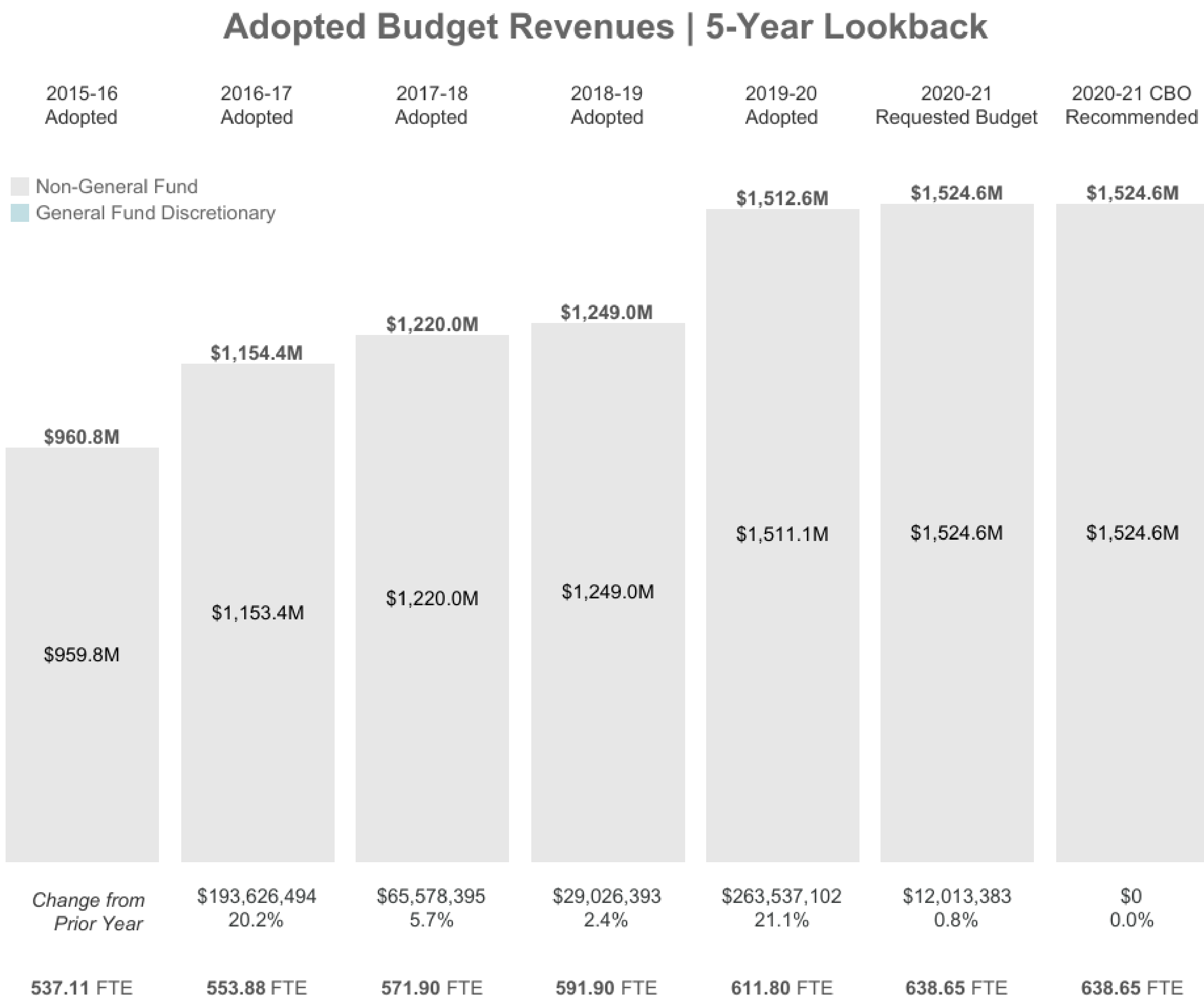
City Budget Office

Bureau of Environmental Services

Analysis by Yung Ouyang



INTRODUCTION

The Bureau of Environmental Services' (BES) FY 2020-21 Requested budget includes $185.0 million in operating expenses and $170.8 million in capital expenses for a total budget request of $355.8 million. This is a 0.2% increase from the FY 2019-20 Revised Budget of $355.2 million. The bureau's Requested Budget includes $260.4 million in beginning fund balance across all of its funds.

While there are no decision packages, the Requested Budget includes the addition of 25 new FTE costing $3.3 million. If all 25 positions are approved, there would be 638.7 FTE authorized for FY 2020-21. While the capital budget is decreasing by 3.8% from the FY 2019-20 Revised Budget, the FY 2019-20 budget includes $37.0 million in a one-time contribution for BES's obligation for the rehabilitation of the Portland Building. Excluding the Portland Building project, BES's capital budget would actually increase by $30.2 million, or 21.5%. The most significant increase in the capital budget is associated with a $26.8 million increase to fund the expansion of secondary treatment at the Columbia Boulevard Wastewater Treatment Plant (CBWTP).

BASE BUDGET KEY ISSUES

Rate Forecast

The FY 2020-21 Requested Budget for BES includes a rate of increase of 3.0% above the FY 2019-20 rates for the typical single-family household. This amounts to a bill increase of approximately $2.27 per month or $6.81 per quarter. With the increase, the typical Single Family Residential monthly bill will be $77.96 per month or $233.88 per quarter. Combined with the Portland Water Bureau's requested rate of increase of 8.6%, the typical single-family household would experience a 5.0% increase above FY 2019-20 rates for a typical total combined monthly bill of $123.73, which equates to $371.19 quarterly.

The rate of increase is consistent with the 3.0% rate of increase projected in the financial plan BES submitted during the FY 2019-20 budget development process. The table below provides the projected annual rates of increase for BES, currently at 3.15% each year for the next four years. By the end of the five-year forecast period, the typical Single Family Residential bill is expected to increase to $88.26 per month or 16.6% above current (FY 2019-20) levels.

	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
FY 2020-21 Plan	3.00%	3.15%	3.15%	3.15%	3.15%
FY 2019-20 Plan	3.00%	3.00%	3.10%	3.10%	

Despite the somewhat stable trend in the rate of increase over the next five years, the increase does exceed the 2.7% increase in consumer price index (CPI-W) forecasted by the Bureau of Labor Statistics.[1] One of the bureau's Key Performance Measures (KPM) is a measure of affordability of service. The measure assesses the typical household bill as a percentage of median household income and currently shows that BES's share of the typical bill is about 1.4% of the projected median household income, assuming the inclusion of all budget additions. Combined with the Water Bureau portion of the bill, the total utility bill constitutes approximately 2.4% of median household income in Portland. Utility bills impact households in Portland differently. Compared to white households, communities of color, and particularly black households in Portland, typically devote a higher portion of their household income to the combined utility bill. For example, black households currently spend approximately 5.3% of their household income on their water and sewer bill compared to white households who spend about 2.2%. The FY 2020-21 requested rate would increase the portion of income spent on the combined utilities to about 5.6% for black households and 2.3% for white households.[2]

A major driver of the rate of increase continues to be the increasing debt service to support BES' capital

[1] US Bureau of Labor Statistics. 2020. https://www.portlandoregon.gov/cbo/743644
[2] US Census Bureau. 2018. https://statisticalatlas.com/place/Oregon/Portland/Household-Income

program. The bureau's financial plan contains a total estimated increase of approximately $47.2 million in rate revenue requirements over the forecast period. Forecasted capital expenditures will require additional debt issues totaling $905 million between now and the end of the five-year interval, resulting in an additional $64 million in annual debt service by FY 2025-26, an increase of 36% over current FY 2019-20 levels. However, retirement of existing debt issues in FY 2022-23 and FY 2023-24 will actually reduce total debt service in FY 2023-24 and beyond. New bond sale issuances are set to occur in FY 2020-21, FY 2022-23, and FY 2024-25.

Additional cost drivers are associated with personnel services (wages and benefits), which are currently forecasted to increase at an average annual rate of 7.6% over the next five years.[3] External materials and services and internal materials and services are currently projected at increases comparable to inflation. Each of these cost pools places an increased pressure on the forecasted rate growth to deliver the bureau's core services. In order to ensure a consistent overall rate growth of 3.15%, BES must continue to assess the mechanisms within its rate structure to prepare and plan for well-timed debt management and CIP expenses, and appropriate utilization of the Rate Stabilization Fund.

Rate Stabilization Fund

BES maintains a Sewer System Rate Stabilization Fund (RSF) that is used to smooth short-term budget fluctuations and to phase in increases associated with large capital projects. The balance in the fund may reach a high of $184.8 million at the end of FY 2019-20 from the low balance of $4.9 million in FY 2012-13. However, the bureau expects a large reduction in the balance in the current fiscal year to fund capital budget expenditures until a new debt sale, currently planned in mid-2020. The growth of the RSF is due to many factors; and the primary drivers are robust retail revenue, growth in System Development Charges (SDCs), and utilizing conservative budget management practices. The FY 2020-21 Requested Budget does not include transfers from the operating fund, and this is in accordance with the bureau's long-term plan to use fund balances to keep rates from increasing beyond planned levels. BES expects to incrementally utilize the RSF's fund balance to smooth future rate increases over the long-term, and at the very least over the five-year forecast. The transfer to the operating fund from the RSF is $15.0 million in FY 2020-21. Without the infusion of funds from the RSF, the rate increase next year may be higher than the 3.0% in the Requested Budget by 0.34%.

Beginning in FY 2018-19, BES updated planning targets so that the combined ending fund balances within the operating fund and the RSF must be equal or greater than 270 days, or 75%, of each year's anticipated operating expenses. This action was done to improve the bureau's financial resiliency as well as its credit quality as assessed by rating agencies. Prior forecasts projected this measure to peak at more than 560 days of cash on hand in FY 2018-19, with a gradual drawdown over the years to 270 days by FY 2033-34. BES's current forecast projects the RSF balance to be reduced by FY 2032-33 to a level that supports the policy minimum of 270 days of operating expenses, one year earlier than previous forecasts had indicated.

[3] Based on a projected average inflationary increase in wages and salaries of about 3.2%, an average annual increase in the number of positions of 2.4%, and an average annual increase for health care, PERS, and other benefits of 9.6%. The City Economist has forecast that the PERS contribution rates (which have been weighted for the bureau's mix of employees) will increase 5.3% in FY 2021-22, and 6.4% in FY 2023-24, resulting in an estimated increase of $6.0 million by the fifth year of the forecast.

Changes to the Operating Budget

BES's requested operating budget is estimated to increase by 6.4% or $9.7 million compared to projected total expenditures at the end of FY 2019-20. Personal Services accounts for approximately $5.9 million of the growth while internal materials and services account for about $4.3 million. External materials and services are expected to grow by $734,000, while capital outlay is expected to decrease. The estimated increase in the operating budget includes non-personnel requests, such as $700,000 in additional IA charges for Bureau of Technology Services (BTS) services resulting from costs associated with the Portland Building, the Portland Online Permitting System, and other desktop and data network costs, as well as requests for 25 full-time equivalent (FTE) positions. Currently, BES has 612.48 FTE, which represents a net increase of 66.51 FTEs between FY 2010-11 and FY 2019-20. If approved, the 25.0 FTE in the bureau's FY 2020-21 Requested Budget represent a net increase of 17% over the last eleven years bringing the new bureau total to 638.65 FTE.

New Positions and Their Effect on Rates

BES's FY 2020-21 Requested Budget includes 25 new positions, costing approximately $3.3 million in ongoing expenses. The majority of these positions are driven by the bureau's upcoming capital needs and the bureau's recent organizational changes and internal restructuring. Because the bureau's work is largely capital dependent, most of the new positions are involved in the capital process to some degree, if not being entirely dedicated to it.

The bureau has noted that an additional $2.2 million ongoing increase in operating costs would equal approximately a 0.05% ongoing increase in the typical monthly Single Family Residential bill. Similarly, a CIP cost increase of approximately $35 million would result in a 0.05% rate impact. Using this approximation, if none of the 25 positions were added, the impact would be a reduction of approximately 0.08% from the 3.0% in the FY 2020-21 Requested Budget, which equates to a projected rate increase of 2.92% in FY 2020-21. Because some of the proposed positions are capital funded, the actual rate impact may be somewhat lower.

Thirteen of the new positions result from the bureau's organizational restructuring and recommendations in the bureau's recent organization transition assessment report, including:

- 3.0 FTE in the Information Management program
- 2.0 FTE in the Asset Systems Management program
- 2.0 FTE in the Maintenance program
- 2.0 FTE in the Project Management Office (PMO)

The three data-related positions added to the Management Program are included to align with the bureau's Strategic Plan and organizational transition assessment that determined that the bureau needs to be more data driven. The three positions are:

- 1.0 FTE Business Systems Analyst III (Watershed) to add capacity to the Storm Water System Plan team and to the broader watershed team
- 1.0 FTE Business Systems Analyst III (Wastewater) to improve evaluation, planning, documentation, decision-making and enterprise-level implementation of information technology and data management related business systems
- 1.0 FTE Analyst II (Data and Reporting) for the Wastewater Group to assist with data analysis relating to asset management of collection and treatment system assets, performance indicators,

responses to initiatives and oversight bodies, as well as support for Bureau-wide efforts to more consistently manage data as an essential asset.

The demand for Asset Systems Management (ASM) resources has doubled since FY 2015-16, specifically in the areas of spatial analysis and modeling analysis, alongside the initiation of major system planning efforts. For FY 2020-21, the ASM program requests to add 1.0 FTE lead Engineer-Civil (Modeler) and 1.0 FTE support/junior Senior Engineering Associate-Civil (Modeler) to help manage current and future system planning workloads anticipated when the Bureau structurally reorganizes to emphasize integrated planning and project delivery.

In continued support of condition assessment, 2.0 FTE in Field Technicians are requested in the Maintenance program to perform detailed condition assessments of mechanical and instrumentation assets located at the treatment plant and pump stations. The positions are added in accordance with the bureau's implementation of a community of practice as detailed in its Condition Assessment Program (CAP) of 2017. The CAP seeks to optimize maintenance and operation strategies and supports reliability-centered operations and maintenance practices and goals by decreasing unforeseen asset failures and reducing overall business risk exposure.

An additional 2.0 FTE are requested for the PMO – both of which would replace positions that are currently filled via temporary appointments. The first new position is a Manager for the Project Management division in the PMO which manages 20 capital projects valued at roughly $100 million and is also responsible for the development and implementation of the new BES project delivery process. The temporary Manager currently oversees seven project managers, but BES notes that there is potential for this number to grow. The permanent position will ultimately oversee a large division divided into teams focusing on different project types as projects and staffing are added into the PMO. The bureau notes that this is a key position supporting improvement of inter-bureau partnerships and coordination, integrated project teams, and linking integrated planning to capital project objectives. The second new position in the PMO is an Analyst to support business operations of the new and growing workgroup.

The Environmental Compliance program, which manages, interprets, and implements Citywide environmental permits and associated state and federal regulations, is requesting to add 5.0 new FTE, two of which are a part of the organizational transition:

- An Environmental Program Coordinator to align complementary work in regulatory compliance and equitable community engagement. The position will provide coordinated communication and involvement, for residential and commercial pollutant source control initiatives and with historically marginalized communities for brownfield assessment. The activities are required by both National Pollutant Discharge Elimination System (NPDES) permits and EPA brownfield grants.
- 1.0 Business Systems Analyst II to provide data management, business process development, and technical support, and proactively identify and address data and reporting gaps. This position will be responsible for management, maintenance, and upgrades of the compliance database.

The other three new positions in Environmental Compliance are:

- 1.0 FTE Environmental Technician I in the Stormwater group to support the Columbia Corridor Stormwater Program and perform desktop analysis of each basin
- 1.0 FTE Coordinator I in the Pretreatment program to provide data entry and outreach support to the sub-meter program
- 1.0 FTE Toxics Regulatory Coordinator to develop reduction plans for toxic chemicals to meet new, more stringent state and federal regulations and NPDES permitting requirements.

There are 3.0 new FTE requested for the Treatment program, and these are not a part of the bureau's organizational restructuring. The first is a Wastewater Operations Specialist responsible for coordinating treatment plant process changes to support capital construction projects and shutdown of equipment for both planned and emergency (asset failure) maintenance work. This position will also assist with compiling data for regulatory reporting and play a critical role in capturing and memorializing operational strategies and standards. Two new Maintenance Supervisors are requested to address excessive span of control issues (currently 21 employees per supervisor) within the existing Plant Mechanical Maintenance and Electrical and Instrumentation work groups.

CBO recommends the addition of the 25 new FTEs and notes that most of them are of a technical nature, including engineers, data analysts, regulatory compliance experts, and treatment plant technicians. In addition, many of the positions developed out of the bureau's organizational restructuring aimed at increasing capital throughput. However, CBO recommends that the bureau continue to develop performance metrics to measure the improvements in throughput which many of these new positions are supposed to enable. To this end, BES states that it will be launching a formal project monitoring process with monthly production meetings to monitor project and program health. The bureau notes that the data and information collected and analyzed in this new process will include: historical data and trends, projections based on industry standard earned value methodology, and direct input from project managers and division managers to inform planning and decision making. In addition, a new suite of performance indicators related to capital project throughput are currently in development, including:

- Project cost efficiency index
- Project schedule efficiency index
- Project cost to complete
- Project cost at completion
- Program level performance and projections

The bureau states that the next phase will be to formalize its capital project estimating practices and notes that capturing and utilizing historic cost data will result in better estimated future projects within a tighter range of certainty. These efforts, along with the development of standards and templates, are expected to provide more informed and realistic capital project estimates.

Portland Harbor Superfund Obligations

BES is the lead agency tasked with addressing the City's responsibilities concerning the Portland Harbor Superfund site. The FY 2020-21 Requested Budget includes $6.5 million for Superfund response costs including staffing, community relations, legal advice, consulting, and remedial design work. With the release of a Record of Decision (ROD) by the United States Environmental Protection Agency (EPA) in 2017, focus has turned to working with other potentially responsible parties to design the needed in-water work and developing the partnerships with other agencies and City bureaus on community outreach needed to implement the work. Three remedial design efforts that began in FY 2019-20 will continue in FY 2020-21. The bureau continues to collaborate with City partners to advance Superfund remedial design funding on a Citywide basis. Efforts to implement Superfund projects and to monitor the site will continue for years. As the remedial design phase of the project continues, program expenditures are likely to increase in the near-term as costs are better refined.

BES's budget for the effort is housed in the Environmental Remediation Fund and is funded by a dedicated Portland Harbor surcharge on utility bills and supplemented by property lease revenues and interest earnings from the fund. Specifically, rate revenues of $7.2 million will fund the majority of the program in FY 2020-21 (this is a $2.4 million increase over the FY 2019-20 Revised budget of $4.8 million) and will support additional post-ROD appropriations. At present, BES has 4.0 FTEs dedicated to the program. In FY 2019-20, $6.0 million was transferred to the new Portland Harbor Superfund reserve account, which jointly holds funds for Portland Harbor response work from BES, the General Fund, the Portland Bureau of Transportation, the Portland Water Bureau, and Prosper Portland. BES's FY 2020-21 Requested Budget includes about $5.0 million to address the City's obligation for the remedy design phase of the Superfund process, and this is funded by a cash transfer from the Citywide reserve.

Under a settlement agreement with the EPA, the City, and the State of Oregon established a trust to be funded over the next three fiscal years to help address City and State obligations as potentially responsible parties. This settlement is designed to reduce the City's risk of enforcement action by EPA, reduce transaction costs from negotiating and performing numerous separate design agreements, and encourage timely action.

The City's involvement with the Portland Harbor Superfund site, which includes the anticipated costs for management, technical, and legal work, is currently forecast at approximately $33 million over the next five fiscal years. The required cleanup plan identified in the ROD is estimated to cost more than $1.0 billion sitewide. However, the share of total implementation costs ultimately borne by the City is currently unknown, and the City cannot at this time predict the total financial impact. Total potential future capital costs associated with cleanup and natural resource restoration activities required by the ROD are not yet reflected in BES's forecast. The bureau has indicated that forecast amounts will continue to be modified as more information becomes available.

In recognition of the accelerating importance and prominence of the effort, BES has added a new performance measure to the program: the number of education and engagement activities and events about the Portland Harbor Superfund site. The target for this measure in FY 2020-21 is 25 activities or events. As BES's obligations are heavily funded by ratepayers, CBO recommends that the bureau also develop and adopt outcome and efficiency measures as well, for example, the average cost of a clean-up project or measures related to the timeliness of the completion of projects.

Key Issues in Capital

Better Condition Assessment Increases Anticipated CIP Costs and Cost Accuracy

In 2016, BES produced an internal report from which its current capital investment strategy has evolved. While the analysis has not been updated since then, the bureau notes that information about specific categories of assets has improved, and the first outcome of the analysis was an intentional effort to prioritize condition assessment of assets. BES states that its understanding of urgent and long-term capital needs, and its strategies to address those needs, have since improved, resulting in organizational restructuring of the bureau.

The report noted that BES needed a comprehensive "catch-up" program for condition assessment of aging infrastructure critical to providing the bureau's services. Initial goals include completion of both the stormwater asset inventory and the majority of needed condition assessments for the treatment plant, pump station, and force main assets. Over the five-year "catch up" period at the beginning of the expanded condition assessment program, the total cost was estimated at $15 million inclusive of staffing costs. The ongoing program costs after that initial five-year period were estimated to be approximately $2 million per year, also inclusive of staffing costs.

The 2016 report noted that the Adopted FY 2017-21 five-year Capital Improvement Program described a program ranging from $104 million per year to $115 million per year, but due to a variety of regulatory-driven projects and projects addressing failing/poor condition assets, the FY 2018-22 proposed five year CIP was expected to grow to a range of $120 million to $138 million per year. The additional information from the expanded Condition Assessment Program and a "prudent" reinvestment strategy for BES assets based on asset value, age, and condition was projected to further expand the CIP to a range of $151 million to $156 million per year in FY 2023-27. However, even back then the bureau realized that investments of up to $170 million per year may be needed for its infrastructure reinvestment strategy. As noted previously, for comparison purposes, BES's CIP budget for the next fiscal year (FY 2020-21) is about $171 million. Thus, the bureau concluded that a more proactive approach to assessing asset condition would result in both a more accurate determination of resources needed to maintain the assets as well as the need to devote more resources to the effort.

Creating Proactive Asset Reinvestment and Management Strategies

The bureau concluded from the 2016 assessment that a proactive asset management strategy would meet levels of service with less rate variability and less risk to customers/ratepayers. To accomplish these goals, BES determined that the following elements were needed in its proactive strategy:

- more accurate financial forecasts with less risk of wide variability in the future;
- more accurate CIP project scopes, budgets, and schedules;
- more accurate Maintenance & CIP planning, better definition of how to meet Levels of Service, fewer emergency failures and fewer expensive reactive projects

In FY 2018-19, the bureau completed the CIP Process Review and Enhancement Project (CIP-PREP), a multi-year effort to improve CIP planning, prioritization and delivery processes. Implementation of improvements to the bureau's CIP development and management process, including the creation of the PMO, began in FY 2019-20 and will continue over the coming years.

The outcome of these condition assessments and planning efforts, as well as regulatory requirements, indicates a trajectory of increased capital investment to support the needs of the aging infrastructure systems, with the goal of creating a reliable and sustainable sewer and stormwater system that optimally spreads risk and costs across multiple generations. BES estimates the replacement value of the bureau's assets at approximately $15.2 billion; with over $9.7 billion of that in the nearly 2,000-mile sanitary and combined sewer pipe system. While 77% of the collection system pipe is in good or fair condition, a significant amount of pipe is in poor or very poor condition. The bureau estimates that roughly $1.7 billion of system assets are in poor or very poor condition, and future maintenance needs are anticipated to increase until those assets can be replaced. These asset reinvestment needs require significant increases to capital project delivery throughput – from the historic average level of approximately $80 million annually to upwards of $150 million annually.

System assets – including collection system pipes and both treatment plants – are anticipated to require sizable annual investments well into the future to address the backlog of critical maintenance needs. Capital maintenance and upgrades to the two wastewater treatment plants and nearly 100 pump stations located throughout the collection system are a high priority. BES notes that these urgent and highly complex projects will feature prominently over the next ten years and weigh heavily in decision making around resource allocation to other program areas in the CIP.

The Bureau projects the need to significantly increase delivery of annual CIP projects over the next ten years. The FY 2020-21 Requested CIP Budget of $170.8 million is approximately 20% higher than the FY 2019-20 Revised budget of $142.4 million (excluding the budget for the Portland building). Future years are projected to peak at approximately $200 million as STEP goes into maximum production in FY 2021-

22 through FY 2023-24, before scaling back down to approximately $165 million per year to address deferred work. Planned CIP outlays total $945.7 million (excluding inflation) over the five-year forecast interval of FY 2020-21 through FY 2024-25.

Organizational Restructuring and the Creation of the Project Management Office

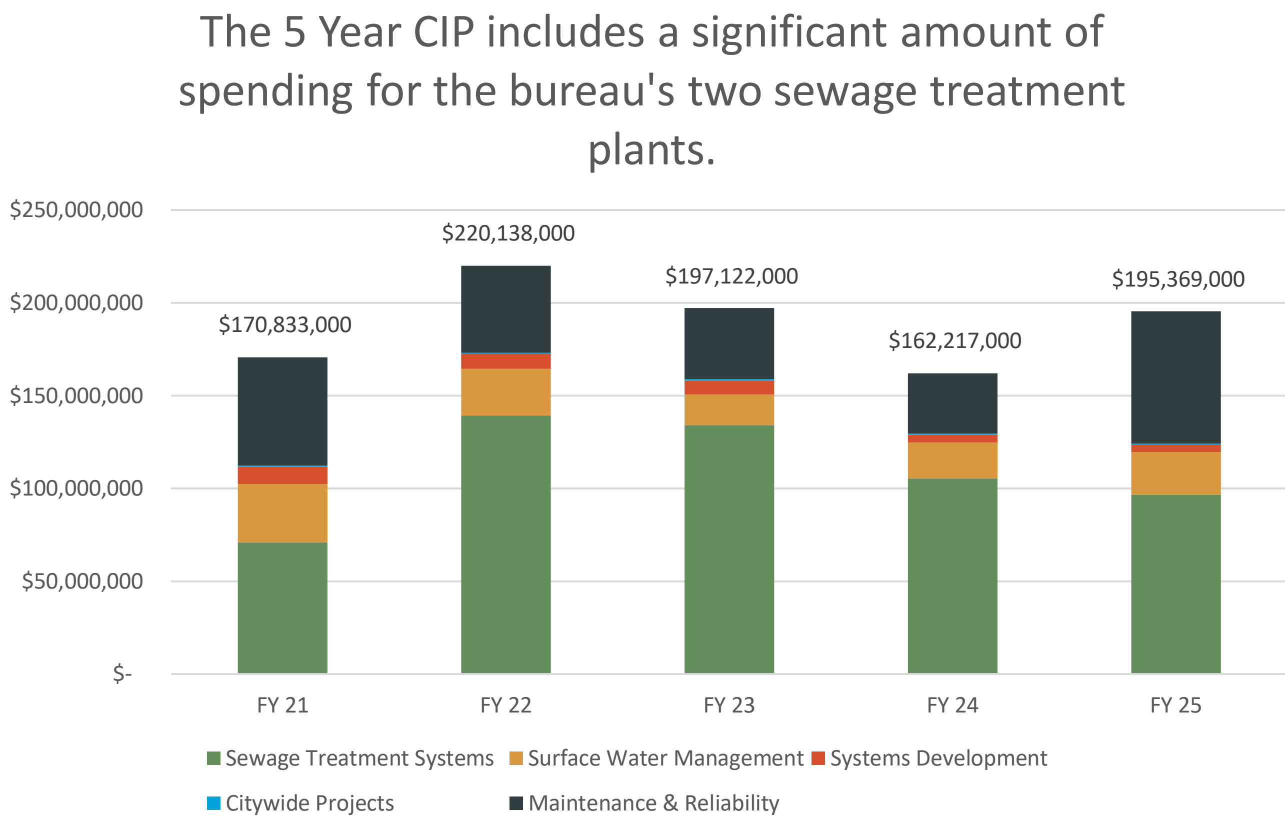
Since the completion of the CSO program in 2012, the bureau has begun to shift its capital program toward smaller, more rehabilitation focused projects. To catch up maintenance and replacement projects to improve system reliability, the bureau realized that it needed to significantly increase capital throughput. Specifically, as noted above, the bureau projects the need to significantly increase delivery of annual CIP projects over the next ten years, driven by a host of factors including aging infrastructure, regulatory requirements, public input, the City's Comprehensive Plan, City Council priorities, evolving operational needs, and updated bureau plans.

BES's Ten-Year Strategic Plan adopted in 2018 identified a need to revise the bureau's CIP development process and management structure, leading to the start-up of a Project Management Office (PMO) in 2019. Major process improvements and organizational changes began that year with the creation of the PMO and initial staffing to define an improved capital project delivery process, continue with improvements and maturation of project and program controls functions, improve project scheduling, and begin managing a subset of CIP projects in a new model of managing a project from its very inception to its final completion. The bureau expects these improvements to increase efficiency in project delivery and optimize limited staffing resources to deliver a larger annual project throughput. For context, it should be noted that from FY 2013-14 through FY 2017-18, BES underspent its Capital budget on average by approximately 20%, while the bureau fared better last year, ending the year with only about 11% of CIP underspending. Further implementation of the new processes and procedures will continue in FY 2020-21, and it is expected that capital projects will increasingly be managed through the PMO in the coming years.

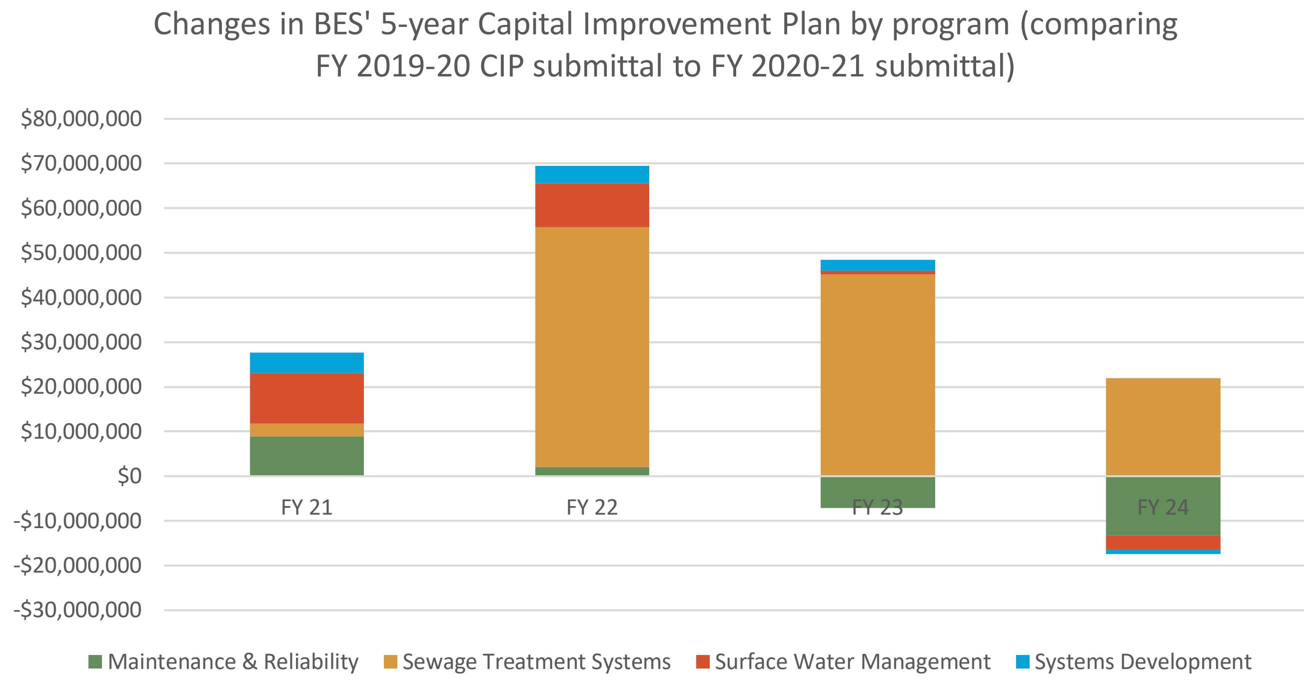
In addition, beginning in FY 2018-19, BES began a comprehensive review of its organizational process and alignments to make sure that functions are integrated, collaborative, and optimally efficient. The bureau reviewed bureau processes and interdependencies to identify organizational changes that are expected to help it to optimally deploy limited public resources to achieve priority service outcomes. In February 2020, the bureau officially launched a significant organizational realignment that developed out of this review.

Current Five-Year Capital Improvement Plan (CIP)

BES' requested budget includes $945.7 million in capital expenditures over the next five years, reflecting the bureau's vision for a greatly expanded capital program to address aging assets and improve system reliability.



Compared to the prior year's submitted five-year CIP, there are several changes resulting in a net increase of $125.1 million or a 21% increase when comparing the capital plan between FY 2020-21 through FY 2023-24 (i.e. the four years shared by both plans). As the graph below indicates, a comparison of the four common years of the CIP shows an almost $123.7 million increase in spending for the Sewage Treatment Program and a $9.4 million decrease in the maintenance and reliability program. The CIP includes over $320 million for secondary treatment expansion at the Columbia Boulevard Wastewater Treatment Plant, in addition to $90 million in other projects at the plant. Also included is $8.9 million for improvements at the Tryon Creek Wastewater Treatment Plant (TCWTP). Other high dollar projects in the Five-year CIP include the Large Diameter Sewer Rehabilitation Project ($61.1 million) and the Pump Station Improvement Program ($58.0 million).



New CIP Projects in the FY 2020-21 Plan

The FY 2020-21 Requested Budget includes 24 projects that are new to the CIP with estimated costs of $77.5 million over the next five years and more than $124 million in total new project costs. Total operations and maintenance (O&M) expenditures are projected to increase by $44.3 million over the forecast interval, an average annual increase of 5.3%, and BES has incorporated these costs into its forecast for future rate increases. About $36.9 million of new project costs over the five years are in the Maintenance and Reliability program, while the Sewage Treatment Systems program includes almost $32 million of new project costs. A significant amount of work is already underway at the Columbia Blvd. Wastewater Treatment Plant which will replace obsolete facilities, increase efficiency of the overall plant processes, and prepare the plant for meeting regulatory requirements (see section below on Secondary Treatment Expansion at the CBWTP). Many of the notable new projects with either a high total project cost or high costs over the five-year forecast are in the Sewage Treatment Systems program and involve work at the CBWTP:

- CBWTP Disinfection System Replacement (Five year costs: $330,000, Total project costs: $10.5 million)
- CBWTP Outfall Sure Modifications (Five year costs: $3.0 million, Total project costs: $11.2 million)
- CBWTP Wet Weather Primary Clarifiers Rehabilitation (Five year costs: $10.7 million, Total project costs: $34.6 million).

Secondary Treatment Expansion at the CBWTP

The Sewage Treatment Systems program comprises more than half of the total CIP for the next five years, primarily due to facilities expansion through the Secondary Treatment Expansion Program (STEP) at the CBWTP, estimated to cost up to $391 million over the lifetime of the project.

The City's Mutual Agreement and Order (MAO) with the Oregon Department of Environmental Quality requires the CBWTP to treat all the combined sewage while meeting water quality standards with the purpose of protecting water quality, public health, and the environment. This effort includes the replacement of two secondary treatment clarifiers by 2024. The latest estimate for the project's total is $391 million, but the bureau hopes to Value Engineer (VE) the total costs down to $340 million. BES states that the STEP team is already undertaking continuous VE efforts where a 10% savings goal from the 20% estimates is deemed achievable based on the current scope. While major scope elements have remained unchanged, significant cost impacts are related to poor soil conditions at the plant site found during predesign, the difficulty in rehabilitating 50-year old structures to current seismic code standards, and the extent to which connected supporting systems require upgrades. The revised estimate includes escalation and contingencies commensurate with predesign and will continue to be refined as the project progresses. The initial planning level cost estimates had a high level of uncertainty, and BES is benefiting from the Construction Manager/General Contractor (CM/GC) approach where construction costs were developed at the 20% design phase, allowing the bureau to plan for impacts to the larger CIP. With the CM/GC on board, BES states that efforts will continue to focus on identifying alternative approaches to reduce costs and maximize value.

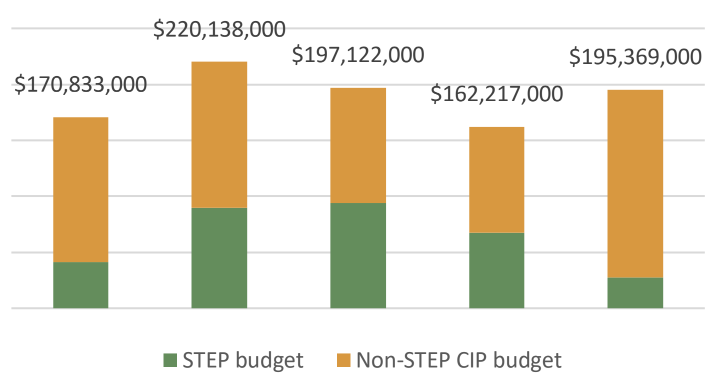
This expansion to secondary treatment capabilities is in the design phase and planned for construction to be complete by 2024 to meet regulatory deadlines. As noted above, the primary drivers of increases in the Five-year CIP over last year's submission were significant changes to STEP, including:

- Incorporating a more robust and consolidated treatment process to meet planned growth and upcoming regulations through the next twenty years;
- Design changes to meet Oregon structural codes, the BES Resiliency Master Plan, and significantly improved electrical resiliency; and
- Updated cost forecasts based on now-completed investigations.

The FY 2020-21 Requested CIP budget is $170.8 million, with STEP already making up $41.1 million of that, or 24.1%. As noted above, CIP budgets in future years are projected to peak at approximately $200 million as STEP goes into maximum production in FY 2021-22 through FY 2023-24, before scaling back down to approximately $165 million per year to address deferred work.

As noted above, while the retail rate increase of 3.0% for FY 2020-21 is consistent with previous bureau forecasts submitted in the Five-Year Financial Plan, outyear rates are higher, undoubtedly at least in part due to CIP increases pertaining to STEP. CBO supports the Citizens' Utility Board's (CUB) recommendation that the bureau clearly identify STEP expenditures that are required due to regulatory mandates and those expenditures that may be needed but could possibly be delayed. However, CBO also notes that scale efficiencies are often realized when the various components of a project are worked on simultaneously or in close proximity versus completing one component and then beginning another.

Secondary expansion at the Columbia Blvd Wastewater Treatment Plant (STEP) is expected to make up a significant portion of BES's CIP budget over the next five years.



SUMMARY OF REQUESTS AND RECOMMENDATIONS

Below is a summary of the Bureau of Environmental Services' total budget which is contained in the following funds:

- Sewer System Operating Fund
- Environmental Remediation Fund
- Sewer System Construction Fund
- Sewer System Rate Stabilization Fund
- Sewer System Debt Redemption Fund

Bureau of Environmental Services - All Funds

		2019-20 Adopted Budget	2020-21 Requested Base (A)	Bureau Decision Packages (B)	CBO Recommended Adjustments (C)	Total Recommended Budget (A+B+C)
Expense	Personnel	$85,475,839	$91,618,499	$0	$0	$91,618,499
	External Materials and Services	$81,170,691	$101,509,385	$0	$0	$101,509,385
	Internal Materials and Services	$50,738,944	$53,579,135	$0	$0	$53,579,135
	Capital Outlay	$131,982,170	$109,085,479	$0	$0	$109,085,479
	Debt Service	$186,750,305	$180,416,532	$0	$0	$180,416,532
	Ending Fund Balance	$0	$0	$0	$0	$0
	Fund Transfers - Expense	$407,830,913	$458,590,935	$0	$0	$458,590,935
	Contingency	$497,169,890	$485,094,274	$0	$0	$485,094,274
	Debt Service Reserves	$71,433,409	$44,671,305	$0	$0	$44,671,305
	Total	**$1,512,552,161**	**$1,524,565,544**	**$0**	**$0**	**$1,524,565,544**
Revenue	Beginning Fund Balance	$459,698,500	$260,381,696	$0	$0	$260,381,696
	Bond & Note Proceeds	$235,100,000	$388,500,000	$0	$0	$388,500,000
	Charges for Services	$402,272,800	$403,781,450	$0	$0	$403,781,450
	Fund Transfers - Revenue	$396,908,590	$455,123,000	$0	$0	$455,123,000
	Interagency Revenue	$2,470,471	$2,257,798	$0	$0	$2,257,798
	Intergovernmental	$180,000	$987,000	$0	$0	$987,000
	Licenses & Permits	$1,995,000	$2,120,000	$0	$0	$2,120,000
	Miscellaneous	$13,926,800	$11,414,600	$0	$0	$11,414,600
	Total	**$1,512,552,161**	**$1,524,565,544**	**$0**	**$0**	**$1,524,565,544**