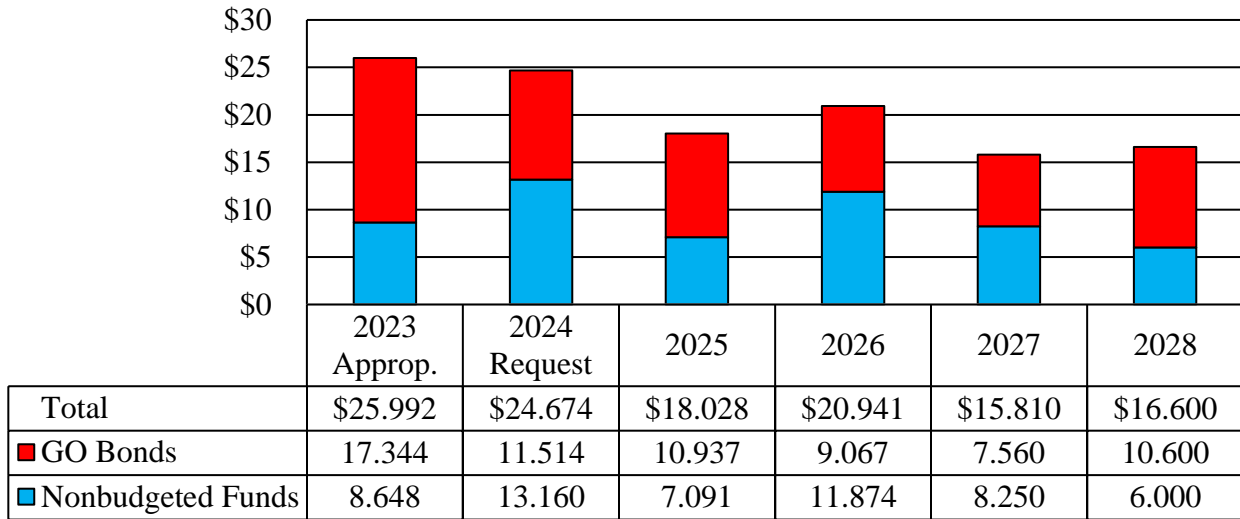


UB00
Maryland Environmental Service – Capital

Capital Budget Summary

Grant and Loan *Capital Improvement Program*
State Water and Sewer Infrastructure Improvement Fund
(\$ in Millions)



GO: general obligation

Note: Nonbudgeted funds represent the amount for projects at state parks managed by the Department of Natural Resources. The Natural Resources Development Fund Program includes transfer tax special funds in this amount, which will be transferred to the Maryland Environmental Service after the start of the fiscal year.

Key Observations

- ***Eastern Correctional Institution (ECI) Conversion Project Delayed Again:*** The ECI Cogeneration Plant conversion project faces continued challenges and is additionally supported by a proposed \$6.4 million fiscal 2023 deficiency budgeted in the Department of General Services (DGS).
- ***Uncertainty Around Conowingo Dam Dredging:*** The Maryland Environmental Service (MES) is awaiting Department of Budget and Management (DBM) approval of a project plan to receive \$3.3 million, currently in the Maryland Department of the Environment’s (MDE) budget, to begin design and scoping for a major dredging project at the Conowingo Dam.

For further information contact: Carrie Cook

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PAYGO Recommended Actions

1. Concur with Governor’s allowance for the fiscal 2023 deficiency appropriation for the Eastern Correctional Institution Cogeneration Plant Conversion.

GO Bond Recommended Actions

1. Approve \$11,510,000 in general obligation bond authorization for the State Water and Sewer Infrastructure Improvement Fund.

Budget Overview

The State Water and Sewer Infrastructure Improvement Fund was established to provide for capital improvements of State-owned and operated water treatment plants (WTP), wastewater treatment plants (WWTP), water distribution and sewer collection systems, and water towers. Since fiscal 1992, funding for capital maintenance projects relating to WTPs and WWTPs has been budgeted under MES. Prior to this, the State budgeted capital maintenance funds for these projects in the DGS Facilities Renewal Program. Facilities renewal funds pay for major rehabilitation activities at State-owned facilities. This change was made in order to more clearly display the capital cost of MES-operated State facilities. MES operates 267 water and wastewater facilities in Maryland, of which 96 are State-owned. The remaining facilities are operated by MES under contract with a local government or corporate owner.

The fiscal 2024 capital budget provides \$11.5 million in general obligation (GO) bonds and \$13.2 million in nonbudgeted funds for the State Water and Sewer Infrastructure Program. The nonbudgeted funds are provided for water and wastewater projects at Department of Natural Resources (DNR) facilities, while the GO bond funding supports projects at other State facilities. The DNR projects appear as nonbudgeted funds, as they have been budgeted with transfer tax special funds from the Natural Resources Development Fund and will be transferred to MES to cover project costs. In total, the funds support 12 projects in 8 jurisdictions as shown in **Exhibit 1**.

Exhibit 1
Fiscal 2024 State Water and Sewer Infrastructure Funded Projects
 (\$ in Thousands)

<u>Project</u>	<u>Prior Authorized Amount</u>	<u>2024 Amount</u>	<u>Future Request Amount</u>
<p>Camp Fretterd – Water Distribution and Septic Facilities Upgrade (Baltimore): Funding is allocated to continue construction at this military facility. The improvements to the water and wastewater systems will support ongoing operations at the campus and a planned expansion to include a new Marine Corps readiness center. Total Estimated Project Cost: \$14,275.</p>	8,500	4,302	1,473
<p>New Germany State Park – Water and WWTP and Water Collection System Upgrades (Garrett): Funding will support continued construction for this project. Based on assessments analyzing the age and inefficiency of the current system, it was determined that the entire water and wastewater infrastructure systems throughout the park will require replacement. Many of New Germany’s facilities were built by the Civilian Conservation Corps in the 1930s and 1940s. Total Estimated Project Cost: \$8,432.</p>	4,145	4,287	0
<p>Cheltenham Youth Center – Water Treatment Plant Upgrade (Prince George’s): Funds are planned to start construction on this project, planned for December 2023, which will upgrade water supply, storage, and treatment systems to accommodate expansion of the center. Total Estimated Project Cost: \$4,480.</p>	1,490	2,990	0
<p>Sandy Point State Park – Water Tower and Water Treatment Plant Upgrade (Anne Arundel): This project will leverage special funds transferred from DNR to construct a new water tower and upgrade the water treatment system at Sandy Point State Park. The current system was constructed over 50 years ago. The system provides potable water for the park and nearby Natural Resources Police and MDOT facilities. Construction is scheduled to begin in February 2024. Total Estimated Project Cost: \$6,279.</p>	397	2,500	3,382

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<u>Project</u>	<u>Prior Authorized Amount</u>	<u>2024 Amount</u>	<u>Future Request Amount</u>
<p>Cunningham Falls State Park – Route 77 Sewer Line Upgrade (Frederick): This project will repair and upgrade the nearly 50-year-old sewer collection lines at the State park in Frederick County. These efforts will reduce or eliminate instances of infiltration and inflow, which have been occurring with increasing frequency. Construction is anticipated to be completed in June 2023. Total Estimated Project Cost: \$4,313.</p>	2,052	2,261	0
<p>Dorsey Run WWTP – Sludge Processing Facility Upgrade (Anne Arundel): The fiscal 2024 allowance includes funding to begin construction in August 2023 for this project, which will conduct biosolids equipment upgrades and replacements at this plant located in Anne Arundel County. Total Estimated Project Cost: \$9,683.</p>	697	2,001	6,985
<p>Swallow Falls State Park – Water and WWTP Upgrade (Garrett): The budget has funds to support continued construction to improve water and wastewater facilities at the Garrett County park. The last upgrade to these facilities was nearly 30 years ago, and they have been increasingly prone to leaks and safety and maintenance issues. Total Estimated Project Cost: \$8,093.</p>	6,167	1,926	0
<p>Cheltenham Youth Center – WWTP Upgrade (Prince George’s): Funds are planned to continue construction of WWTP upgrades at this facility managed by the Department of Juvenile Services. The existing plant has numerous operating deficiencies due to age and inefficiency, including severe inflow and infiltration issues. Total Estimated Project Cost: \$13,059. <i>Note: State share is 77% of the total project cost. An additional grant from MDE to support this project is pending.</i></p>	8,838	1,221	0
<p>State Water Towers – Tuckahoe State Park (Queen Anne’s): This project will recondition and refurbish the water tower, which has a capacity of 75,000 gallons. Funding in fiscal 2024 will support both design and construction. Total Estimated Project Cost: \$225.</p>	0	225	0

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<u>Project</u>	<u>Prior Authorized Amount</u>	<u>2024 Amount</u>	<u>Future Request Amount</u>
<p>Fort Frederick State Park Water Treatment Plan and Distribution System Upgrade (Frederick): Funding in fiscal 2024 supports the start of design for this project, which will improve the aging and inefficient water distribution system at the State park. Total Estimated Project Cost: \$637.</p>	0	61	576
<p>Greenbrier State Park – Water WWTP, Sewer Collection, and Electric Upgrade (Washington): Funding is planned to begin design for this project, to include development of a preliminary engineering report. The agency expects that improvements to the water, sewer, and electric power supply systems will be necessary given the age of these systems. Total Estimated Project Cost: \$19,761.</p>	0	500	19,261
<p>Janes Island State Park – Water Distribution, Sewer Collection, and Electric Upgrade (Somerset): The budget includes funding to begin design for this project, which is slated to start in September 2023. There is very little documentation on the age of the water, sewer, and power systems on the island, and their current condition is unknown. The agency will complete a preliminary engineering report to assess existing conditions, and construct upgrades to water, sewer, and power systems based on the findings. Total Estimated Project Cost: \$6,442.</p>	50	400	5,992
DNR Projects Unallocated Funds		1,000	
State Projects Unallocated Funds		1,000	
Total	\$32,110	\$24,674	\$37,669

DNR: Department of Natural Resources
MDE: Maryland Department of the Environment
MDOT: Maryland Department of Transportation
WWTP: Wastewater Treatment Plant

Source: Department of Budget and Management

Update on Encumbrances

Historically, the program has struggled to encumber funds in a reasonable timeframe, with well over \$4 million in funds yet to be encumbered from both fiscal 2020 and 2021 as of January 2023. Many projects experience unforeseen delays in the design process or in obtaining permits, resulting in the postponement of fund encumbrance. However, MES plans to award \$47.3 million prior to the conclusion of fiscal 2023, which will significantly reduce the balance of total funds yet to be encumbered. Awards slated to be made in the coming months include \$9 million for Point Lookout State Park, \$13.2 million for Elk Neck State Park, \$12.7 million for Camp Fretterd, and \$12.4 million for Cheltenham.

Unallocated Funds and Contingencies

DBM recommended \$1 million for contingency funds to cover cost increases, both in transfer tax special funds for DNR projects and in GO bonds for statewide projects, for a total of \$2 million in unallocated funds. MES has consistently received project bids above engineering cost estimates, largely due to the rate of inflation, fuel costs, and supply chain issues.

However, in addition to the unallocated funds, planned funds also include contingency percentages based on project type. While contingency percentages are generally 5% to 10% of the project cost for capital projects, DBM and MES find that rate to be insufficient for this program due to the logistical complications associated with water and wastewater infrastructure. The agency notes that a 15% to 20% contingency is more appropriate, with 15% applied to projects with infrastructure that can be visually inspected and 20% applied to water and wastewater treatment facilities that cannot be visually inspected (*i.e.*, buried underground). However, due to historic inflation and supply chain challenges, MES has increased the contingency percentage on some water and wastewater projects to 30% in fiscal 2024. **The agency should comment on the projected need for the \$2 million in unallocated funds, given that contingency percentages have already been increased in fiscal 2024 to account for current market and inflationary conditions.**

Issues

1. Conowingo Dam Dredging

During the previous budget cycle, \$6 million in fiscal 2023 from the Dedicated Purpose Account (DPA) was authorized for preliminary work for the design, permitting, and coordination for a large-scale dredging and restoration project at the Conowingo Dam. The project would entail the dredging of sediment trapped behind the Conowingo Dam in an effort to prevent nitrogen, phosphorus, and sediment from entering the mainstem of the Chesapeake Bay, which is fed by the Susquehanna River.

While no funding has been allocated for the project in fiscal 2024, \$3.3 million of the \$6 million allocated in last year’s budget cycle has yet to be transferred to MES. The funding is currently in MDE’s budget, and MES is seeking DBM approval of the project’s capital program to secure the release of the funds. Once funding is released, MES will begin pre-engineering, design, permitting and regulatory coordination, right of entry negotiations, and coordination with the Federal Energy Regulatory Commission for a large-scale dredging project. **The Department of Legislative Services (DLS) recommends submittal of the Conowingo Dam dredging project capital program to the budget committees upon DBM approval.**

Very little information about the project was solidified or made public prior to the allocation of funding, and the budget committees expressed concern about the substantial investment in the absence of detailed project information. The concerns arose from the lack of a clear program plan, timeline, cost estimate, or confirmed support from the Chesapeake Bay Program (CBP). The committees therefore adopted narrative in the 2022 *Joint Chairmen’s Report* (JCR) requesting further information. They requested:

- results of a sediment characterization and innovative and beneficial reuse (IR/BU) pilot project;
- whether removal of sediment and associated pollutants from Conowingo Pool by dredging is a best management practice (BMP) approved by the Environmental Protection Agency (EPA) and/or CBP; and
- an analysis of the cost effectiveness of dredging sediment behind Conowingo Dam to remove nitrogen, phosphorus, and sediment, rather than implementation of other approved BMPs in the Susquehanna watershed.

MES submitted a response on September 21, 2022. Upon review of the information contained in the response, DLS felt that concerns raised during the 2022 session remained unresolved and recommended against processing the transfer of \$3.3 million from the DPA to MDE for this project. Despite this recommendation, the Lawrence J. Hogan, Jr. Administration processed the budget amendment, and the funds are currently in MDE’s budget. The remaining \$2.7 million remains in the DPA.

Response to JCR Request

The committee narrative in the 2022 JCR requested information on three major topics surrounding this project. The updates on these issues as provided in the JCR response are as follows:

- ***Innovative and Beneficial Reuse Pilot Project Report:*** MES and MDE reviewed the draft report and submitted comments to the contractor, who released a revised version in early August. The agency noted that the report cannot be completed without a demonstration project using dredged material from Conowingo. The subcontractor has developed a soil blend from Conowingo sediments that meets Maryland Department of Transportation

(MDOT) State Highway Administration (SHA) requirements for bioretention to use in a project and are seeking a willing partner to start the project. While there was interest from MDOT and two counties, there were no immediately available projects as of the publication of the response.

- ***Dredging as a BMP:*** Removal of sediment and pollutants by dredging is currently not considered an approved BMP by CBP or EPA. MDE is working with CBP to form an expert panel to evaluate the nutrient reduction effectiveness of dredging in calendar 2022. However, they expect that the panel will take at least one year, and up to two years to produce results or recommendations.
- ***Cost Effectiveness of Dredging:*** The draft IR/BU report contained a Water Quality Impact Evaluation and Economic Evaluation that addresses the cost effectiveness question but is a preliminary evaluation only and cannot decisively determine whether dredging is more cost effective to remove nutrients than other methods. Additionally, other variables such as transportation methods and the need to blend the sediment with other materials may impede efforts. However, current BMPs cannot remove already present sediments and nutrients, which are at risk of washing over the dam and moving downstream, particularly when floodgates are open during heavy rain events. Dredging is therefore described in the Conowingo Watershed Implementation Plan as a potential solution to utilized in conjunction with other methods, including approved BMPs.

Current Status

The agency previously reported that the Conowingo IR/BU Pilot Project Report could not be finalized until the subcontractor uses Conowingo dredged material in a demonstration project. However, MDE accepted the final report in absence of a pilot project in December 2022, and it is posted on their website. The agency notes that the report will be amended to include final information when the demonstration project is completed. Key findings of the report include:

- Conowingo sediments have properties making them potentially useful for a variety of reuses, including cement manufacturing and bioretention or topsoils.
- Costs of an environmental dredging program may be offset by potential revenue generated from selling water pollution reduction credits and various types of marketable reuses. The degree to which dredging costs will be offset will depend on the type of dredging program and material reuses, mode of transportation for dredged material, and the nutrient reduction value achieved from the dredging program.
- The amount of coal sands within Conowingo sediments may create both challenges and opportunities for marketable reuse. However, technical feasibility and a cost effectiveness analysis of these opportunities were not evaluated in the report.

While the findings of the report provide some additional context regarding the costs and benefits of a dredging project generally, there still exists a lack of specific plans, cost estimates, and schedules for the Conowingo dredging project or the pilot project. The agency notes that cost estimates are not within the scope of work for the pilot project; however, the absence of detailed plans and cost estimates raises questions about the necessity of such a significant investment.

The Conowingo Pilot Project Contractor, Northgate Dutra Joint Venture (NDJV), was unable to find an active or near-term project for the soil blend using the Conowingo dredged sediments during the calendar 2022 construction season. The soil mix developed by NDJV meets SHA specifications for bioretention soil and MDE IR/BU standards for Residential Unrestricted Use Soil and Fill Material. The contractor continues to coordinate with various contacts, including Cecil County and SHA, to seek potential projects needing material. They expect that a project will be identified with the more favorable construction season in spring 2023.

Finally, MES is consulting with MDE to evaluate the nutrient reduction effectiveness of dredging and consideration as a BMP. MDE has a draft modeling scope of work from the Army Corps of Engineers that is currently under review by a group of stakeholders and technical experts, some of whom are associated with the EPA CBP. The model will be the tool used to evaluate the effectiveness at different dredging techniques in reducing nutrient pollution in the Bay. The model development will take at least two years after a contract is executed. The group is also providing guidance on the expert panel process to evaluate dredging as a BMP. The work of the expert panel will likely run in parallel to the Conowingo model development process, and may even extend past two years to evaluate the nutrient reduction opportunities resulting from different dredging scenarios as it is considered for BMP status.

2. ECI Cogeneration Plant Conversion

There is \$6.412 million in general funds budgeted as a fiscal 2023 deficiency in DGS to fund a fuel conversion project at the ECI Cogeneration Plant, which seeks to convert the fuel source at ECI from wood chips to natural gas. This deficiency is proposed within the Business Enterprise Administration of DGS's capital appropriation.

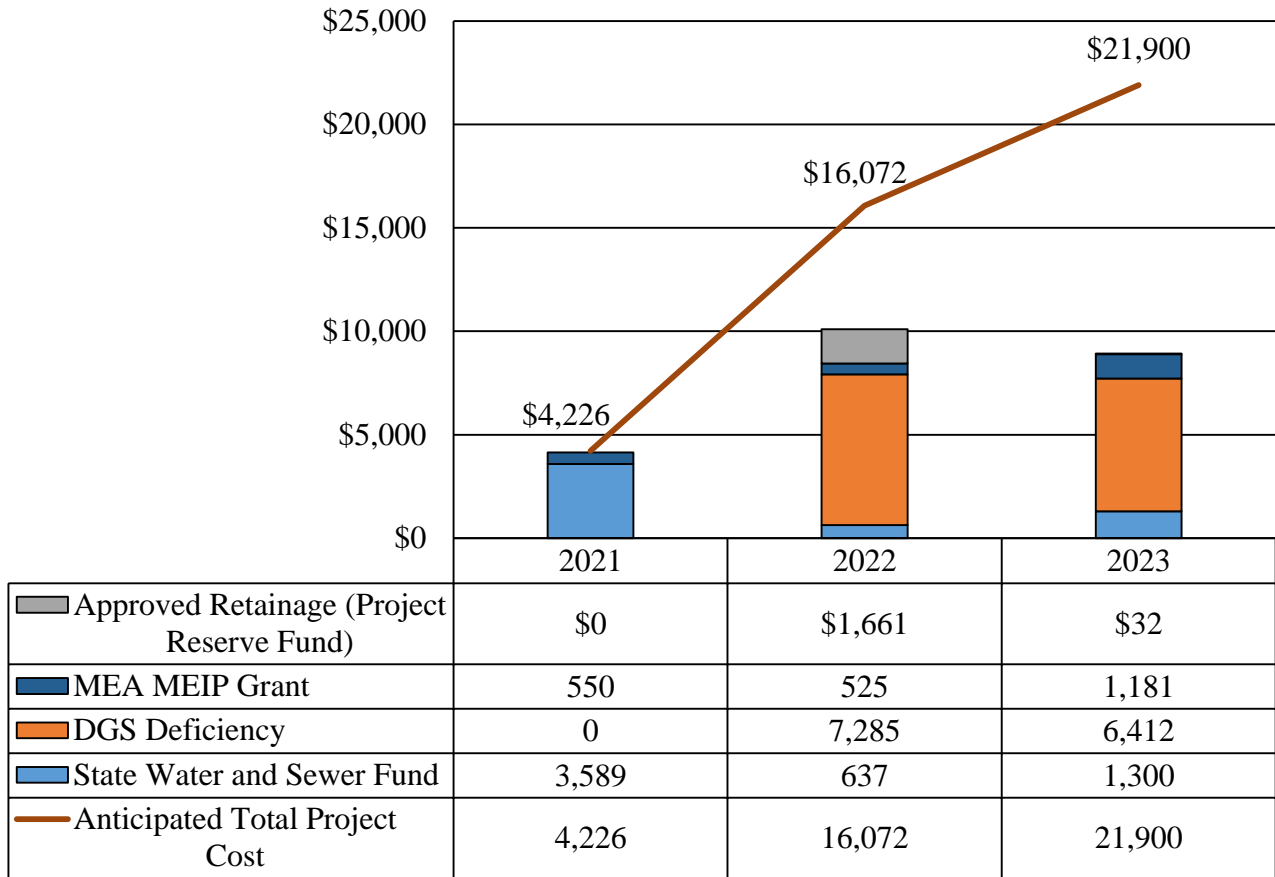
The proposed deficiency supplements prior authorized State funds for this project, including a previous deficiency of \$7.284 million, also appropriated to DGS, in the fiscal 2022 budget. The justification for last year's deficiency was labor and cost increases associated with the COVID-19 pandemic and technical issues associated with converting the plant from burning wood to burning natural gas. As with the fiscal 2023 deficiency, funds are programmed within the DGS budget because MES cannot directly receive general funds as a nonbudgeted agency.

MES requested this additional funding in late calendar 2022 to complete conversion at the cogeneration plant and ancillary buildings within the correctional complex. The agency notes that increased costs resulted from changes in the finalized construction documents for the cogeneration plan scope and current market conditions. The proposed increased appropriation will cover expenses related to anticipated costs for the conversion of propane-fired equipment at ancillary buildings and contingency planning.

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As shown in **Exhibit 2**, the total project cost, which was initially just \$4.2 million, has increased drastically during the duration of the project. The agency now estimates that the project will cost \$21.9 million in total. Funding in fiscal 2021 primarily came from the State Water and Sewer Fund, but as the total project cost dramatically increased, a greater portion of the total funding came from deficiency requests applied to DGS’s fiscal 2022 and 2023 working budgets.

Exhibit 2
ECI Cogeneration Plant Conversion Cost Changes
Fiscal 2021-2023
(\$ in Thousands)



DGS: Department of General Services
 ECI: Eastern Correctional Institute

MEA: Maryland Energy Administration
 MEIP: Maryland Energy Infrastructure Program

Note: Project Reserve Fund includes Department of Budget Management-approved retainage for this project and accrued interest, which may or may not be applied to this project. While funding was retained in fiscal 2021, it was not applied to this project until fiscal 2022. The \$550,000 MEA MEIP grant was awarded in their fiscal 2020 budget cycle but appears in this graph in fiscal 2021.

Source: Maryland Environmental Service; Department of Budget and Management; Department of Legislative Services

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When the total project cost nearly quadrupled during the fiscal 2022 budget cycle, MES identified \$4.5 million in additional funding sources, including \$1.6 million from the Project Reserve Fund, \$1.2 million in funds previously appropriated for other projects, and \$550,000 from a Maryland Energy Administration grant. With those additional funding sources identified, the agency requested \$7.3 million in a deficiency to cover the (at the time) estimated remaining project costs. Pursuant to DBM’s recommendation, funding initially diverted from two ongoing State Water and Sewer-funded projects in fiscal 2023 was backfilled via the fiscal 2023 deficiency to avoid delaying other projects.

The natural gas pipeline associated with this project was completed in fall 2021 and comes off a trunk line aligned along the Eastern Shore, which also supplies the University of Maryland Eastern Shore. The agency also received funding for a previous project, ECI Cogeneration Improvements, which included upgrades to various components of the plant prior to fuel conversion. Project tasks independent of the fuel type have been completed, and items impacted by the fuel conversion have been delayed until fuel conversion is completed.

Construction was originally scheduled to begin in December 2022 but was delayed to July 2023 when the proposed deficiency funding is expected to be available. Equipment fabrication and delivery schedules are coordinated to be delivered ahead of construction activities. The contractor is currently scheduled to begin plant demolition and construction in July 2023 and conclude with the burning natural gas in November 2023. The conversion at the ancillary buildings is in the design phase with public solicitations planned for early summer 2023. All other bidding for this project is completed. Based on current estimates, all facilities within the scope of the project will be burning natural gas by February 2024. **MES should comment on the inaccuracy of the \$4.2 million original project cost estimate and how the agency is taking steps to ensure that future projects have cost estimates that are as precise as possible to promote accurate budgeting and avoid significant deficiency appropriations.**