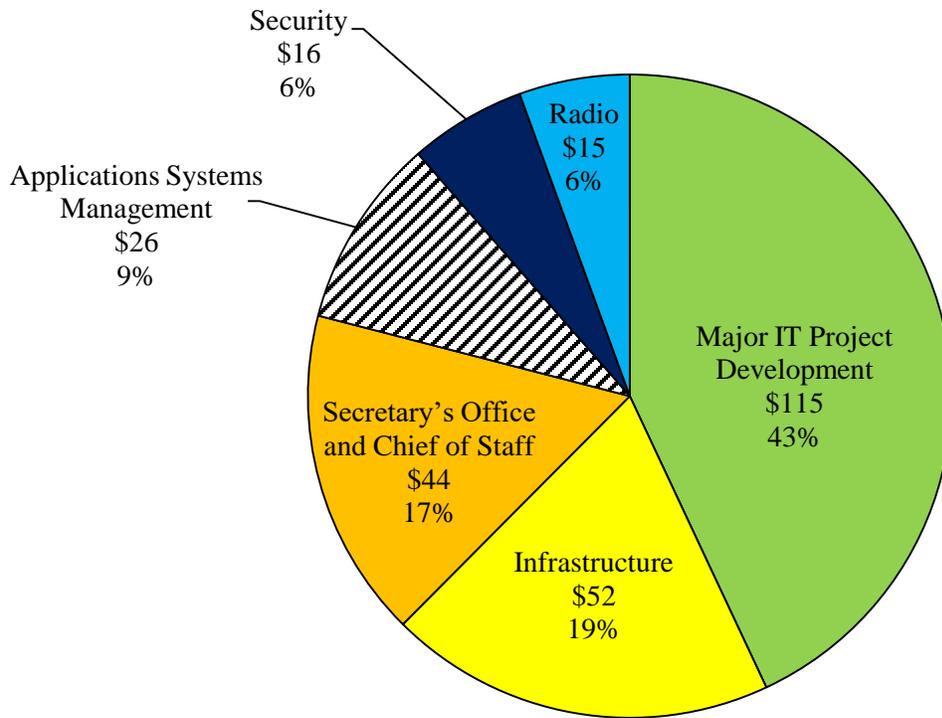
### **Federal Stimulus Funds**

DoIT received \$5 million from the DPA by budget amendment in fiscal 2022. The source of the funds is the American Rescue Plan Act. The funds support promoting telework among State employees by providing \$1 million for a virtual private network (VPN) pilot program, \$3.5 million for laptops, and \$0.5 million for teleconferencing equipment. The VPN pilot program is the first step of a new major IT project to provide a single secure network for agencies on DoIT's enterprise system. This project is discussed in more detail in **Appendix 6**. Issue 2 in this analysis discusses cybersecurity funding in the Infrastructure Investment and Jobs Act (IIJA).

## Fiscal 2023 Overview of Agency Spending

**Exhibit 3** shows that major IT project development and infrastructure account for 62% of DoIT’s spending. Infrastructure includes end user applications and support, local and wide area network support, network Maryland, and voice communication. These services are included in the enterprise IT system offered by DoIT.

**Exhibit 3**  
**Overview of Program Spending**  
**Fiscal 2023 Allowance**  
**(\$ in Millions)**

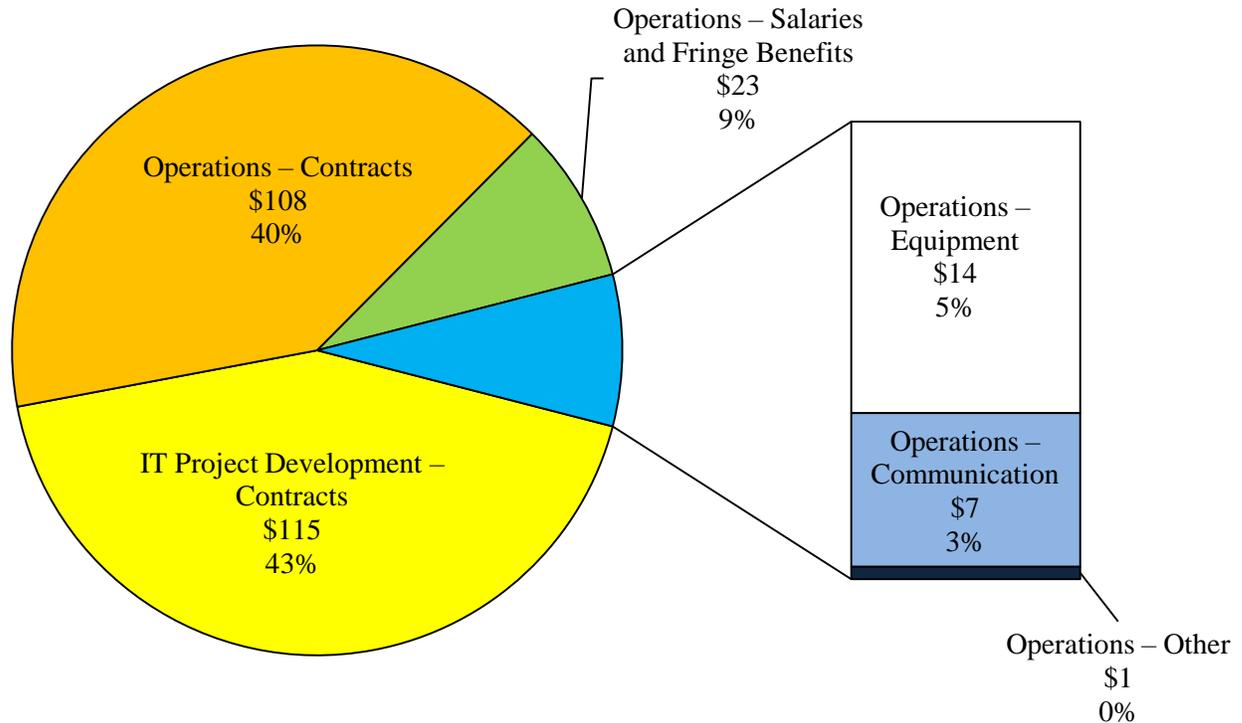


IT: information technology

Source: Department of Budget and Management

The department relies heavily on contracts to provide services. **Exhibit 4** shows that contracts for major IT project development and operations are 83% of spending. This is over seven times as much as salaries and fringe benefits. Operating contracts support applications, web systems, security, and personnel needs.

**Exhibit 4**  
**Object Spending by Objects**  
**Fiscal 2023**  
**(\$ in Millions)**

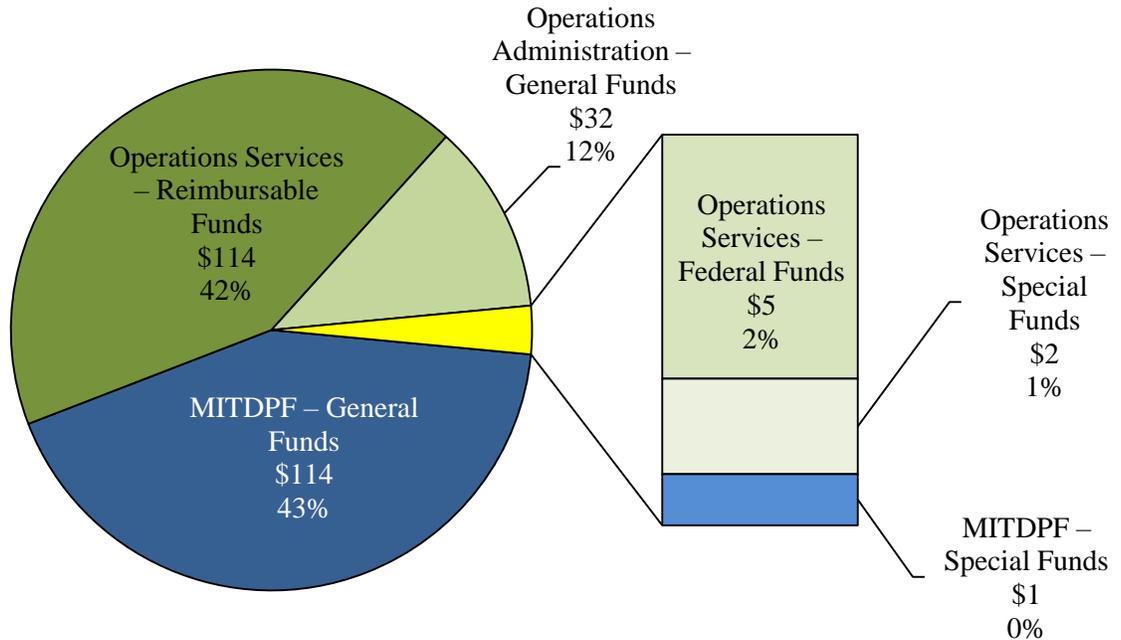


IT: information technology

Source: Department of Budget and Management

DoIT is two agencies: (1) funding for major IT projects; and (2) operations. Major IT funding is supported by general funds and special funds. Operations includes services (cybersecurity, Applications System Management, infrastructure, and radio) for State agencies and administration. Agency services are funded by reimbursable funds and special funds. Agency services do not receive general funds but are entirely funded by fees for services. Administration receives general funds, which avoids State agencies paying for DoIT overhead. **Exhibit 5** shows that 85% of funding for DoIT is general funds for major IT projects and reimbursable funds for services. General funds for administration are 8% of the department’s funding. Administration also has funds to support cybersecurity initiatives.

**Exhibit 5  
Fund Sources by Agency  
Fiscal 2023  
(\$ in Millions)**



MITDPF: Major Information Technology Development Project Fund

Source: Department of Budget and Management

**Proposed Budget Change**

**Exhibit 6** shows that the fiscal 2023 allowance is \$267.5 million, which is 18.2% more than the fiscal 2022 working appropriation. The budget includes large funding increases supporting cybersecurity efforts including assessments (\$10 million); replacing hardware containing outdated encryption (\$5 million); and endpoint response, vulnerability, and passive asset discovery tools (\$3 million). General fund support of statewide MITDPF also increases by \$26.6 million.

Fiscal 2023 spending is exaggerated somewhat by general fund appropriations that are transferred to other programs as reimbursable funds. The same cybersecurity contracts supporting endpoint response, vulnerability, and passive asset discovery tools are budgeted as general and reimbursable funds. Similarly, general funds for the enterprise data and privacy program in the applications systems management program are budgeted as reimbursable funds in the chief of information technology office.

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The fiscal 2022 working appropriation includes \$22.8 million in reimbursable funds for DoIT major IT projects. The general funds for major IT projects are appropriated in the MITDPF. DoIT transfers these funds to agencies as they are needed. Since there are ongoing major IT projects, additional reimbursable funds for major IT projects will be transferred by budget amendment into the DoIT budget in fiscal 2023. **Appendix 3** through **Appendix 7** list the projects receiving general fund appropriations in fiscal 2023.

**Exhibit 6**  
**Proposed Budget**  
**Department of Information Technology**  
**(\$ in Thousands)**

<b>How Much It Grows:</b>	<b>General Fund</b>	<b>Special Fund</b>	<b>Federal Fund</b>	<b>Reimb. Fund</b>	<b>Total</b>
Fiscal 2021 Actual	\$89,065	\$1,894	\$0	\$128,077	\$219,035
Fiscal 2022 Working Appropriation	99,524	6,259	5,000	115,513	226,296
Fiscal 2023 Allowance	<u>145,607</u>	<u>3,009</u>	<u>5,000</u>	<u>113,842</u>	<u>267,458</u>
Fiscal 2022-2023 Amount Change	\$46,083	-\$3,250	\$0	-\$1,671	\$41,163
Fiscal 2022-2023 Percent Change	46.3%	-51.9%		-1.4%	18.2%
<b>Where It Goes:</b>					<b><u>Change</u></b>
<b>Personnel Expenses</b>					
Employee and retiree health insurance .....					\$205
Turnover adjustments .....					132
Salary and related fringe benefit adjustments .....					101
<b>Major Information Technology Development Projects and Oversight</b>					
Major Information Technology Development Project Fund (MITDPF) .....					26,551
Fiscal 2022 reimbursable funds transferred from MITDPF for agency projects .....					-22,843
<b>Cybersecurity-related costs</b>					
Statewide cybersecurity assessments, includes how to close gaps and improve processes .....					10,000
Replace older hardware that creates cybersecurity risks because of outdated encryption .....					5,000
General funds for security operations’ endpoint response, vulnerability and compliance, and passive asset discovery tools .....					3,000
Reimbursable funds transferred to security operations’ endpoint response, vulnerability and compliance, and passive asset discovery tools .....					3,000
Contract for certificates for transport layer security information technology infrastructure ...					-1,000
<b>Other Operations</b>					
Adjust spending to reflect statements of work for enterprise services to reflect prior years to reduce anticipated budget amendments .....					6,000
General funds for new enterprise data and privacy program .....					3,397
Reimbursable funds for new statewide data privacy program .....					3,397
Anticipated costs for Voice over Internet Protocol service contracts .....					2,393

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<b>Where It Goes:</b>	<u><b>Change</b></u>
Cloud services applications .....	1,073
Annapolis Data Center costs.....	647
Radio operations contract for MD FiRST.....	613
Geographic information systems software contract.....	258
Adjust reimbursable funds for Independent Verification and Validation costs.....	-618
<b>Other Changes</b>	-142
<b>Total</b>	<b>\$41,163</b>

MD FiRST: Maryland First Responders Interoperability Radio Team

Note: The fiscal 2022 working appropriation and fiscal 2023 allowance do not reflect funding for statewide personnel actions budgeted in the Department of Budget and Management, which include cost-of-living adjustments, increments, bonuses, and may include annual salary review adjustments.

### **Funding for New Enterprise and Data Privacy Program**

Executive orders in July 2021 created the positions of State Chief Data Officer and State Chief Privacy Officer. The positions are appointed by the Governor. The order also created agency data officers and agency privacy officers in State agencies that work with the State officers. Governor Lawrence J. Hogan, Jr. appointed the State positions in November 2021.

The State Chief Data Officer works with State agencies to (1) assess the need for data; (2) coordinate sharing data so that this complies with prohibitions and restrictions while making data accessible to the public and State agencies; (3) compile an inventory of State data; (4) create a State Data Strategic Plan; (5) track progress in implementing secure and efficient data use; and (6) measure advancements in the analysis of data by the State.

Responsibilities of the State Chief Privacy Officer include (1) supervising efforts of State units to protect personally identifiable information (PII); (2) developing and managing implementation of State privacy policies that balance the State’s need for information with risks to the public and costs of collection; (3) establishing privacy requirements to be incorporated in data sharing agreements; (4) creating and maintaining inventories of source and systems containing PII; and (5) overseeing privacy impact assessments.

These kinds of positions are becoming more common as states grapple with data access and privacy concerns. These positions are budgeted in the Governor’s Office but use DoIT resources. The allowance includes \$3.4 million supporting contracts for a new enterprise data and privacy program. Planning for these programs appears to be in its infancy. **Since detailed information is not yet available, DLS recommends that the committees adopt narrative requiring DoIT and the Governor’s Office to prepare a report on the work of the State Chief Data Officer and the State Chief Privacy Officer, and how the \$3.4 million general fund appropriation will be spent.**

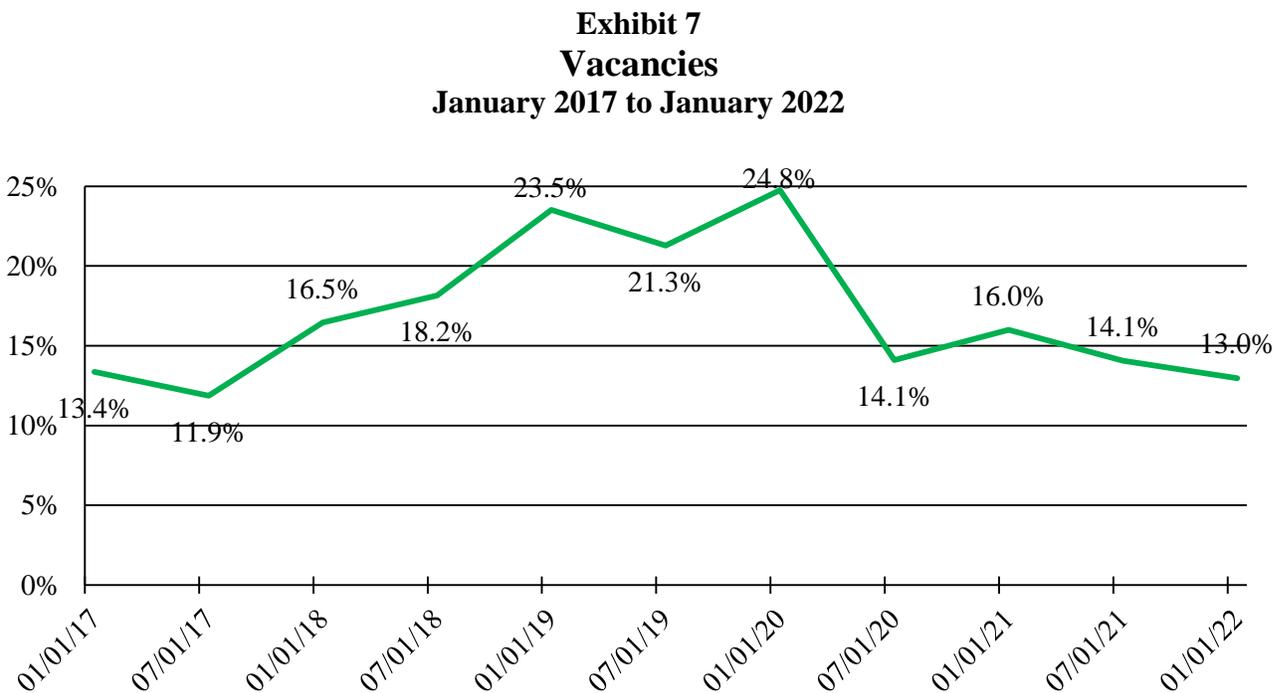
***Personnel Data***

	<b><u>FY 21</u></b>	<b><u>FY 22</u></b>	<b><u>FY 23</u></b>	<b><u>FY 22-23</u></b>
	<b><u>Actual</u></b>	<b><u>Working</u></b>	<b><u>Allowance</u></b>	<b><u>Change</u></b>
Regular Positions	189.60	185.00	185.00	0.00
Contractual FTEs	<u>0.70</u>	<u>0.00</u>	<u>0.15</u>	<u>0.15</u>
<b>Total Personnel</b>	<b>190.30</b>	<b>185.00</b>	<b>185.15</b>	<b>0.15</b>

***Vacancy Data: Regular Positions***

Turnover and Necessary Vacancies, Excluding New Positions	13.80	7.46%
Positions and Percentage Vacant as of 12/31/21	24.00	12.97%
Vacancies Above Turnover	10.2	

DoIT has a long history of high vacancies and employee turnover. **Exhibit 7** shows that vacancies are consistently above 10%. The decline in the vacancy rate in July 2020 was the result of abolishing 25 positions.



Source: Department of Budget and Management

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Anecdotal evidence suggests that DoIT salaries are well below salaries paid for similar positions by federal and local agencies as well as the private sector. To address this disparity, DoIT is hiring new employees at the middle or top of the salary scale.

The Department of Budget and Management’s (DBM) Standard Salary Schedule provides the salaries for DoIT employees. The schedule begins at step 1, and then adds 20 steps in each grade so that there are a total of 21 different salaries. The schedule gives larger raises for employees on the lower end of the scale. Step increases are approximately 4% for steps 1 to 5. After step 5, raises are about 2%. Even though there is one less salary increase below the midpoint, the midpoint salary is near the middle of the scale because early salaries receive larger raises.

DLS has reviewed the salaries of the 37 positions on January 1, 2022, that have less than five years of experience with the State. **Exhibit 8** shows that the average (mean) employee with less than five years of experience ranges from step 10 to step 16. Having the median step be base 9 shows that most employees are hired at the middle of the pay scale or higher in recent years. DoIT employees have not received step increases since July 1, 2016, so their current increment is the increment from their date of hire.

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**Exhibit 8**  
**Employee Steps and Year Hired**  
**Calendar 2017-2021**

<u>Year Hired</u>	<u>Positions</u>	<u>Mean Step</u>	<u>Median Step</u>
2017	4	13	13
2018	8	10	10
2019	11	13	15
2020	8	12	10
2021	6	16	15

Source: Department of Budget and Management

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There is anecdotal evidence that it is common for workers to come to the State to get experience and then move to higher paid county positions. This analysis suggests that this is quite plausible. These data support concerns raised by the Spending Affordability Committee about the deprofessionalization of the State workforce.

The data also raise concerns about State salary scales and the effects of State employees not receiving increments in recent years. Recent general salary increases have been helpful but have not resulted in any identifiable progress regarding employee recruitment and retention. It may be more effective to rebase salary scales and provide increments, specifically:

- ***Salary Scale Does Not Reflect Labor Market:*** It is curious that employees are commonly hired in the top half of the salary scale. Raising salary scales so that new employees are at the bottom of the scale, instead of the middle or top of the scale, would give new employees higher raises (about 4%) from increments rather than the general salary increases, which typically provide a 2% increase but have been 3%. These employees would also have more room for higher salaries as their careers progress.
- ***Lack of Increments Discourages Newer Employees:*** Step increases (referred to as increments) provide additional compensation for employees that work in a position and become proficient. This rewards employees as they become more effective and efficient. Not providing increments can result in new employees earning as much or more as employees that have been in the position for years. Not surprisingly, there is anecdotal evidence of new employees earning more than longer-term employees. While the data do not track individuals, the exhibit suggests that there are some employees hired in 2021 that earn more in a similar position than employees hired in prior years. For example, Exhibit 8 shows that the average (mean) step for employees hired in calendar 2021 is higher than the average (mean) step for employees hired in calendar 2020.

This issue and the resulting impact on the State workforce is not unique to DoIT and is also addressed in the DBM – Personnel – F10A02 analysis.

### **MITDPF and Major IT Project Expenditures**

Chapters 467 and 468 of 2002 created the MITDPF. The law requires that all general funds appropriated for major IT projects be held in the fund. DoIT is responsible for major IT project oversight and releasing funds.

### **DoIT Has Transitioned MITDP Approach to Scaled Agile Framework**

The major IT project development approach that DoIT is using is changing from Waterfall to Agile. Waterfall begins with thoroughly planning all aspects of a project. At the end of the planning period, a functional review document is prepared. This document has detailed specifications that can be used in a request for proposals (RFP) when bidding the project. The vendor then implements the project based on these specifications. It is not unusual for a project to take two years to plan and three years to implement. There are 10 phases to the Waterfall approach.

By contrast, the Agile approach does not complete planning prior to beginning to build the software. Instead, a high-level plan rather than a detailed plan of all requirements is developed. Projects are divided into a number of tracks. These are usually implemented simultaneously. Each track is broken down so that there are a number of sequential parts to build. The parts are planned and then built over a two-week period called a sprint. This is tested, and another part is planned. After a series of sprints, there is a program increment (a usable component). There should be a usable component every six months. This approach uses the plan-do-check-act approach, which is a repetitive four-stage model for continuous improvement in business process management that is repeated until the project is done. Waterfall is being phased out, and all new projects are using Agile. DoIT's MFR indicators

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were modified for Agile in fiscal 2019. These indicators note that 73% of major IT projects developed in fiscal 2021 used the Agile approach.

**MITDPF-funded Projects**

**Exhibit 9** shows fund transactions for the MITDPF for fiscal 2020 through the proposed budget in fiscal 2023.

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**Exhibit 9**  
**Major Information Technology Development Project Fund**  
**Fiscal 2020-2023**  
**(\$ in Thousands)**

	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
Opening Fund Balance	\$114,155	\$145,655	\$116,920	\$3,098
<b>Revenues</b>				
General Fund	\$61,302	\$82,426	\$84,225	\$114,026
General Fund – Deficiency Appropriation	28,179	0	0	0
Special Fund – Carryover to Reappropriate Funds	3,900	0	2,800	0
Special Fund – Resource Sharing Agreement Revenues <sup>1</sup>	1,548	4,706	953	825
Investment Interest	2,330	423	300	300
Transfers from Other Agencies	2,000	827	0	0
Cost Containment Reductions	0	-5,000	0	0
<b>Total Available Revenues</b>	<b>\$213,414</b>	<b>\$229,036</b>	<b>\$205,198</b>	<b>\$118,249</b>
<b>Expenditures</b>				
Transferred to Agencies <sup>2</sup>	\$108,741	\$112,117	\$200,749	\$115,076
<b>Adjustments</b>				
Available Fund Balance to Be Appropriated in Subsequent Year	-\$3,944	\$0	-\$1,350	\$0
Fiscal 2020 Transfer Not Posted Prior to Closing <sup>3</sup>	44,926	0	0	0
<b>End-of-year Fund Balance</b>	<b>\$145,655</b>	<b>\$116,920</b>	<b>\$3,098</b>	<b>\$3,173</b>

<sup>1</sup> Chapter 313 of 2021 provided that, effective June 1, 2021, resource sharing agreement (RSA) revenues from Maryland Department of Transportation (MDOT) facilities are no longer deposited into this fund. The fiscal 2022 appropriation assumed approximately \$547,000 in RSA revenues from MDOT, which are not included in this table due to the enactment of Chapter 313.

<sup>2</sup> Fiscal 2022 and 2023 spending shows all appropriated funds are expended. Should expenditures be less, end-of-year fund balances would be larger.

<sup>3</sup> The fiscal 2020 End-of-year Report on the Major Information Technology Development Project Fund notes that the end-of-fiscal 2020 fund balance is \$100,729,204. The Department of Information Technology advises that \$44,926,055 in fiscal 2020 transfers were not posted prior to the fiscal 2020 closeout. Thus, R\*STARS lists a closing fiscal 2020 cash balance of \$145,655,269.

Source: Department of Budget and Management; Department of Information Technology; Department of Legislative Services

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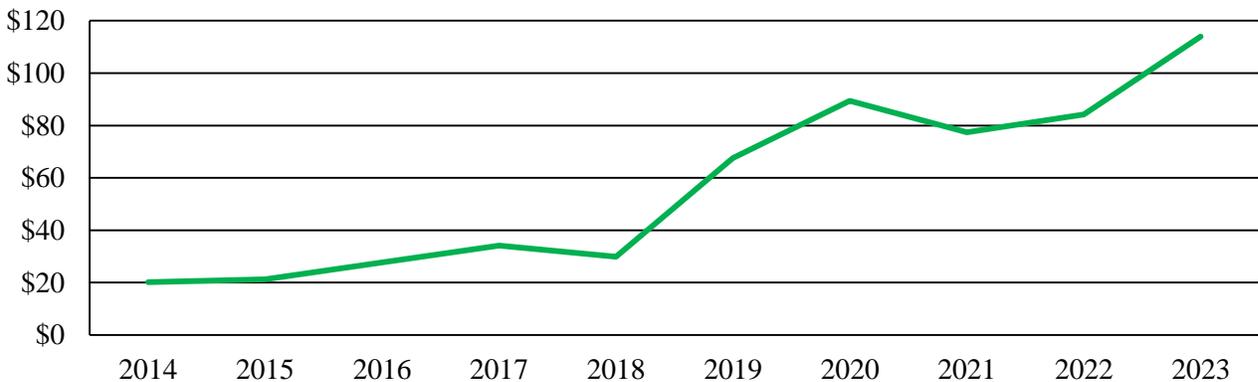
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**Exhibit 10** shows that State general fund support for major IT projects has increased substantially in recent years. This has been accompanied by an increase in the number of major IT projects receiving funding from 11 in fiscal 2014 to 32 in fiscal 2023. A complete list and discussion of these projects can be found in **Appendix 2**. Seven projects receive funding in excess of \$5 million in fiscal 2023 for a total of \$49.9 million. These projects are:

- \$12.9 million for the Comptroller’s Integrated Tax System (ITS);
- \$7.9 million for DoIT’s Remote Workforce Enablement Project;
- \$8 million for DoIT’s OneStop portal;
- \$6.6 million for MDH’s data center to the cloud migration;
- \$5.5 million for the DNR One Portal;
- \$5.4 million for MDH’s Long-term Supports and Services Tracking System (LTSS) Project; and
- \$5 million for the Comptroller’s FMIS accounting system replacement.

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**Exhibit 10**  
**General Fund Appropriations into the MITDPF**  
**Fiscal 2014-2023**  
**(\$ in Millions)**



MITDPF: Major Information Technology Development Project Fund

Note: Includes reversions, cost containment reductions, and deficiencies.

Source: Department of Budget and Management; Department of Information Technology; Department of Legislative Services

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As part of the budget process, the department regularly cancels funds if the projects are no longer needed and reappropriates them as special funds to support other projects. Exhibit 9 shows that this was done in fiscal 2020 and 2022, but no funds are canceled and reappropriated in fiscal 2023. Revenues deposited into the MITDPF from resource sharing agreements (RSA) have been appropriated as special funds since fiscal 2021. **Exhibit 11** shows the sources of the \$1 million special fund appropriation. Chapter 317 of 2021 requires that revenues that DoIT receives from RSAs support MD FiRST. These revenues are deposited into the MITDPF to be used by MD FiRST. DoIT advises that Maryland Department of Transportation (MDOT) revenues are due from prior years and are not revenues anticipated in fiscal 2023.

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**Exhibit 11**  
**Resource Sharing Agreement Revenues**  
**Fiscal 2023**  
**(\$ in Thousands)**

<b>Source</b>	<b>Amount</b>
Gunpowder Falls State Park	\$114
Sprint Parole Armory Tower	65
Sprint Waldorf	62
Sprint #4 Waterloo	62
Verizon at Matapeake Tower	56
T-Mobile #1 Germantown	55
Sprint Germantown	55
Green Ridge State Forest	44
Sprint Westminster Tower	43
Hubbard Radio at Gambrills State Park	40
LaPlata Barrack resource sharing agreement	36
Cub Hill Forest Fire Tower	35
Cunningham Falls State Park	31
Verizon at Douglas Point Tower	24
Verizon at Assateague Tower	24
Washington Suburban Sanitary Commission Shady Grove-Germantown Tower	23
CSX at Indian Springs State Park	13
Level 3 Fort Frederick	9
Comcast at Deep Creek	8
West Virginia Educational Broadcasting Authority Deep Creek	6
Chapel Point State Park	6
Shentel South Mountain State Park	6
US Cellular Woodmont	5
FiberCreek Network Warrior Mountain in Allegany County	3
<b>Total</b>	<b>\$825</b>

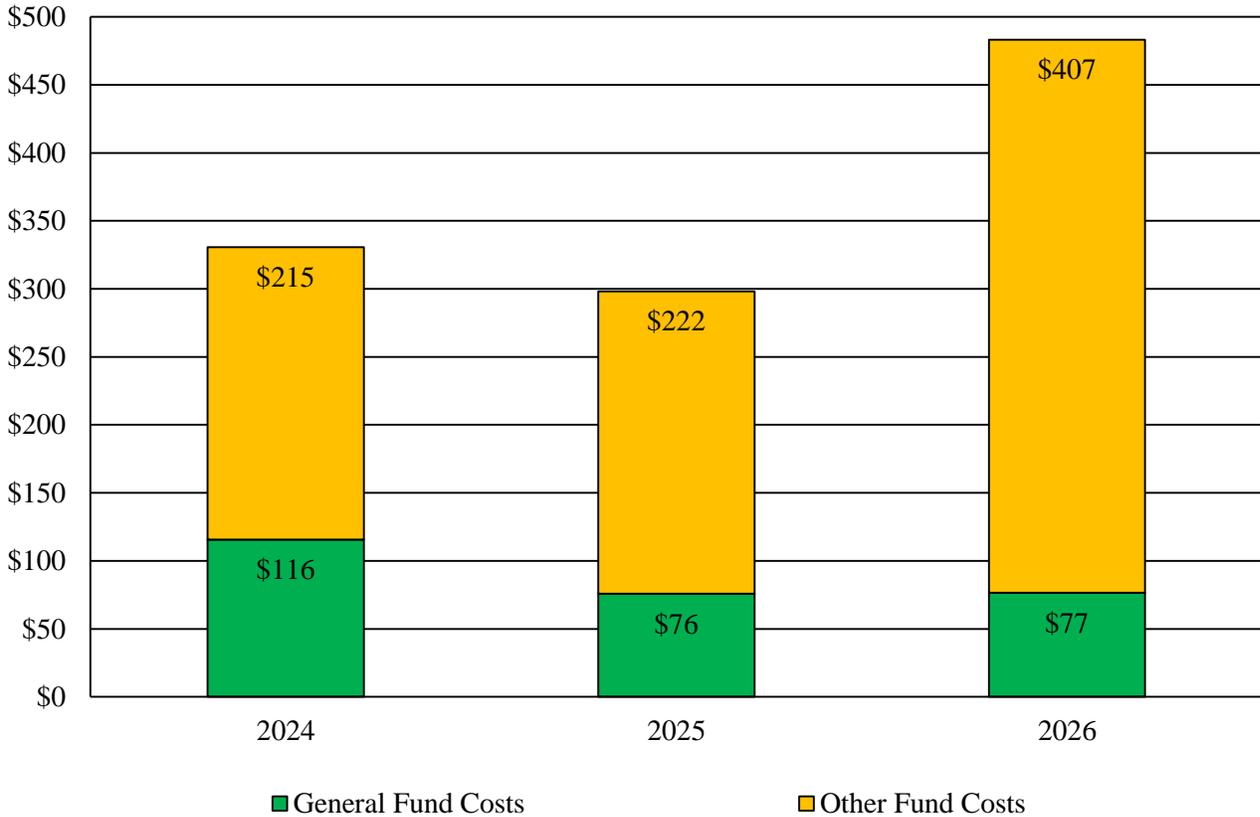
Note: Numbers may not sum to total due to rounding

Source: Department of Budget and Management; Department of Information Technology

**Out-year Forecasts**

Major IT projects require substantial financial commitments and take years to complete. **Exhibit 12** shows the expected out-year costs of major IT projects. In fiscal 2024, \$331 million in total appropriations and \$116 million in general fund appropriations are expected. Large anticipated fiscal 2024 general fund expenditures include \$21 million for MDH’s Medicaid Enterprise System Modular Transformation, \$18 million for MDH’s Electronic Health Records, and \$13 million for the Comptroller’s ITS.

**Exhibit 12**  
**Major Information Technology Development Project Fund**  
**Projected Out-year Expenditures**  
**Fiscal 2024-2026**  
**(\$ in Millions)**



Source: *Budget Highlights* Appendix N, Department of Budget and Management

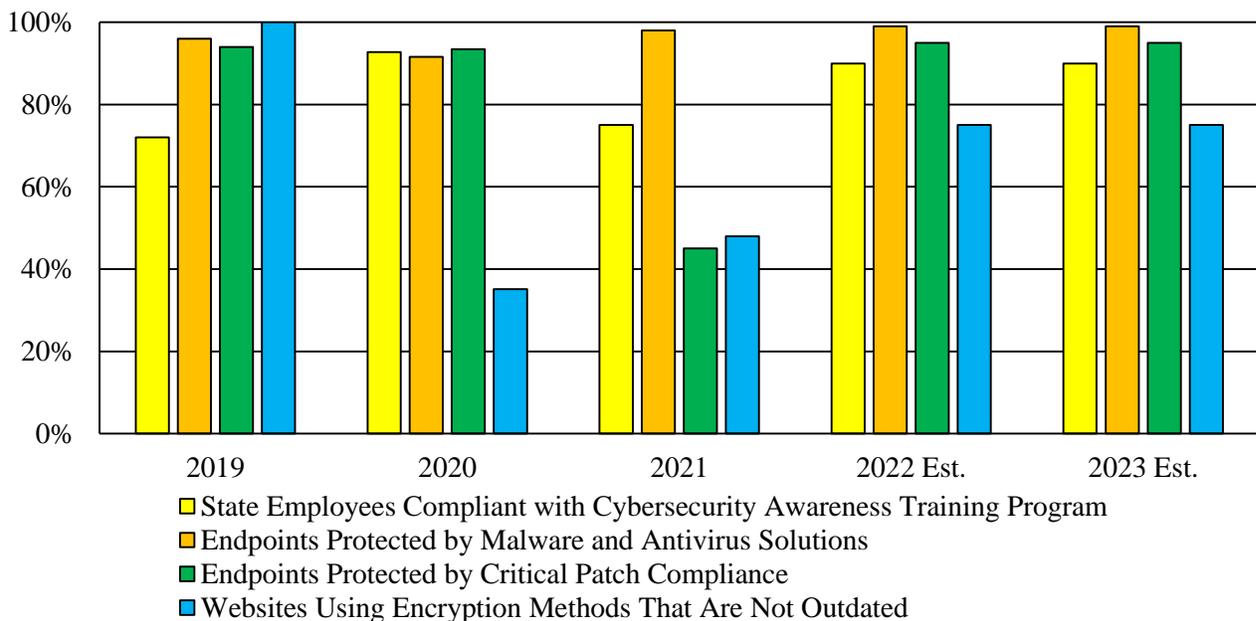
## Issues

### 1. Cybersecurity Threats and Solutions Are Evolving: What Should the State Do to Keep Up?

Cybersecurity is a major concern for the State. Recent victims of cyberattacks include Baltimore County Public Schools, Baltimore City, and MDH. The media routinely reports cybersecurity breaches, but many incidents are unreported. The State gives DoIT the lead responsibility in this area, and the State has made efforts to identify weaknesses and make improvements. The budget committees have encouraged DoIT to manage a robust cybersecurity program by requiring improved performance indicators and appropriately deploying sufficient resources.

In response, DoIT has updated its performance indicators, which are shown in **Exhibit 13**. These measures indicate where improvement is needed. For example, the number of websites using encryption methods that are not outdated was 35% in fiscal 2020 and 48% in fiscal 2021. DoIT advises that efforts have been updating encryption methods so that, in February 2022, 82% are not using outdated methods, which is higher than the 75% estimate for fiscal 2022.

**Exhibit 13**  
**Cybersecurity Indicators**  
**Fiscal 2019-2023**



Source: Department of Budget and Management

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Keeping employees compliant with the statewide cybersecurity awareness program seems to fluctuate from year to year. With respect to awareness training, there are several reasons for the fiscal 2021 drop in the indicator, including (1) several agencies that did not remove terminated employees; (2) one agency adding a significant quantity of users that were not given adequate time to complete training; and (3) many workers without traditional IT access as part of their job function being assigned training.

Fiscal 2021 also saw a decline in staying compliant with updating endpoints with critical patches. The two most significant factors were the expiration of support for three versions of Windows 10 and an application patch that the support team preferred the end-user be onsite to patch, which is a process that was complicated by the pandemic. This illustrates an unfortunate aspect of the pandemic; at a time that threats are increasing, it has become more difficult to implement processes to mitigate those threats. **The department should be prepared to brief the committees on its efforts to update cybersecurity processes that have become more difficult to implement during the pandemic.**

In recognition of the importance of cybersecurity, the Governor issued an executive order in June 2019 that created a State chief information security officer (SCISO) that is appointed by the Governor and reports to the Secretary of Information Technology. SCISO is also DoIT's Chief Information Security Officer, who supervises the Office of Security Management. The office is responsible for the direction, coordination, and implementation of the overall cybersecurity strategy and policy for the Executive Branch, which includes:

- establishing standards to categorize all information and information systems collected or maintained by agencies;
- establishing guidelines and security requirements governing the types of information and information systems included in each category;
- determining whether a system should be allowed to continue to operate or be connected to State systems, including networkMaryland;
- management of security awareness training for employees; and
- assisting in the development of data management, governance, and specification standards to promote standardization and reduce risk.

The order also created the Maryland Cybersecurity Coordinating Council (MCCC). The council includes the agency head or senior staff member designated by the agency head from 10 Executive Branch agencies.

As required, DoIT has developed cybersecurity policies for State agencies. The department's cybersecurity program is guided by CIA principles, which are commonly recommended by cybersecurity professionals. These objectives are also defined in the Federal Information Security Management Act. CIA stands for:

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- **Confidentiality:** keeping unauthorized individuals from obtaining data;
- **Integrity:** keeping data in its original form when stored, processed, or transmitted; and
- **Availability:** keeping systems open so that they can be accessed when needed.

The policies are informed by standards developed by the National Institute of Standards and Technology as the framework behind the planning, procurement, development, and implementation of State IT and telecommunications systems. DoIT's policies are available online. Areas covered include email, data security, social media, contingency planning, and configuration management. DoIT offers a substantial amount of guidance for State agencies. In June 2019, DoIT released version 1.2 of the *State of Maryland Information Security Manual*, which summarizes State cybersecurity policies.

Historically, State IT has been decentralized. In response to a request to review cybersecurity practices in the fiscal 2019 *Joint Chairmen's Report* (JCR), DoIT acknowledged that there are difficulties in securing multiple data centers. A concern about DoIT's role is that DoIT can make policies but cannot make agencies adhere to those policies. Creating MCCC with SCISO as chair raises DoIT's visibility.

### **Findings from State Agency Audits**

Through its audits, the Office of Legislative Audits (OLA) identifies findings that, if addressed, can reduce cybersecurity risks. **Exhibit 14** shows the findings since calendar 2015. Observations include:

- **PII Continues to Have the Highest Number of Findings:** PII has both the highest number of findings in 2021 and the average highest number of findings from 2015 to 2020. Audits often note that PII concerns are often attributable to legacy systems that have components that are no longer supported and thus more vulnerable to breaches if there is a cyberattack.
- **Number of Findings Related to Unnecessary User or File Access Remains Stubbornly High:** A key to limiting the damage a cybersecurity breach can cause is limiting access. To limit access, many organizations are adopting the principle of least privilege (POLP). Some benefits of this approach are that it limits the spread of malware, reduces costs by saving time and money needed to manage users, and reduces audit findings.
- **Increase in VPN Problems:** The COVID-19 pandemic has forced agencies to stretch remote access solutions beyond what they were initially intended to do or implement new capabilities quickly. As such, it is no surprise that this finding is more common now. DoIT's new Remote Workforce Enablement MITDP should address these issues. **DLS recommends that the committees adopt narrative requiring a report on the status of the Remote Workforce Enablement MITDP.**

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- ***No Findings of Not Deploying Anti-malware Solutions:*** In prior years, this was a common finding, but there were no such findings in calendar 2021. This is consistent with the MFR indicator that shows a high use of anti-malware solutions.
- ***No Findings of Excessive Administration Rights:*** This was common in prior years. Like unnecessary file use, limiting administration rights can limit damage if there is a breach.
- ***One Agency Did Not Secure Its System After a Ransomware Attack:*** In OLA’s audit of the Office of the Public Defender (OPD), OPD did not fully implement DoIT’s recommendations based on DoIT’s investigation of an IT security incident during March 2020. OLA advises that OPD experienced three significant hardware failures that resulted in OPD permanently losing critical data in the ransomware attack. The recommendations were made seven weeks after that attack and, as of March 2021, three recommendations had not been implemented. Systems that have been breached by cyberattacks are clearly vulnerable. It is especially important for those systems’ vulnerabilities to be addressed immediately.

**Exhibit 14**  
**Cybersecurity Audit Findings**  
**Calendar 2015-2021**

	<u>Average Findings 2015-2020</u>	<u>Findings 2021</u>
<b>Is High and Was High</b>		
Personally Identifiable Information	8.5	6
Unnecessary User or File Access	4.0	5
Intrusion Detection Prevention System Problems	3.5	3
<b>Is High and Was Low</b>		
Virtual Private Network Access Problems	0.3	4
<b>Was High and Is Low</b>		
Anti-malware	4.7	0
Log or Monitor Security Events	3.8	1
No or Inadequate SOC Review	3.8	1
Administration Rights	3.7	0
Software Not Updated	3.0	1
Firewall	2.8	1
<b>Has Been Low</b>		
Disaster Recovery Plan	1.3	0
Available Software Security Not Used	1.2	1
Did Not Secure After Ransomware Attack	0.0	1
Data Loss Prevention	0.3	0

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	<u>Average Findings 2015-2020</u>	<u>Findings 2021</u>
<b>Neither High nor Low</b>		
Excessive Network Level Access	2.3	2
Password Controls	1.5	2
<b>Other</b>	1.3	0
<b>Total</b>	<b>46.2</b>	<b>28</b>

SOC: System and Organizations Control

Note: High is 3 (rounded for 2015 to 2020 average); Low is 1 (rounded for 2015 to 2020 average).

Source: Office of Legislative Audits

### **DoIT Surveys State Agencies about Cybersecurity Risk Mitigation Practices**

The fiscal 2022 JCR required that DoIT submit a report on the how the department is addressing cybersecurity risks. DoIT submitted the report on January 2, 2022. The report included a survey of State agencies about their cybersecurity risk mitigation practices. DoIT sent surveys to 89 discrete agencies of State government, of which 70 responded in time for the report to the committees. All 21 departments responded to the survey. DoIT advises that the sample is representative of the data that it expects to collect from the remaining agencies. **Exhibit 15** shows the results of the questions included in the response to the committees.

### **Exhibit 15 Results of 2021 Cybersecurity Survey of State Agencies**

<u>Question</u>	<u>Percent of Responses</u>
Complete Inventory of IT Systems	66%
Complete Inventory of External IT Systems <sup>1</sup>	80%
Have Recovery Time Objectives and Recovery Point Objectives for IT Systems	50%
Agencies with Legacy Systems <sup>2</sup>	40%
Conducted a Cybersecurity Risk Assessment in the Last Two Years	60%
Perform Backups on a Regular Basis	75%
Multifactor Authentication for Email	63%
Multifactor Authentication for Remote Access	47%
Conduct Cybersecurity Training for Employees	96%

IT: information technology

<sup>1</sup> External IT systems include Software, Platform, Infrastructure, and niche “as-a-Service” offerings.

<sup>2</sup> A legacy system is defined as software or hardware that no longer receives updates; receives security patches; or has replacement parts and technical support available from the manufacturer.

Source: Response to Review of State Cybersecurity, page 58 of Fiscal 2022 *Joint Chairmen’s Report*, January 2022

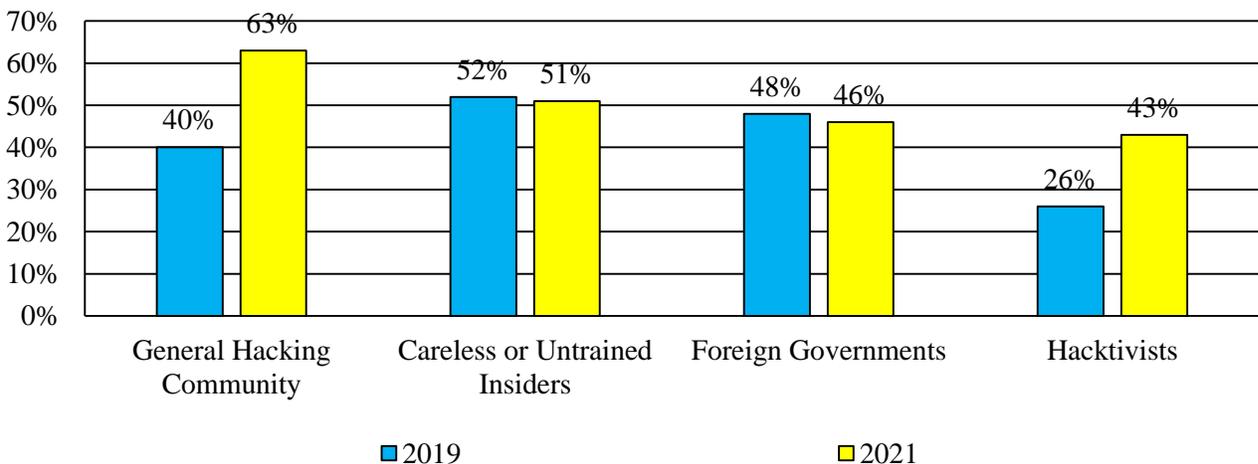
A significant concern is that this survey estimates that 40% of agencies are still using legacy systems that have well-known cybersecurity risks. Audit reports have identified legacy systems that expose PII. The high levels of PII audit findings are at least in part attributable to legacy systems. These legacy systems are also especially vulnerable to ransomware attacks. **DoIT should be prepared to brief the committees on progress made in replacing legacy systems.**

### **SolarWinds Report Provides Data on Cybersecurity Threats and Teleworking Trends**

The IT firm SolarWinds contracted with Market Connections to design and conduct an online survey among 200 federal, 100 state and local, and 100 education key staff in October 2021. SolarWinds was not revealed as the survey sponsor. The survey’s objective included gathering data about the challenges faced by public sector IT professionals and the sources of those threats as well as measuring the use of telework before and during the COVID-19 pandemic and in the future. SolarWinds released its study in November 2021.

**Exhibit 16** shows how these professionals’ views of the source of threats has changed. In calendar 2019, careless or untrained employees were considered the greatest cybersecurity threat. In 2021, the general hacking community was considered the greatest threat, which is quite a shift in perceptions. Hacktivists, individuals that gain unauthorized access to computer files or networks to further social or political objectives, were not previously considered as serious a threat but are now perceived to be the fourth most serious threat in this survey.

**Exhibit 16**  
**Changes in Sources and Threats**  
**Calendar 2019-2021**



Source: *SolarWinds Public Sector Cybersecurity Survey Report*, November 2021

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The survey collected data about which solutions were most important. The solutions for which over 75% of respondents rated somewhat and very important are:

- network security software;
- policy and compliance;
- VPNs;
- firewall and unified threat management;
- access and information protection;
- authentication; and
- privileged access.

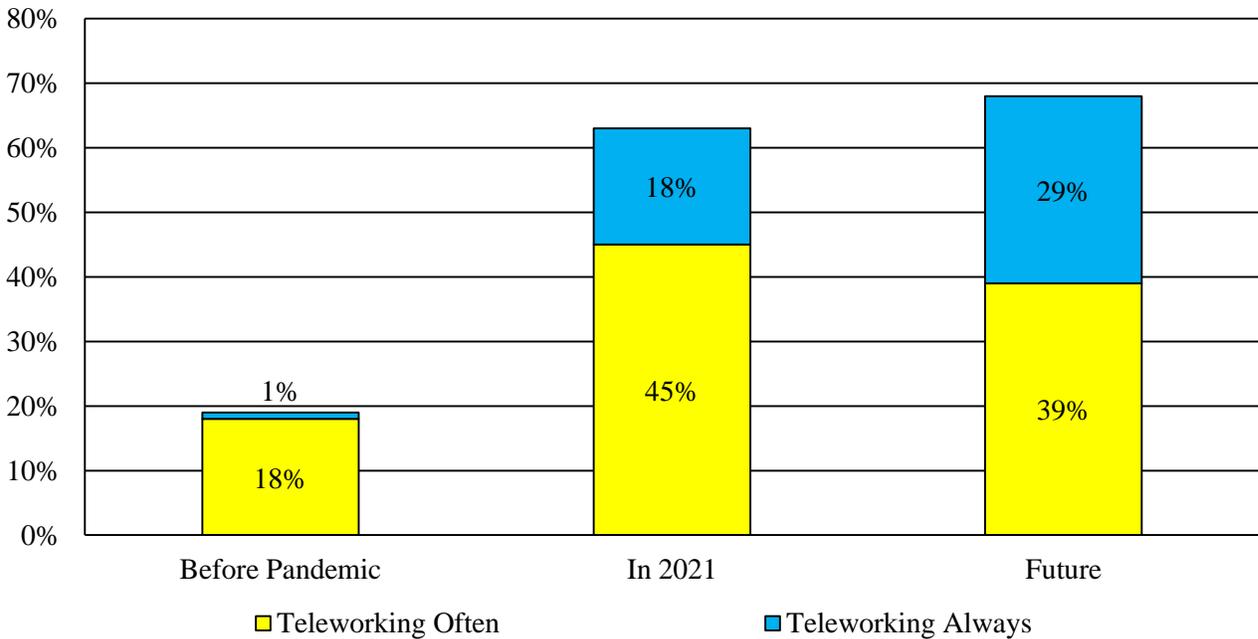
Observations about this list include:

- ***IT Education and Training Are Missing:*** One of the interesting aspects of this list is what is not on this list. Past conventional wisdom was that careless or untrained individuals posed the greatest cybersecurity risk, so the importance of training has been stressed, yet this list does not have IT education and training among the top seven solutions that were important to at least 75% of respondents.
- ***Importance of VPNs Reflects Increased Telework:*** VPNs mitigate cybersecurity risks associated with telework. The large share of employees now teleworking suggests this will be a key solution moving forward. The new Remote Workforce Enablement MITDP, discussed in Appendix 6, should address the State's need for a reliable and scalable VPN.
- ***Multifactor Authentication (MFA) Is Becoming the Rule:*** Recent hacks have highlighted the vulnerability of passwords. MFA allows a second check, such as an email to a particular device, to reduce the risk of unauthorized access into computer files or networks. The DoIT survey of State agencies shows that 63% of agencies have MFA for email and 47% have MFA for remote access. Some State agencies appear to be implementing MFA, but many agencies have not despite this being a recommendation from OLA.
- ***Reinforces Importance of Privileged Access:*** As discussed earlier, restricting access and POLP limit damage when there is a cybersecurity breach. Since breaches are not uncommon, steps need to be taken to limit damage when they occur.

Results from the survey suggest that teleworking is likely to become more common. **Exhibit 17** shows that the combined percentage of individuals that always or often telework is expected to increase in the future. This suggests that robust systems supporting telework need to be in place. To support

telework, DoIT’s fiscal 2023 allowance includes \$7.9 million for the Remote Workforce Enablement MITDP.

**Exhibit 17**  
**Telework Expectations**  
**Before Pandemic, Present, and Future**



Source: *SolarWinds Public Sector Cybersecurity Survey Report*, November 2021

## MDH Ransomware Attack

On December 4, 2021, MDH experienced a security incident involving its IT system. In a January 13, 2022, joint hearing of the House Health and Government Operations Committee and Senate Education, Health, and Environmental Affairs Committee, MDH revealed that this incident was a ransomware attack. MDH has reported that, at this time, no evidence suggests that this particular incident has resulted in unauthorized access or acquisition of any health department data.

However, the incident and MDH’s containment strategy has hampered certain everyday MDH processes. For instance, State-issued laptops were unable to be accessed until cleared by the forensics unit. MDH has reported that it has ordered additional equipment, including over 5,000 laptops, to continue operations during the incident.

This incident is still under investigation, and DoIT has limited the amount of information provided about the incident. While there is no evidence that the incident resulted in unauthorized access

or acquisition of data, the need to purchase 5,000 laptops suggests that the intrusion was wide and deep. **DoIT should be prepared to brief the committees on the status of the MDH ransomware attack, coordination between departments in response to the incident, lessons learned from the attack, and new policies and practices contemplated or adopted in response to the attack.**

## **Conclusions**

From the data examined, DLS draws the following conclusions:

- MFR shows that keeping above 90% compliance with respect to cybersecurity awareness training and critical patches is difficult to maintain every year.
- Audits show that there are still issues with keeping PII confidential and that there still are too many agencies providing excessive unnecessary user or file access.
- A DoIT survey estimates that 40% of agencies are still using legacy systems. These systems are no longer fully supported, which complicates addressing issues found in MFRs and audits.
- The SolarWinds report reinforces the need to limit access and suggests that the general hacking community and hackers are becoming a greater threat.
- The SolarWinds report finds that the number of employees that often or always telework will increase in the future, suggesting the need for robust defenses against cyberattacks.

## **2. Federal IIJA Provides Funding to Enhance Cybersecurity**

On November 15, 2021, President Joseph R. Biden, Jr. signed the IIJA. The Act includes two new programs to support state, territory, tribal, and local governments' cybersecurity enhancements and response efforts – the Cyber Response and Recovery Fund (CRRF) and the State and Local Cybersecurity Grant Program.

The CRRF provides support for significant incidents or a related group of incidents that result or are likely to result in demonstrable harm to national security, foreign relations, public confidence, civil liberties, or public health. The Act authorizes \$20 million annually from federal fiscal 2022 to 2028, which is \$140 million in total. The Secretary of Homeland Security, in consultation with the Director of the Cybersecurity and Infrastructure Security Agency, can declare a significant incident and give grants from the CRRF. Funds can support vulnerability assessment and mitigation, technical incident mitigation, malware analysis, analytic support, threat detection and hunting, and network protections, but funds cannot supplant any other funds. Since this is an emergency fund, it is unclear how much Maryland could receive.

The State and Local Cybersecurity Grant Program is a formula grant program. Maryland expects to receive between \$1.6 million and \$6.4 million annually from the program between federal

fiscal 2022 and 2025. The State is required to provide not less than 80% to local governments, of which at least 25% (20% of the total) should go to rural areas. Maryland must disburse the grants to local governments within 45 days of receiving the funds.

These funds can be used to implement cybersecurity plans, administer the grants (up to 5%), address imminent cybersecurity threats, and fund activities determined to be appropriate by the Department of Homeland Security. Funds cannot be used to supplant state or local funds, pay a ransom, support any recipient cost sharing contribution, support recreational or social purposes, or any purpose that does not address cybersecurity needs.

The IJJA also requires that states establish a cybersecurity planning committee that includes representatives from local government, including representatives from rural, suburban, and high-population areas, as appropriate. At least 50% of the committee members must have cybersecurity or IT experience. The committee should develop a plan that includes (1) information about existing plans to address cybersecurity risks; (2) an explanation of how the State will monitor and track threats; (3) an overview of plans to enhance preparation, response, and resilience to IT systems against risks; and (4) how the State will implement a process of continuous cyber vulnerability assessments and threat mitigation policies.

Since it does not have experience administering grants, DoIT may not be the ideal agency to administer this program. The mission of the Maryland Department of Emergency Management (MDEM) is to coordinate federal, State, local, and private resources, and cybersecurity is included in the homeland security mission as well. MDEM also has experience awarding grants, so MDEM may be better suited to administer this program. However, DoIT may receive a share of these grants and should be involved in planning. **DLS recommends that the committees adopt narrative requiring an update on the uses of IJJA funds and the status of the planning committee.**

### **3. Review of RSAs Is Recommended**

The State owns a number of IT assets. The State has entered into IT RSAs, whereby the State allows organizations to use a portion of these assets. Section 3A-307(c)(2) of the State Finance and Procurement Article requires that the Secretary of Information Technology determine if the value of a proposed RSA exceeds \$100,000. If it does, information about the proposal shall be submitted to the Legislative Policy Committee (LPC) and, simultaneously, public notice must also be given in eMaryland Marketplace (eMM). LPC may recommend that a resource sharing proposal be treated as a procurement contract.

In the fiscal 2012 JCR, the budget committees requested that DoIT report on standard pricing for tower RSAs. DoIT, in consultation with MDOT and Maryland Public Television (MPT), was requested to develop a standard pricing schedule. The report submitted by DoIT in December 2011 shows a pricing schedule with five zones. The zones are divided based on the average daily traffic that passes by each tower every day. Zones with higher traffic command higher fees. The schedule provides guidelines for cell phone towers, which account for the majority of RSAs reviewed by LPC.

## **Increasing Television Antenna Usage and New Kinds of RSAs**

The State owns towers that can transmit over-the-air (OTA) television and radio content. For example, MPT has a tower in Anne Arundel County that provides a strong broadcast signal for both the Baltimore and Washington, DC markets. MPT towers cover the entire State with additional towers in Frederick, Hagerstown, Oakland, Owings Mills, and Salisbury. Changing OTA viewership seems to be affecting RSAs for these assets.

OTA television viewership has been increasing in recent years, and broadcast stations are providing more channels to OTA viewers. Horowitz Research’s *State of OTA 2020* study estimated that 40% of viewers reported owning an antenna in 2020, compared to 29% in 2019. Nielson estimates that there were 121 million television-viewing households in the 2020 to 2021 season. Taken together, 48 million U.S. households now have television antennas and access to OTA broadcasts.

Forbes reports that broadcast stations have expanded their OTA viewership in recent years by expanding services. Broadcast station groups have been launching free OTA digital multicast networks, a capability begun in 2009 when digital, high-definition television replaced analog television. (These multicast networks are also called diginets.) Since digital signals can be compressed, local television stations can provide additional channels to viewers. A number of station groups have been launching multicast networks. These station groups see multicast channels and their OTA transmissions as a revenue opportunity as cable television viewing and penetration falters from cord-cutting (canceling a cable television subscription in favor of an alternative).

eMarketer.com estimates that cord cutting is expected to increase from 39 million in calendar 2019 to 55 million in 2022. The most common reasons for canceling cable television subscriptions are price; preference for streaming; and switching to antenna television.

Taken together, this data suggests that there are several reinforcing trends that are driving up the number of people watching broadcast television. This encourages broadcasters to add options to increase revenues as cable revenues slow or even decline, and additional options make purchasing antennas and consuming broadcast television more attractive and drive up demand.

### **Recent RSAs Include OTA Broadcast Towers**

LPC has recently received two RSAs involving MPT towers that call into question the appropriateness of using cell phone tower pricing for broadcast tower RSAs.

#### **RSA Allowing WMDE Television Station to Use MPT Tower in Anne Arundel County**

In July 2021, DoIT proposed an RSA that allowed RNN DC OpCo LLC (RNN) to use the MPT tower in Anne Arundel County. RNN is an independent media group that has multiple broadcast stations across the United States, including WMDE. The agreement, approved by LPC in September 2021, allows WMDE to broadcast from the MPT tower.

For the MPT tower RSA, DoIT used its standard pricing schedule for communications equipment RSAs. This pricing schedule recommends monthly fees for RSAs based on the amount of

traffic that passes by a tower or tunnel and the type of equipment installed on the site. Since the traffic around this tower is between 100,000 and 150,000 vehicles per day, this is in revenue zone 3. The equipment used by television broadcasters is type 4. Based on the type of equipment and amount of traffic around the tower, revenues from this proposal in the first year will total \$50,400. Revenues will then escalate by 3% annually. Revenues over the initial 10-year contract term will total \$577,800; if all four renewal options are exercised, revenues over the 30-year period would total \$2.4 million. Revenues will be retained by MPT.

### **RSA Allowing Adams Radio to Use MPT Tower in Salisbury**

In February 2022, DoIT submitted another proposed RSA, this one for the MPT tower in Salisbury. The vendor, Adams Radio Group, is a medium to small market radio company with local radio operations in Fort Wayne, Indiana as well as several cities in northern Indiana; Lakeville, Minnesota; Las Cruces, New Mexico; Salisbury-Ocean City, Maryland; and Tallahassee, Florida.

MPT currently has an agreement with Adams Radio of Delmarva, LLC that expires on March 20, 2022. Adams Radio did not initially request a new agreement but recently changed its decision. DoIT advises that the proposed monetary compensation is lower than the DoIT-established rates at this location but is the highest rate Adams Radio would accept. MPT will accept the lower rate to retain the revenues.

### **Standard Pricing Schedule May Not Be the Best Fit for MPT Towers**

DoIT's standard pricing schedule for tower RSAs determines cost by the type of equipment and the average daily traffic near the tower. For cell phone towers, which are usually one or two miles apart in suburban areas but can be as close as a quarter mile apart in cities, determining cost by traffic near the tower is appropriate. However, television broadcast signals cover a much larger area than cell phone towers. As previously noted, the MPT tower in Anne Arundel County provides a strong signal over most of Baltimore and Washington, DC. Therefore, measuring traffic near the tower may not be ideal for measuring the value of a television antenna. In its letter to LPC, DLS noted that this proposal was consistent with the standards that have been in place since 2012 but raised concerns that these standards are not appropriate for television broadcast equipment.

Another issue is that broadcast radio and television stations generate revenues from ads and that these revenues can vary depending on factors like the medium being broadcast (radio or television), size of the market, and the broadcaster's market share. None of these factors are considered in the current standard pricing schedule.

**DLS recommends that the committees adopt narrative requiring DoIT and MPT to review the applicability of using the standard pricing schedule for pricing OTA television and radio broadcasts and develop guidelines that bring OTA broadcast pricing more in line with the equipment's range and viewership or listenership.**

## Operating Budget Recommended Actions

1. Adopt the following narrative:

**Managing for Results Goals and Indicators for Services to State Agencies:** The Department of Information Technology’s (DoIT) fourth Managing for Results (MFR) goal is to provide efficient and high-quality information technology services to State agencies. DoIT also has indicators that measure the workload and efficiency. However, the goal does not address value, and there are no indicators for costs. Many of the services that DoIT provides are comparable to services provided by the private sector and other organizations. DoIT should expand its MFR goals to include value and add indicators that measure costs and value. The department should report these indicators with the fiscal 2024 budget.

<b>Information Request</b>	<b>Author</b>	<b>Due Date</b>
MFR indicators for value and costs of DoIT’s services to State agencies	DoIT	With the fiscal 2024 budget submission

2. Adopt the following narrative:

**Plan for Spending Cybersecurity Funds Appropriated in the Dedicated Purpose Account:** The Department of Information Technology (DoIT) will have access to up to \$110 million in funding in the Dedicated Purpose Account (DPA) to support cybersecurity efforts. DoIT advises that these funds will fund the next phase of the cybersecurity assessments, including ongoing cybersecurity, vulnerability risk and reduction assessments, privacy impact assessments, and implementation of remediation recommended by the assessments. Additionally, the funding will support security incident response efforts, like the ransomware attack at the Maryland Department of Health. Audit findings have noted that it is too common for legacy systems to have cybersecurity risks. DoIT should report on its plans to spend funds in the DPA. This should include discussions of how and when the funds will be spent; lessons learned from assessments; and progress made securing State information technology hardware, software, and systems. It should also include an update on efforts made to address cybersecurity risks in legacy systems.

<b>Information Request</b>	<b>Author</b>	<b>Due Date</b>
Report on spending DPA funds	DoIT	December 16, 2022

3. Adopt the following narrative:

**Update Remote Workforce Enablement Major Information Technology Development Project:** Audits from 2020 have four audit findings in which agencies have issues associated with virtual private networks (VPN). A survey of information technology professionals

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released by SolarWinds estimates that more staff will be teleworking often or always in the future than during the COVID-19 pandemic. It is reasonable to expect that State agencies that are currently teleworking will continue to telework. To reduce cybersecurity risks and improve teleworking productivity, the Department of Information Technology’s (DoIT) fiscal 2023 budget includes \$7.9 million for the Remote Workforce Enablement Major Information Technology Development Project (MITDP), which develops a VPN that provides a single, secure network for State agencies on DoIT’s enterprise system. The department should report to the committees on the status of the Remote Workforce Enablement Major IT Project. This update should include a timeline for implementing the project, a list of agencies that will be using the VPN, and if any agencies not on the DoIT’s enterprise system will be using the new VPN.

<b>Information Request</b>	<b>Author</b>	<b>Due Date</b>
Report on Remote Workforce Enablement MITDP	DoIT	January 3, 2023

4. Adopt the following narrative:

**Infrastructure Investment and Jobs Act (IIJA) Funding and Reporting:** The federal IIJA creates the State and Local Cybersecurity Grant Program. Early estimates are that Maryland will receive \$16 million from this fund from federal fiscal 2022 to 2025. The State is required to give at least 80% of these funds to local governments and 25% of the local grants (or 20% of total grants) to rural areas. The Act also requires that the State have a cybersecurity planning committee. The committee should prepare a plan that includes (1) information about existing plans to address cybersecurity risks; (2) an explanation of how the State will monitor and track threats; (3) an overview of plans to enhance preparation, response, and resilience to information technology systems against risks; and (4) how the State will implement a process of continuous cyber vulnerability assessments and threat mitigation policies. The department should submit a status report to the committees that identifies how these grants will be distributed, when the cybersecurity planning committee will begin its work, any efforts made preparing the plan, and when the department anticipates the plan will be ready.

<b>Information Request</b>	<b>Author</b>	<b>Due Date</b>
Report on IIJA funding and planning	Department of Information Technology	November 18, 2022

5. Adopt the following narrative:

**Pricing Maryland Public Television Tower Resource Sharing Agreements:** In December 2011, the Department of Information Technology (DoIT), the Maryland Department of Transportation, and Maryland Public Television (MPT) developed a standard pricing schedule for cell phone tower resource sharing agreements (RSA). Pricing is a function of the amount of traffic around a tower and the type of equipment on the tower. This has been effective

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in standardizing revenues from cell phone tower RSAs. In recent years, factors such as digitized broadcast signals and additional channels from broadcasters have contributed to increased antenna television viewership. In calendar 2021, MPT entered into an RSA with a television broadcaster for its Anne Arundel County tower. In February 2022, DoIT notified the Legislative Policy Committee of a proposal to renew an RSA with a radio station using the Salisbury tower. The Anne Arundel County MPT tower, which has strong signals to both the Baltimore and Washington, DC television markets, was priced based on the vehicle traffic around the tower even though the tower’s signals reach well beyond this traffic. The pricing for the radio station will be below the amount recommended by the standard pricing schedule. DoIT and MPT should develop pricing strategies and schedules for MPT towers for both radio and television. The agencies should consider factors like distance that the signal covers, size of the market, and broadcaster’s market share.

<b>Information Request</b>	<b>Author</b>	<b>Due Date</b>
Report on standard pricing schedules for MPT RSAs	DoIT MPT	December 2, 2022

6. Adopt the following narrative:

**State Chief Data Officer and State Chief Privacy Officer:** Executive orders in July 2021 created the positions of State Chief Data Officer and State Chief Privacy Officer. The positions will develop, monitor, and direct State policies concerning data availability and privacy. These positions are appointed by the Governor. The order also created agency data officers and agency privacy officers in State agencies that work with the State officers. The Department of Information Technology’s (DoIT) fiscal 2023 budget also includes \$3.4 million in new contracts to support these positions. To inform the committees, the Governor’s Office and DoIT should report to the committees on the role of these new positions, policies developed by these positions, progress made toward accomplishing objectives set in the executive orders creating the positions, and spending plans for the funds budgeted to support these positions.

<b>Information Request</b>	<b>Author</b>	<b>Due Date</b>
Report on State Chief Data Officer and State Chief Privacy Officer	Governor’s Office DoIT	September 30, 2022

**Appendix 1**  
**2021 Joint Chairmen’s Report Responses from Agency**

The 2021 JCR requested that DoIT prepare five reports. Electronic copies of the full JCR responses can be found on the DLS Library website.

- ***Report on Website of Each Principal Department:*** DoIT was required to report on the websites of each principal department. On August 10, 2021, DoIT submitted a letter to the budget committees with a report on the status of the websites. The letter noted that DoIT was able to find both department secretary and deputy secretary names and pictures for 15 of 20 websites. At the time, DoIT is not aware of any plans to add the names and pictures to agency websites that do not currently have them posted.
- ***Review of State Cybersecurity:*** The committees required that DoIT report on cybersecurity issues. The report was submitted in January 2022 and is discussed in Issue 1 of this analysis.
- ***IT Debt and Enterprise Share Services IT Support Study:*** As required by the committees, DoIT submitted a report on its enterprise IT services to the committees on December 1, 2021. The report reviewed the enterprise IT program, business continuity and disaster recovery, and cybersecurity operations.
- ***Maryland Total Human-services Integrated Network (MD THINK) Project Cost Estimates:*** DoIT, the Department of Human Services (DHS), and DBM were required to report on July 1, 2021. The report was submitted. It reconciled appropriations and spending from fiscal 2017 to 2021.
- ***Report on Agencies with Cybersecurity Audit Findings in 2020:*** The committees required that DoIT report on cybersecurity issues. The report was submitted in January 2022. It updated the status of cybersecurity audit findings for seven departments and independent agencies.

**Appendix 2**  
**Major Information Technology Development Project Fund**  
**Fiscal 2023**  
**(\$ in Thousands)**

**New Projects**

**Agency:** Comptroller **Allowance:** \$5,000 GF

**Project Name:** Payroll/FMIS Replacement

**Description:** Replace legacy mainframe payroll system with a cloud-based integrated software as a service (SaaS) solution for payroll processing. Also, replace the FMIS, which is the State’s accounting system of record that includes accounting, purchasing and inventory, and reporting applications. In a separate project, the State is upgrading its procurement system to provide a flexible system that provides management data and is integrated with the accounting system.

**Status:** This is a new project for which planning is beginning. There is no Information Technology Project Request (ITPR) for this project. Costs are estimated to total \$11 million, including \$6 million in special funds from agencies that will use the system.

**Recommendation:** Approve and recommend narrative requiring the Comptroller’s Office to report project status to the budget committees.

**Agency:** DBM **Allowance:** \$1,000 GF

**Project Name:** Capital Budget Information System Replacement

**Description:** Replace the 16-year-old capital budgeting system. The new system should improve productivity by reducing time spent on formatting and fixing reports. Increased flexibility and customizability should improve output.

**Status:** This is a new project for which planning is beginning. There is no ITPR for this project. Costs are estimated to total \$4 million in general funds.

**Recommendation:** Approve.

**Agency:** Department of General Services (DGS) **Allowance:** \$3,500 GF

**Project Name:** DGS Operations Center (DOC)

**Description:** DOC will develop a system in which data from DGS-owned buildings will be gathered, analyzed and distributed for appropriate action.

**Status:** To date, the business justification is completed. The project has developed strategic goals and identified critical success factors, customers, and external dependencies. Activities to be completed in fiscal 2022 include developing the Agile implementation plan, system administration manual, and disaster recovery plan. Activities planned for fiscal 2023 include responsibility assignment matrix, functional requirements, and selecting an Agile project management tool. The total cost is estimated to be \$7.3 million in general funds.

**Recommendation:** Approve.

*F50 – Department of Information Technology*

**Agency:** DGS **Allowance:** \$1,600 GF

**Project Name:** AS 400 Replacement

**Description:** Implement a new management tool to track financial, schedule and progress of capital projects.

**Status:** At this point, the project schedule is rudimentary. Deliverables in fiscal 2023 include the project charter and management plan. The other work, such as functional requirements, responsibility assignments, and selecting an Agile project management tool, is scheduled for fiscal 2024. Total project costs are estimated to be \$2.6 million in general funds.

**Recommendation:** Approve.

**Agency:** DNR **Allowance:** \$925 GF

**Project Name:** Park Reservation and Revenue Management System (PRRMS)

**Description:** Develop a web-based, mobile-enabled PRRMS.

**Status:** In fiscal 2023, DNR plans to hire a firm to bring on project managers and business analysts that work with stakeholders to analyze the park system’s current operation and infrastructure. This will include market research, gap analysis, developing and releasing a request for information, and developing and releasing an RFP. Estimated costs total \$9 million. The fiscal 2023 budget includes a \$500,000 special fund appropriation from the Forest and Park Reserve Fund.

**Recommendation:** Approve.

**Agency:** DoIT **Allowance:** \$2,088 GF

**Project Name:** Enterprise GIS Modernization

**Description:** Update systems that support GIS and open data that is available to the public.

**Status:** GIS technology and uses are advancing quickly, and the current systems are becoming obsolete. Current systems are limiting service expansion and cumbersome to maintain. The project has not yet started. Most of the planning and implementation should be done in fiscal 2023. The final appropriation is approximately \$593,000 in fiscal 2024.

**Recommendation:** Approve.

**Agency:** DoIT **Allowance:** \$7,900 GF

**Project Name:** Remote Workforce Enablement

**Description:** Develop a platform to enable workers to securely and effectively access the IT resources, services, and systems while working outside of the office.

**Status:** DoIT has explored and evaluated the technological options available to form the basis of the proposed platform. In November 2021, DoIT launched a pilot project to implement the foundational technology components for the platform. This project will be limited in scope to support DoIT workers only and will serve to prove the concept of the platform and the proposed service offering to all agencies inside DoIT’s enterprise operations services. The plan is to implement enterprise services in the second half of fiscal 2023. The service will be offered to State agencies that do not currently receive enterprise services. No out-year costs are anticipated.

**Recommendation:** Approve and recommend narrative requiring DoIT to report project status to the budget committees.

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**Agency:** MDH **Allowance:** \$2,200 GF

**Project Name:** License and Regulatory Management System

**Description:** An Enterprise Licensing and Regulatory Management Solution capable of the management of every aspect of licensing and discipline. These capabilities include software licenses and support, systems analysis, development, implementation, and support services for the Health Occupation Boards.

**Status:** This project is a continuation of the IT licensing project initiated by the Board of Physicians in 2015. The scope has changed to include the various Health Occupation Boards within MDH. MDH has selected the OneStop Portal as the platform for the enterprise licensing system. MDH anticipates development of an Enterprise Licensing and Regulatory Management System, for whichever board is identified by the DoIT feasibility study, to begin in fiscal 2023. Total costs are estimated to be \$9.4 million.

**Recommendation:** Approve.

**Agency:** MDH **Allowance:** \$3,669 GF

**Project Name:** Bed Registry Referral

**Description:** Create a mental health and substance use disorder bed registry and referral system that will track available capacity to refer individuals for services, as required by Chapter 29 of 2020.

**Status:** A feasibility study was commissioned to give an overview of high-level requirements, lessons learned from other state experiences, and potential partner vendors with assistance available from the State's health information exchange. Information has been gathered from discussions with five additional states (Colorado, Connecticut, Florida, Georgia, and Rhode Island,).

**Recommendation:** Approve.

**Agency:** MDH **Allowance:** \$1,169 GF

**Project Name:** Office of Controlled Substances Operations Systems Integration and Modernization

**Description:** Implement a new platform to replace existing legacy systems for registrant application processing of Controlled Dangerous Substance registrations.

**Status:** A requirements analysis has been completed, and the project expects to be posted on the OneStop portal. Risks for this project relate to the lack of full-time IT staff and a lack of IT proficiency in the workforce. Estimated fiscal 2024 costs are \$410,000.

**Recommendation:** Approve.

**Agency:** MDH **Allowance:** \$111 GF

**Project Name:** Maryland AIDS Drug Assistance Program (MADAP) Case Management System

**Description:** Modernize case management systems for MADAP.

**Status:** The project was originally planned as a work order on a DoIT master custom and technical services plus contract but, due to the scope changes to establish a new system and move off of the current WebFOCUS system, the project is now classified as an MITDP. MDH is in the process of updating the requirements for the case management system. Total costs are estimated to be \$7.6 million, of which \$55.5 million are general funds. **DLS has expressed concerns that MADAP is not taking advantage of available MADAP rebates so that the project will be predominantly funded with general funds.**

**Recommendation:** Approve.

## Ongoing Projects

**Agency:** Comptroller

**Allowance:** \$12,852 GF

**Project Name:** ITS

**Description:** Replace current State of Maryland Tax, Computer Aided Collection System, and other systems. Objectives are to integrate systems for efficiency; to simplify taxpayer compliance; reduce wait times; and improve security, including disaster recovery.

**Status:** Currently, the project has a contract with a vendor to provide IT management consulting services. Project includes risks such as resource availability (resources within the Comptroller’s Office do not have skill sets required) and interdependencies (linked to systems being modernized). The alcohol tax and the corporate tax release have been implemented. The sales, withholding, and business taxes release is currently under development. Costs are shared with local governments. Concerns have been raised that the schedule is at risk due to resource shortages. Fiscal 2023 appropriations are estimated at \$12.9 million in general funds and \$11.9 million in special funds. Project costs are projected to be \$159 million. The final appropriation is expected to be in fiscal 2025.

**Recommendation:** Approve and recommend narrative requiring the Comptroller’s Office to report project status to the budget committees.

**Agency:** DGS

**Allowance:** \$5,050 GF

**Project Name:** eMaryland Marketplace Advantage eProcurement Solution

**Description:** Replace current eMM procurement system with a cloud-based, SaaS system.

**Status:** The public bid board contract management releases have been implemented. Release 1.2 was rolled out as a pilot program in December 2021. This release supports vendor management includes supplier onboarding and vetting, document collection, supplier diversity management and Minority Business Enterprise data, and integration with the State budget system (R\*STARS). To be more efficient, 1.2 includes purchase order (PO) and non-PO vendor setup, vendor maintenance process that allows vendor- and State-initiated change requests for vendor information, and automatic vendor record (including address, tax ID, sanctioned entities, and bank routing number) validation. Total costs are projected to be \$41 million, and fiscal 2023 is the final appropriation.

**Recommendation:** Approve.

**Agency:** DHS

**Allowance:** \$100 GF

**Project Name:** MD THINK

**Description:** Integrate human services systems among State agencies. MDH, the Department of Juvenile Services, and the Maryland Health Benefit Exchange are collaborating with DHS. The objective is to provide a streamlined application process for customers and workers.

**Status:** MD THINK is replacing three major systems; the Child, Juvenile, and Adult Management System; Eligibility and Enrollment implementation; and Child Support Management System should be completed by the end of fiscal 2022. The legacy systems that MD THINK is replacing are expected to be decommissioned by the end of fiscal 2022. Total costs are \$433 million, of which \$103 million are general funds. This is the final appropriation that supports oversight. Any unspent general funds, which are estimated to total \$8.2 million, will be reappropriated for a different major IT project.

**Recommendation:** Approve.

*F50 – Department of Information Technology*

**Agency:** DNR **Allowance:** \$5,500 GF

**Project Name:** Modernization and OneStop Integration

**Description:** Implement a web-based platform that is integrated with internal and external systems. The current system is not integrated, which leads to manual entry, duplicative reporting, and incorrect reports.

**Status:** The project has completed the first phase, which is to digitize DNR’s workflow. The second phase, to plan a comprehensive system with an interface with DNR customers, is occurring in fiscal 2022. The final phase to implement the new system is planned for fiscal 2023 and 2024. Since January 2021, total costs have increased from \$17.3 million to \$21 million, and the project has been extended one year, with the final appropriation expected in fiscal 2024. The additional costs are attributable to reductions to appropriations in the first two years of funding and the cost of first-year operations, which was not included in prior estimates.

**Recommendation:** Approve.

**Agency:** DoIT **Allowance:** \$8,000 GF

**Project Name:** Maryland OneStop Portal

**Description:** Develop a portal that directs internet searches to the appropriate online form.

**Status:** MDH, the Maryland Higher Education Commission (MHEC), the Department of Commerce (Commerce), the Secretary of State, DNR, the Maryland Department of Agriculture (MDA), and the Department of Housing and Community Development’s (DHCD) Economic Recovery Initiatives have forms integrated into the system. The COVID-19 pandemic has increased the need to bring paper processes online. Funding is planned through fiscal 2024, which projects \$4 million in appropriations. Total costs for the OneStop Portal increase by \$4 million since last year. DoIT advises that the increases are the result of additional customer agency requests to join the platform. Additionally, customer agencies often expand the number of forms from the initial request.

**Recommendation:** Approve.

**Agency:** DoIT **Allowance:** \$1,850 GF

**Project Name:** Enterprise Solutions Planning Initiative

**Description:** Provide integrated planning support to IT solutions requests received across multiple agencies.

**Status:** The project is engaging agencies with common needs and data, developing appropriate strategies and architecture, identifying acquisitions, and determining technologies and systems for implementation. These costs are ongoing.

**Recommendation:** Approve.

**Agency:** Department of Public Safety and Correctional Services (DPSCS) **Allowance:** \$3,291 GF

**Project Name:** Computerized Criminal History (CCH) Replacement Phase II

**Description:** The 30-year-old legacy system, which includes the Ident/Index and Arrest Disposition Reporting mainframe systems, will be replaced with an enhanced solution that allows for the provisioning of timely, updated offender information to local law enforcement, community supervision programs, and other DPSCS constituents. The new system will provide effective monitoring, rehabilitation, and case management of offenders within these programs, providing timesaving processes that eliminate manual processes while providing consolidated information within a single data system.

**Status:** The project has been delayed. No funds were appropriated beyond fiscal 2021. DPSCS’s federal grant was reverted due to the project’s delays. A mainframe solution was initially envisioned. Now a cloud-based

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solution is being pursued. The project completed technical reviews of proposals submitted in response to the RFP for the replacement CCH. Since January 2021, total costs have increased by \$3.1 million, and the final appropriation has been extended from fiscal 2023 to 2025. This is attributable to delays.

**Recommendation:** Approve.

**Agency:** DPSCS

**Allowance:** \$3,979 GF

**Project Name:** Electronic Patient Health Record Replacement (EPHR)

**Description:** EPHR will replace an outdated system with a comprehensive health records system that interacts with inpatient, social work, and mental health systems, to provide comprehensive, primary, secondary, and specialty health services.

**Status:** DPSCS awarded a contract for implementation services. A notice to proceed has been issued. The project teams are defining milestones for the first phase of the project. In fiscal 2021, the project anticipates beginning development and integration activities, which is followed by data migration activities. The project is winding down, and fiscal 2023 is the last appropriation, \$50,000 for oversight.

**Recommendation:** Approve.

**Agency:** Governor’s Grants Office (GGO)

**Allowance:** \$450 GF

**Project Name:** Statewide Grants System

**Description:** There is no centralized system for grant tracking and reporting grants. The system will integrate existing statewide accounting and personnel systems to report on the use of grant funds.

**Status:** The project is in planning with requirements gathering, procurement, and staffing-related tasks progressing as expected. The project team developed and published a statewide grants management survey to gather preliminary system requirements and gauge interest for early adoption among participating agencies. The requirements gathering process started with grouping agencies into cohorts to facilitate implementation planning. The completion of the project has been delayed by one year. GGO had chosen a vendor, but the contract was not approved by the Board of Public Works (BPW), so GGO will start the procurement process. Estimated total costs are \$27.7 million.

**Recommendation:** Approve.

**Agency:** Maryland Department of the Environment (MDE)

**Allowance:** \$134 GF

**Project Name:** Lead Rental Certification and Accreditation

**Description:** Migrate decentralized legacy systems and databases into a web-based relational database.

**Status:** The project team has completed the accreditation module framework and the workflow analysis supporting the inspection, certification, and enforcement modules. The project team is focused on the accreditation module screen customization. This customization is complete. The final fiscal 2023 appropriations are less than previously anticipated.

**Recommendation:** Approve.

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**Agency:** MDH

**Allowance:** \$4,140 GF

**Project Name:** Integrated Electronic Vital Records Registration System

**Description:** Replace legacy paper and electronic system with a system that will allow eligible professionals, hospitals, and health departments to submit data electronically. It should include improved pharmacy and medical records. It modifies a California system that is integrated into MD THINK.

**Status:** Project has been meaningfully delayed at a significant expense compared to information presented with the fiscal 2022 budget – estimated costs for completion have increased by \$12 million, and the project is now not slated to be completed until December 2024, a year-and-a-half delay from the prior year. Three factors have contributed to additional costs: (1) increasing the scope of the federal grant; (2) migration to MD THINK; and (3) workload issues related to the COVID-19 pandemic as increased deaths and local health department shutdowns affected Division of Vital Records staff workload. The project’s total costs are now \$27.7 million, of which \$24.3 million is general funds.

**Recommendation:** Approve.

**Agency:** MDH

**Allowance:** \$5,393 GF

**Project Name:** LTSS

**Description:** Implement an integrated care management system to track long-term care services as well as develop a standardized assessment and in-home services verification tool. The system is key to the State’s strategy to support home- and community-based services for vulnerable Medicaid recipients.

**Status:** Recent software enhancements include new features for the Rare and Expensive Medical Case system and improvements to existing functionality. LTSS also completed its portion of the Eligibility and Enrollment interface with the MD THINK system and has begun a multi-year implementation of Waiver Model functionality. Fiscal 2023 also includes \$29.6 million in federal funds. Total project costs are \$62.4 million in general funds and \$389.4 million in federal funds.

**Recommendation:** Approve.

**Agency:** MDH

**Allowance:** \$19,143 GF

**Project Name:** Medicaid Enterprise System Modular Transformation

**Description:** Procurement of a modern Medicaid Management Information System to replace current system, which is antiquated and inflexible. Three key goals are real time adjudication of claims, a new financial management system to automate the federal fund claims process, and improved reporting capability. Project will cover all aspects of the Medicaid program such as pharmacy, provider management, claims processing, and decision support, as well as migration to the MD THINK cloud solution.

**Status:** The first four modules are (1) behavioral health; (2) pharmacy; (3) interoperability rule; and (4) Department of Recoveries and Financial Services (DARFS), of which behavioral, pharmacy, and DARFS are facing challenges. A fifth module, a surveillance and utilization review subsystem, has a procurement and should begin work in calendar 2022. The fiscal 2023 budget includes \$118 million in federal funds. Total costs are \$789 million, of which \$129 million are general funds.

**Recommendation:** Approve.

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**Agency:** MDH

**Allowance:** \$6,595 GF

**Project Name:** Migrate MDH Headquarters Data Center to the Cloud

**Description:** Migrate all systems in the MDH data center into the cloud, including systems that support Medicaid, the Behavioral Health Administration, the Developmental Disabilities Administration, and certain boards. The cloud solution will need to comply with State and federal privacy laws and security policies.

**Status:** The project started the migration of MDH data, server software, and applications to the new hosting environment, which has been completed on schedule. Procurement of Disaster Recovery (DR) resources at a secondary hosting facility has been completed, which will give MDH the large-scale DR capability it has been lacking. Planned activities include implementation of the DR site, migration of entire virtual server and data storage systems from the legacy MDH data center to cloud resources, migration of physical server systems and applications from the legacy MDH data center to cloud resources, and retirement of the legacy MDH data center. Total costs are \$22.5 million, which is \$6.3 million less than projected in January 2021. The final appropriation, totaling \$5.9 million, is anticipated in fiscal 2024.

**Recommendation:** Approve.

**Agency:** MDH

**Allowance:** \$1,050 GF

**Project Name:** Statewide Voice over Internet Protocol (VoIP) Transition

**Description:** Migrate MDH’s telephone system into VoIP. MDH currently uses private branch exchange (PBX)-based telecom technology that is at the end of its life. MDH has a total of 5,500 phones in 18 facilities with 16 of those sites using end-of-life PBX systems. Hardware, such as PBX equipment, and software will be replaced.

**Status:** MDH is testing requirements and researching vendors. When completed, this will move the phones at all 18 sites to a cloud-based VoIP environment. Total project costs increased from \$11.6 million in January 2021 to \$15.4 million, due to delays.

**Recommendation:** Approve.

**Agency:** Interagency Committee for School Construction (IAC)

**Allowance:** \$400 GF

**Project Name:** IAC Business Management System

**Description:** Procure and establish a configurable, online business management system that will contain, route, and save the documents and information related to the IAC’s many business processes, consistent with Chapter 14 of 2018.

**Status:** The project start date was originally August 2020. However, the RFP was canceled in November 2020. The organizational culture is a high risk since IAC was a standalone agency from 1971 to 2018 and is now under MSDE. IAC’s unusual structure also makes technical issues a high risk. The project is technically difficult in that it must route multiple transactions through multiple funding programs and through staff from multiple agencies. Procuring a solution that meets these requirements as IAC business processes change may be challenging. The procurement has been delayed; DoIT anticipates that it will be awarded at the end of fiscal 2022. The estimated fiscal 2023 appropriation is \$600,000 with another \$1.7 million planned in fiscal 2024 and 2025.

**Recommendation:** Approve.

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**Agency:** Department of State Police **Allowance:** \$915 GF

**Project Name:** Automated Licensing and Registration Tracking System

**Description:** Automate and streamline the process by which a citizen requests approval to purchase a firearm.

**Status:** The following licenses have been completed since the end of fiscal 2020: Security Guard and Agency; Private Investigator and Agency; Security Systems Technician and Agency; Special Police; Railroad Police; and the application for Bulletproof Armor. In June 2021, the project team implemented the Professional Licensing Portal and automated 10 additional applications and permits. This is the final appropriation, so no additional appropriations are anticipated.

**Recommendation:** Approve.

**Agency:** State Board of Elections (SBE) **Allowance:** \$3,447 GF

**Project Name:** Pollbook Project

**Description:** Procure and implement a new pollbook system, which is used for voter registration and related voter functions.

**Status:** Implementation has been delayed until the 2024 elections. A new vendor was selected in October 2021. BPW approved extending the current vendor's contract through the 2022 elections. Total project costs are \$25.4 million, including \$8.6 million in general funds.

**Recommendation:** Approve and recommend narrative regarding local cost sharing and project updates to the budget committees by SBE.

**Agency:** State Department of Assessments and Taxation **Allowance:** \$22 GF

**Project Name:** Cloud Revenue Integrated System

**Description:** Replace paper-based and mainframe systems with cloud-based system.

**Status:** Components are being completed and released. Components to be implemented in fiscal 2022 include homeowner and renters tax credit application forms. Data migration to the OneStop portal should also be implemented in fiscal 2022. Homestead tax credit components should be delivered in fiscal 2023. Total project cost of \$21 million, of which \$2.6 million is in general funds.

**Recommendation:** Approve.

**Agency:** State Treasurer's Office **Allowance:** \$2,551 GF

**Project Name:** Financial Systems Modernization

**Description:** Replace the State Treasurer's Treasury Management System which processes bank transactions, insurance claims, and leases.

**Status:** The accounting system and insurance claims portals have been rolled out. Modules to be completed include (1) insurance claims intake, adjudication, and rollout; (2) treasury module development in Azure services to process bank, Comptroller, General Accounting Division, and agency financial transactions; and (3) managed file transport using file transfer protocol and extract, transfer, and load programs. Total costs are \$16.1 million.

**Recommendation:** Approve.

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**Agency:** DoIT

**Allowance:** \$1,050 SF

**Project Name:** MD FiRST Project

**Description:** Provide an integrated statewide public safety wireless communication system and a primary radio communication system for public safety first responders throughout the State.

**Status:** The final phase, nation’s capital and Southern Maryland, should be operational in fiscal 2022 or 2023. Additional work relates to site improvements to address coverage gaps. The source of these funds is DoIT revenues from RSAs that support MD FiRST, as required by Chapter 317. The funds support eliminating gaps in the system.

**Recommendation:** Approve.

<b>Total General Funds</b>	<b>\$114,026</b>
<b>Total Special Funds</b>	<b>\$1,050</b>
<b>Total Funds</b>	<b>\$115,076</b>

**Appendix 3**  
**Maryland OneStop Portal**  
**Major Information Technology Project**  
**Department of Information Technology**

<b>New/Ongoing:</b> Ongoing								
<b>Start Date:</b> November 2017					<b>Est. Completion Date:</b> June 2024			
<b>Implementation Strategy:</b> Agile								
<b>(\$ in Millions)</b>	<b>Prior Year</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>Remainder</b>	<b>Total</b>
<b>GF</b>	\$10.300	\$4.500	\$8.000	\$4.000	\$0.000	\$0.000	\$0.000	\$26.800
<b>SF<sup>1</sup></b>	5.000	2.800	0.000	0.000	0.000	0.000	0.000	7.800
<b>Total</b>	<b>\$15.300</b>	<b>\$7.300</b>	<b>\$8.000</b>	<b>\$4.000</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$34.600</b>

- **Project Summary:** This project provides a consolidated, easy-to-find portal for State-issued licenses, permits, and forms. DoIT works with agencies to bring their processes online.
- **Need:** Before this project was implemented, DoIT estimated that Maryland had over 1,000 forms online spread across State agency websites. Many of these forms are only available to download, complete manually on paper, and return via U.S. mail. There was no interagency coordination for such a common process as license processing, so license processing tasks are duplicated many times throughout the State government apparatus.
- **Observations and Milestones:** MDH, MHEC, Commerce, the Secretary of State, DNR, MDA, and DHCD’s Economic Recovery Initiatives have forms integrated into the system. In fiscal 2022 and 2023, the project will support efforts by the Maryland Department of Labor and the Maryland Department of Agriculture to enhance their interfaces with the public.
- **Concerns:** OneStop continues to experience an unresolved payment integration risk. Several forms within the project scope require a payment. No decision has been made about a payment mechanism, either through current or future contracts, to support the creation of new forms.
- **Other Comments:** This project consolidates State operations on the web. As needs have been identified, scope of this project has increased to accommodate additional applications joining the platform. It seems likely that new needs will be identified over the next year and added to the platform and out-year costs will increase.

<sup>1</sup> Special funds are general funds appropriated for projects that have been completed. Unused general funds from completed projects are appropriated as special funds for another project.

**Appendix 4**  
**Enterprise Solutions Planning Initiative**  
**Major Information Technology Project**  
**Department of Information Technology**

<b>New/Ongoing:</b> Ongoing								
<b>Start Date:</b> July 2017					<b>Est. Completion Date:</b> Ongoing Development Costs			
<b>Implementation Strategy:</b> Agile								
(\$ in Millions)	Prior Year	2022	2023	2024	2025	2026	Remainder	Total
<b>GF</b>	\$2.300	\$0.000	\$1.900	\$1.600	\$2.300	\$6.800	n/a	\$14.900
<b>SF<sup>1</sup></b>	3.300	0.000	0.000	0.000	0.000	0.000	n/a	3.300
<b>Total</b>	<b>\$5.600</b>	<b>\$0.000</b>	<b>\$1.900</b>	<b>\$1.600</b>	<b>\$2.300</b>	<b>\$6.800</b>	<b>n/a</b>	<b>\$18.200</b>

- **Project Summary:** Provide integrated planning support to IT projects received to combine planning activities that have traditionally occurred in silos. This includes (1) centralized planning; (2) ensuring that solutions are scaled at an appropriate level and apply enterprise model to reduce duplicative systems; (3) supporting the Agile approach to system development; (4) influencing common modeling, designing, and coding practices for systems architecture; and (5) ensuring that priority needs/solutions are addressed timely and funded appropriately.
- **Need:** This is consistent with DoIT’s mission to support major IT project development.
- **Changes:** This is an ongoing initiative. Fiscal 2023 appropriations are less than anticipated, but out-year costs have increased as it has extended past fiscal 2024.

<sup>1</sup> Special funds are general funds appropriated for projects that have been completed. Unused general funds from completed projects are appropriated as special funds for another project.

**Appendix 5**  
**State of Maryland Enterprise Geographic Information Systems Modernization**  
**Major Information Technology Project**  
**Department of Information Technology**

<b>New/Ongoing:</b> New								
<b>Start Date:</b> July 2022					<b>Est. Completion Date:</b> April 2023			
<b>Implementation Strategy:</b> Agile								
<b>(\$ in Millions)</b>	<b>Prior Year</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>Remainder</b>	<b>Total</b>
<b>GF</b>	\$0.000	\$0.000	\$2.100	\$0.600	\$0.000	\$0.000	\$0.000	\$2.700
<b>Total</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$2.100</b>	<b>\$0.600</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$2.700</b>

- **Project Summary:** Update systems that support GIS and open data that is available to the public.
- **Need:** Demand for GIS and open data has increased substantially. GIS technology and uses are advancing quickly, and the current systems are becoming obsolete. Current systems are limiting service expansion and cumbersome to maintain. GIS was centralized in DoIT over a decade ago, so this project affects many agencies. A number of agencies, like MDOT, MDEM, MDH, DNR, MDE, the Maryland Department of Planning, and Commerce, rely on GIS.
- **Observations and Milestones:** The project has not yet started. The scope of this project is more limited than many of the other major IT projects funded in fiscal 2023. Most of the planning and implementing should be done in fiscal 2023. A significant portion of the modernization will be the infrastructure that houses the MD iMAP assets, such as data, databases, and applications. This is currently done in almost 40 servers to ensure continuity of service and performance.
- **Concerns:** This is a fairly low-risk project. The most significant risks relate to interdependencies since this project affects so many agencies. But this risk is not likely to hinder development.

**Appendix 6**  
**Remote Workforce Enablement**  
**Major Information Technology Project**  
**Department of Information Technology**

This project is also discussed in the Federal Stimulus Funds section and Issue 1 of this analysis.

<b>New/Ongoing:</b> New								
<b>Start Date:</b> November 2021					<b>Est. Completion Date:</b> June 2023			
<b>Implementation Strategy:</b> N/A								
<b>(\$ in Millions)</b>	<b>Prior Year</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>Remainder</b>	<b>Total</b>
<b>GF</b>	\$0.000	\$0.000	\$7.900	\$0.000	\$0.000	\$0.000	\$0.000	\$7.900
<b>FF</b>	0.000	0.000	2.000	0.000	0.000	0.000	0.000	2.000
<b>Total</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$9.900</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$0.000</b>	<b>\$9.900</b>

- **Project Summary:** Develop a platform to enable workers to securely and effectively access the IT resources, services, and systems while working outside of the office.
- **Need:** Increased remote work has increased cybersecurity risks. In response to the COVID-19 pandemic, agencies were forced to stretch remote access solutions beyond what they were initially intended to do or implement new capabilities quickly. This has resulted in an assortment of remote solutions. Implementing an improved VPN should mitigate much of the risk that is inherent in these improvised solutions.
- **Observations and Milestones:** DoIT has implemented a pilot project VPN for DoIT employees. This should inform DoIT as it moves forward with this project and reduce risks. DoIT anticipates having the full system ready to implement by February 2023 and that agencies receiving enterprise support will be migrated by the end of fiscal 2023. The VPN will be offered to all State agencies.
- **Concerns:** As a comprehensive network that serves dozens of agencies, this project has many interdependencies. Implementation will also be difficult, but the VPN pilot program should inform the broader implementation.

**Appendix 7**  
**MD FiRST Radio Tower and Backhaul Improvement Project**  
**Major Information Technology Project**  
**Department of Information Technology**

The project is discussed in DoIT capital budget analysis, budget code FB04. Special fund estimates for this project revised in February 2022 and do not match the Budget Books.

<b>New/Ongoing:</b> Ongoing								
<b>Start Date:</b> August 2021					<b>Est. Completion Date:</b> June 2028			
<b>Implementation Strategy:</b> n/a								
<b>(\$ in Millions)</b>	<b>Prior Year</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>Remainder</b>	<b>Total</b>
<b>SF</b>	\$0.000	\$5.400	\$0.835	\$0.853	\$0.872	\$0.891	\$3.000	\$11.851
<b>Total</b>	<b>\$0.000</b>	<b>\$5.400</b>	<b>\$0.835</b>	<b>\$0.853</b>	<b>\$0.872</b>	<b>\$0.891</b>	<b>\$3.000</b>	<b>\$11.851</b>

- Project Summary:** Chapter 317 requires revenues DoIT receives from RSAs to be deposited into the MITDPF. The law expands the purpose of the MITDPF to allow RSA funds to be used to support the MD FiRST Radio System, and specifically its network of radio communications towers. MD FiRST, when complete, will have approximately 180 radio communication towers within its Statewide network that support State, local and federal first responder communications. These funds support (1) radio Tower Remediations to bring the existing towers up to TIA construction code standards (ref: <http://standards.tiaonline.org/all-standards/committees/tr-14>), (2) tower site maintenance and repair, (3) tower site physical security, (4) tower start-up lease costs, to cover situations where we can't get like kind exchange RSAs, (5) tower construction, to cover budget shortfalls from the Capital Improvement Program, and (6) mitigation of known backhaul gaps within the MD FiRST network.
- Need:** Tower and backhaul improvements are required to support the MD FiRST capital project, MD FiRST T1 to Ethernet project along with the MD FiRST Capital Improvement program to improve overall system resilience and reliability.
- Observations and Milestones:** This is a new project that will enhance the upgrades to the system's towers. Capital budget funding is received by the towers.
- Concerns:** This project is low risk and that will be supported by RSA revenues.

**Appendix 8**  
**Object/Fund Difference Report**  
**Department of Information Technology**

<u>Object/Fund</u>	<u>FY 21</u> <u>Actual</u>	<u>FY 22</u> <u>Working</u> <u>Appropriation</u>	<u>FY 23</u> <u>Allowance</u>	<u>FY 22 - FY 23</u> <u>Amount Change</u>	<u>Percent</u> <u>Change</u>
<b>Positions</b>					
01 Regular	189.60	185.00	185.00	0.00	0%
02 Contractual	0.70	0.00	0.15	0.15	n/a
<b>Total Positions</b>	<b>190.30</b>	<b>185.00</b>	<b>185.15</b>	<b>0.15</b>	<b>0.1%</b>
<b>Objects</b>					
01 Salaries and Wages	\$ 20,536,788	\$ 22,411,937	\$ 22,850,201	\$ 438,264	2.0%
02 Technical and Special Fees	15,173	0	3,238	3,238	N/A
03 Communication	8,457,960	7,194,083	7,203,992	9,909	0.1%
04 Travel	21,216	89,690	89,690	0	0%
06 Fuel and Utilities	27,731	53,000	53,000	0	0%
07 Motor Vehicles	5,145	2,193	38,075	35,882	1636.2%
08 Contractual Services	183,238,420	185,238,322	223,143,071	37,904,749	20.5%
09 Supplies and Materials	51,880	64,559	24,622	-39,937	-61.9%
10 Equipment – Replacement	2,657,943	9,870,222	12,725,000	2,854,778	28.9%
11 Equipment – Additional	3,608,322	955,000	955,000	0	0%
13 Fixed Charges	414,845	416,827	372,486	-44,341	-10.6%
<b>Total Objects</b>	<b>\$ 219,035,423</b>	<b>\$ 226,295,833</b>	<b>\$ 267,458,375</b>	<b>\$ 41,162,542</b>	<b>18.2%</b>
<b>Funds</b>					
01 General Fund	\$ 89,064,872	\$ 99,523,915	\$ 145,607,038	\$ 46,083,123	46.3%
03 Special Fund	1,894,000	6,259,081	3,009,081	-3,250,000	-51.9%
05 Federal Fund	0	5,000,000	5,000,000	0	0%
09 Reimbursable Fund	128,076,551	115,512,837	113,842,256	-1,670,581	-1.4%
<b>Total Funds</b>	<b>\$ 219,035,423</b>	<b>\$ 226,295,833</b>	<b>\$ 267,458,375</b>	<b>\$ 41,162,542</b>	<b>18.2%</b>

Note: The fiscal 2022 working appropriation and fiscal 2023 allowance do not reflect funding for statewide personnel actions budgeted in the Department of Budget and Management, which include cost-of-living adjustments, increments, bonuses, and may include annual salary review adjustments.

**Appendix 9  
Fiscal Summary  
Department of Information Technology**

<u>Program/Unit</u>	<u>FY 21 Actual</u>	<u>FY 22 Wrk Approp</u>	<u>FY 23 Allowance</u>	<u>Change</u>	<u>FY 22 - FY 23 % Change</u>
01 Major IT Development Project Fund	\$ 77,426,158	\$ 88,525,034	\$ 115,075,653	\$ 26,550,619	30.0%
01 State Chief of Information Technology	21,513,845	21,735,496	42,337,462	20,601,966	94.8%
02 Security	11,570,499	11,141,336	15,684,790	4,543,454	40.8%
03 Application Systems Management	23,537,874	20,731,876	25,541,304	4,809,428	23.2%
04 Infrastructure	49,037,566	45,347,354	51,952,355	6,605,001	14.6%
05 Chief of Staff	1,397,104	2,061,663	2,003,923	-57,740	-2.8%
06 Major IT Development Projects	21,196,914	22,842,999	0	-22,842,999	-100.0%
07 Radio	13,355,463	13,910,075	14,862,888	952,813	6.8%
<b>Total Expenditures</b>	<b>\$ 219,035,423</b>	<b>\$ 226,295,833</b>	<b>\$ 267,458,375</b>	<b>\$ 41,162,542</b>	<b>18.2%</b>
General Fund	\$ 89,064,872	\$ 99,523,915	\$ 145,607,038	\$ 46,083,123	46.3%
Special Fund	1,894,000	6,259,081	3,009,081	-3,250,000	-51.9%
Federal Fund	0	5,000,000	5,000,000	0	0%
<b>Total Appropriations</b>	<b>\$ 90,958,872</b>	<b>\$ 110,782,996</b>	<b>\$ 153,616,119</b>	<b>\$ 42,833,123</b>	<b>38.7%</b>
Reimbursable Fund	\$ 128,076,551	\$ 115,512,837	\$ 113,842,256	-\$ 1,670,581	-1.4%
<b>Total Funds</b>	<b>\$ 219,035,423</b>	<b>\$ 226,295,833</b>	<b>\$ 267,458,375</b>	<b>\$ 41,162,542</b>	<b>18.2%</b>

Note: The fiscal 2022 working appropriation and fiscal 2023 allowance do not reflect funding for statewide personnel actions budgeted in the Department of Budget and Management, which include cost-of-living adjustments, increments, bonuses, and may include annual salary review adjustments.