

2022 CURRENT EXPENSE BUDGET



BOSTON WATER AND SEWER COMMISSION



Board of Commissioners:

Michael J. Woodall, Chair
Thomas J. Keady, Jr., Commissioner

Henry F. Vitale, Executive Director
John P. Sullivan, Chief Engineer
Luciano Petruzzello, Chief Financial Officer

Prepared by the Finance Division



GOVERNMENT FINANCE OFFICERS ASSOCIATION

*Distinguished
Budget Presentation
Award*

PRESENTED TO

**Boston Water and Sewer Commission
Massachusetts**

For the Fiscal Year Beginning

January 01, 2021

Christopher P. Morill

Executive Director

The Government Finance Officers Association of the United States and Canada (GFOA) presented a Distinguished Budget Presentation Award to the Boston Water & Sewer Commission, Massachusetts for its annual budget for the fiscal year beginning January 1, 2021.

In order to receive this award, a government unit must publish a budget document that meets program criteria as a policy document, as an operations guide, as a financial plan, and as a communicative device.

This award is valid for a period of one year only. We believe our current budget continues to conform to program requirements, and we are submitting it to GFOA to determine its eligibility for another award.

Table of Contents

Table of Contents

	<u>Page</u>
I. Budget Message	11
<i>Management Objectives</i>	12
<i>MWRA Five Year Rate Forecast</i>	16
II. Plans, Policies and Procedures	19
Financial Planning Process	19
Program Based Budgeting	19
Goal Setting Process	19
Capital Improvement Program Budget Development.....	19
Direct Expense and Current Expense Budget Development	20
Rate Setting Process.....	21
2022 Budget Process Schedule	22
Policies	23
<i>Financial Policies</i>	23
<i>Policy for the Investments of BWSC Funds</i>	23
<i>Commercial Banking Policy Statement</i>	23
<i>Banking Policy</i>	24
<i>Funding and Utilization of Reserve Funds</i>	24
<i>Operating</i>	25
<i>Insurance</i>	25
<i>Renewal and Replacement</i>	25
<i>Stabilization</i>	25
<i>Departmental Program Plans and Budgets</i>	26
<i>Development, Monitoring & Amendment of the CEB</i>	27
<i>Development, Monitoring & Amendment of the CIP</i>	27
<i>Establishment of Water and Sewer Rates, Fees and Other Charges</i>	27
<i>Other Commission Policies</i>	28
Current Expense Budget Process	29
<i>Budget Allocations</i>	30
<i>Budget Variance Monitoring & Analysis</i>	30
Capital Improvement Program Process	31
<i>Development</i>	32
<i>Capital Project Funding</i>	33
<i>Capital Budget Amendments</i>	34
<i>Capital Budget Reallocations</i>	34
<i>Capital Program Monitoring and Reporting</i>	34
Debt Plan.....	35
Debt Service Coverage Requirements	36
Debt Service Coverage Calculation	37
Five-Year Debt Service Requirements	37
Additional Bonds & Refunding Bonds.....	38

Table of Contents

III. Budget Overview	45
2021 Financial Position	45
2021 Revenues and Expenses	45
Requirements and Future Impact	47
Budgeting and Accounting Basis	48
2022 Budget Summary	49
Historical Financial Analysis	50
Revenue Sources	51
Rate Revenue	53
Adjustments to Rate Revenue	54
Prior Year Net Operating Surplus	56
Miscellaneous Revenue	57
<i>Late Charge Fees</i>	57
<i>Investment Income</i>	58
<i>Fire Pipe Fees</i>	59
<i>Other Income</i>	60
Total Expenses	61
Direct Expense Budget Comparison	62
Direct Expense Budget	63
2022 Direct Expense Budget by Division	64
Budget Comparison by Line Items, 2022 v. 2021	65
<i>Wages and Salaries</i>	66
<i>Overtime</i>	68
<i>Labor Related Costs/Benefits</i>	69
<i>Supplies and Materials</i>	70
<i>Repair and Maintenance</i>	71
<i>Utilities</i>	72
<i>Professional Services</i>	73
<i>Space and Equipment Rentals</i>	74
<i>Other Services</i>	75
<i>Insurance</i>	76
<i>Inventory</i>	77
<i>Capital Outlay</i>	78
<i>Travel / Training / Seminars</i>	79
<i>Damage Claims</i>	80
<i>Indirect Expenses</i>	81
2022 v. 2021 Budgeted Indirect Expenses	82
<i>MWRA Assessment</i>	83
<i>Capital Improvements</i>	85
<i>Debt Service</i>	86
<i>Contractual Funding Obligations</i>	90
<i>Safe Drinking Water Act Assessment</i>	91
Fund Balances	92
<i>Flow of Funds</i>	93
<i>Revenue</i>	94

Table of Contents

<i>Operating & Maintenance</i>	95
<i>Senior Debt Service</i>	96
<i>Senior Debt Service Reserve</i>	97
<i>Operating Reserve</i>	98
<i>Insurance Reserve</i>	99
<i>MWRA Assessment</i>	100
<i>Renewal and Replacement Reserve</i>	101
<i>General</i>	102
<i>Stabilization</i>	103
IV. Program Goals and Budgets	105
Commission Organization	105
Commission-Wide Organizational Chart	106
Customer Base	107
2021 Commission Results	109
Commission Budget Summary	110
Commission Personnel Summary	111
Commission Goals, 2022	112
Executive Division	113
Organizational Chart	113
Division Organization	114
Mission	114
Budget Summary	114
Explanation of Major Variances	114
Personnel Summary	115
Explanation of Personnel Changes	115
<i>Office of Executive Director</i>	116
<i>Organizational Diversity</i>	118
<i>General Counsel</i>	121
<i>Human Resources</i>	125
<i>Information Technology</i>	128
<i>Safety and Training</i>	132
Operations Division	135
Organizational Chart	135
Division Organization	136
Mission	136
Budget Summary	136
Explanation of Major Variances	136
Personnel Summary	137
Explanation of Personnel Changes	137
<i>Office of Operation Services</i>	138
<i>Water & Sewer Services</i>	140
<i>Day Operations</i>	141
<i>Nights Operations</i>	142

Table of Contents

<i>Leak Detection/Dye Testing</i>	143
<i>Support Services</i>	149
<i>Storeroom Facility</i>	151
<i>Material Handling Facility</i>	153
<i>Customer Service & Compliance</i>	156
<i>Enforcement</i>	159
<i>Work Order/Customer Service</i>	163
<i>Asset Management & CMOM</i>	165
<i>SSO ERT</i>	169
<i>Special Structures</i>	171
<i>CCTV/Cleaning</i>	173
Engineering Division	176
Organizational Chart	176
Division Organization	177
Mission	177
Budget Summary	177
Explanation of Major Variances	177
Personnel Summary	178
Explanation of Personnel Changes	178
<i>Office of Chief Engineer</i>	179
<i>Planning</i>	181
<i>Design</i>	184
<i>Construction</i>	189
Administration Division	192
Organizational Chart	192
Division Organization	193
Mission	193
Budget Summary	193
Explanation of Major Variances	193
Personnel Summary	194
Explanation of Personnel Changes	194
<i>Office of Chief Administrative Officer</i>	195
<i>Meter Services</i>	197
<i>Account Services</i>	200
<i>Communication and Community Services</i>	205
<i>Facilities & Support Services</i>	208
Finance Division	211
Organizational Chart	211
Division Organization	212
Mission	212
Budget Summary	212
Explanation of Major Variances	212
Personnel Summary	213

Table of Contents

Explanation of Personnel Changes	213
<i>Office of Chief Financial Officer</i>	214
<i>Budgets</i>	216
<i>Financial Services</i>	219
<i>Revenues</i>	222
<i>Accounting</i>	226
<i>Procurement</i>	230
V. Capital Improvement Program (CIP)	235
Management Objectives and Accomplishments	235
Capital Improvements Cash Flows	238
Capital Improvements Funding Source	238
Project Highlights	239
Projects Associated With Consent Decree & Water Quality Improvements.....	241
<i>Background</i>	242
<i>Water Distribution System Expenditures</i>	243
<i>Sewer System Expenditures</i>	243
<i>Support Project Expenditures</i>	245
<i>Stormwater Project Expenditures</i>	245
MWRA.....	246
Funding Sources and Financial Impact	247
Impact of CIP on Current Expense Budget.....	248
Water Distribution System.....	249
Water Distribution System Capital Program	250
Water Main Replacement Program.....	250
Water Main Replacement Program Summary	251
Water System.....	252
<i>Water Replacement</i>	252
<i>Water Distribution System Special Projects</i>	257
Sewer System.....	259
<i>Sewer System Capital Program</i>	269
<i>Sewer Renewal and Replacement</i>	269
<i>Increased Capacity Projects</i>	275
<i>Sewer Separation</i>	276
<i>Sewer System Special Projects</i>	278
Support Projects	282
<i>Metering</i>	282
<i>Information Technology Systems</i>	283
<i>Administrative Equipment</i>	285
<i>Stormwater/Green Infrastructure/Low Impact Development</i>	287

Table of Contents

VI. Long Range Forecast	291
Financial Modeling Results	291
<i>MWRA Assessment</i>	291
<i>Forecasted MWRA Rate Increases</i>	292
<i>Forecast Assumptions</i>	293
<i>Financial Projections</i>	294
<i>Five Year Pro Forma</i>	294
Reserve Fund Levels	295
BWSC Rate Increases	296
Household Charges	297
VII. Demographics	299
City of Boston Overview	299
<i>Population</i>	300
<i>Employment</i>	302
<i>Unemployment</i>	303
<i>Industry</i>	305
<i>Education</i>	306
<i>Consumer Spending</i>	307
<i>Commercial Market</i>	309
<i>Housing Market</i>	310
<i>Tourism</i>	312
<i>Commission Background</i>	315
<i>Sources</i>	319
VIII. Personnel Summary	321
Overview	321
<i>Executive</i>	321
<i>Local 6</i>	326
<i>Local 888</i>	327
<i>Council 93</i>	328
<i>Local 100</i>	329
IX. Glossary	331
X. Index	337

2022 Budget Message from the Executive Director

The Commission was established in 1977 pursuant to a “home rule” petition adopted by the City of Boston (the “City”) and enacted by the Legislature of The Commonwealth of Massachusetts as the Boston Water and Sewer Reorganization Act of 1977, Chapter 436 of the Acts of 1977 of the Commonwealth (the “Act”). Under the Act, the Commission has been constituted as a public instrumentality, a body politic and corporate and a political subdivision of the Commonwealth. The Act provided for the transfer to the Commission of the ownership and responsibility for the operation of the water distribution system and the wastewater collection and stormwater drainage systems of the city. The Act authorizes the Commission to operate, maintain and construct all necessary improvements to the systems, establish and collect rates and charges for its services (which rates and charges are not subject to regulation by any other governmental body), and finance its operations and improvements through revenue collections and the sale of bonds and notes payable solely from the Commission’s revenues. The Act further provides that any revenue surpluses earned by the Commission in any Fiscal Year shall be credited to the next year’s rates or returned to the City of Boston. Since its inception, the Commission has generated a surplus in each year of its operations and has credited the surplus to the reduction of the next year’s rates. The Act may be amended only by means of further “home rule” petitions of the City enacted by the Massachusetts Legislature, or by means of state legislation affecting generally all water and sewer districts within the Commonwealth.

In March of 2020 the coronavirus, a contagious disease caused by severe acute respiratory syndrome, spread throughout the world leading to an ongoing pandemic. The U.S. Centers for Disease Control and Prevention (“CDC”) and the World Health Organization (“WHO”) directed cities, towns and many businesses to shut down in order to minimize the spread of the virus. During this time, the Boston Water and Sewer Commission (the “Commission”) remained committed to providing continuous delivery of drinking water and sewer services which are critical to daily life and public health. Under the guidance of the CDC, the Commission implemented several precautionary measures to protect the health and safety of staff that operate and maintain the Commission’s water and sewer infrastructure. The Commission will continue to use all necessary measures to keep our customers and employees safe.

Management Objectives

The Commission was created to maintain and improve the long-term quality and reliability of Boston’s water and sewer services for all users in the city and to assure adequate funding for operation and maintenance of the systems. To this day, the Commission continues to be committed to these primary goals:

To maintain and improve the water distribution and wastewater collection systems. The Commission is committed to various improvements to the Water Distribution and Sewer Systems, including following an aggressive renewal and replacement program, reducing unaccounted for water, encouraging conservation and improving the environment. The Commission is also committed to meeting and exceeding the requirements of all federal and state water and wastewater laws, regulations and technical standards.

Budget Message

To establish and administer a billing and collections system that is fair and efficient. The Commission has worked to establish a rate structure that fully and fairly reflects its costs, properly distributes the financial obligation amongst its customer base and encourages water conservation. The metering, billing and collection process is a central focus of the Commission's full management team and the Commission is committed to maintaining its strong record in that area.

To maintain a strong financial structure. The Commission has consistently employed conservative financial projections and budgeting assumptions, maintained adequate reserves and struck a reasonable balance between debt funding and rate funding of capital expenses.

To sustain the effectiveness of investments / compliance of regulations. The Commission is committed to complying with all its regulatory obligations under federal and state laws, including the Safe Drinking Water Act ("SDWA") and Clean Water Act ("CWA") with its National Pollutant Discharge Elimination System ("NPDES") permitting obligations for both its stormwater systems and combined sewer systems. Compliance obligations also extend to meeting and exceeding the goals and requirements of the Boston Harbor Decree and the Consent Decree executed in 2012 with the Environmental Protection Agency ("EPA") related to stormwater discharges.

The overall objectives of the Commission's 2022-2024 Capital Improvement Program ("CIP") are to ensure the delivery of high-quality potable water for consumption and fire protection, as well as the efficient collection of sewage for transport and delivery to a treatment facility or for approved discharge. In addition, the CIP includes projects to improve overall efficiency of the Commission and to enhance the Commission's ability to provide services to its customers.

The Stormwater category was created in 2017 that focuses on Stormwater management. The primary purpose of the Stormwater Category in the 2022-2024 Capital Improvement Program is to engage in participation in the Boston Harbor pollution abatement projects and implement green infrastructure to improve the water quality of discharges to the local receiving waters. The goal is also to study existing conditions and make recommendations for placement of new best management practices designed to promote improved water quality, ensure compliance with state and federal regulations, minimize flooding and strategically manage Stormwater throughout the City of Boston.

The Commission's CIP includes projects to improve the overall efficiency and to enhance the Commission's ability to provide services to its customers. The projects included in this CIP are intended to accomplish these objectives in the most efficient and cost-effective manner. The Commission intends to enhance Boston's water and sewer infrastructure with several targeted projects included in the 2022-2024 Capital Improvement Program. Some of the major projects are listed below:

- Water Main Replacement Program
- Sewer and Drain Replacement Program

Budget Message

- Sewer Separation in South Boston
- Sewer Separation in Roxbury
- New Boston Main Interceptor
- City-wide Illegal Connections Investigations
- Upgrades to Union Park Pumping Station & Satellite Stations
- Projects affiliated with the Consent Decree; includes Cleaning and Televising Eighty Miles of Sewer and Drains
- Implementation of Green Infrastructure at City Hall Plaza
- Improvements to Information Technology

Since its creation the Boston Water and Sewer Commission has provided the City of Boston with reliable, quality water. A program, which began as an aggressive 17 miles of water pipe replaced or rehabilitated yearly based on age and the City's construction schedule, has transformed into a successful asset management approach. When combined with an aggressive leak detection and flushing program the results have been undeniable. The Commission has averaged just over 35 water pipe failures per year and has witnessed its unbilled water drop from 48% to 15%. The Commission utilizes effective conservation measures through continued efforts to eliminate leaks across the system through advanced leak detection technology and proactive maintenance of the system's water mains.

In 2011, the Commission completed a Water Distribution Study which provided a thorough understanding of the water system and how to best manage it. The study gave all stakeholders a better sense of the history of Boston's water infrastructure and provided key insights into current conditions. The study has been responsible for the development of best management practices in value maintenance, main flushing and more effective methodology of selecting pipe to be replaced under the Capital Improvement Plan. Not only do these tools assist current Commission employees with an understanding of the system, they provide future employees with a roadmap for optimal system maintenance.

The three-year study was divided into two phases. The first phase was to have both Commission staff and a hired contractor collect 93 pipe samples (coupons). The samples were taken from every neighborhood and varied in size and pipe material. The age of the water pipes ranged from 18 years old to 147 years old and included cast iron, ductile iron and a mix of cement lined and unlined. The pipes and soil sample which were also taken from the location were analyzed. The analysis consisted of physical observations and measurements, microscopic examination, mechanical properties test, and chemical composition analysis. The soil sample obtained at each location was also analyzed to determine its corrosiveness. The results of the tests performed

Budget Message

were matched with locations on Commission maps and corrosion rates were correlated with fill areas, electrified rail locations and groundwater levels.

The second phase was to create a sustainable distribution system by developing a risk-based measure for selecting pipe to be included in the annual CIP budget. This phase employed sophisticated models that levered all the data collected in phase one, data the Commission collects in its GIS, Citiworks, and hydraulic model to determine the appropriate level of pipe rehabilitation and replacement needed to achieve the Commission's goals. The pipe selected is based on a risk-based assessment. The framework is derived from asset management principles which consider the highest risk of pipe failure and the consequences of such an event occurring.

In addition to the samples taken during the three-year study, the Commission obtains eight pipe and soil samples every year. Once the results of the analysis are received the information is uploaded into the Commission's database to continue selecting the most vulnerable pipe.

Over the last ten years, the Commission has completed a total of \$260.2 million in water distribution improvements. These improvements have resulted in the replacement of 102.6 miles of water mains and cement lining of 4.3 miles of water mains. The projects scheduled for initiation in 2022 will result in the replacement of 8.7 miles of water mains.

Sewer System improvements will include in-kind replacement and rehabilitation of sewer pipes, installation or replacement of sewers and storm drains that increase the overall capacity of the system, separation of combined sewers, identification and reduction of infiltration and reduction of infiltration and inflow and compliance with permit requirements in the areas of combined sewer overflows and stormwater discharges.

Major sewer system improvements have resulted in increased system capacity and the virtual elimination of dry weather overflows from combined sewers into Boston Harbor as well as the Neponset, Charles and Mystic Rivers. These upgrades have also increased water quality and improved accessibility to all waterways.

Projects associated with the Plan in the Sewer System CIP include the rehabilitation or replacement of approximately 36.0 miles of deteriorated or collapsed sanitary sewers and storm drains in addition to the television inspection of approximately 80.0 miles of sewer pipe. Also included are drainage improvements and the replacement of faulty tide-gates.

On August 23, 2012, the Commission entered in a Consent Decree with the Environmental Protection Agency and Conservation Law Foundation. Under the terms of the Consent Decree the Commission implemented a Capacity, Maintenance, Operations and Management ("CMOM") self-assessment study in 2012 that analyzed all aspects of the Commission's sanitary sewer and storm drainage facility operations and maintenance. The Commission finalized a CMOM Corrective Action Plan in July 2013 and developed a CMOM Program Document in May 2014. The CMOM Program synchronizes infrastructure maintenance and operations goals with long-term CIP planning to achieve ("CWA") compliance with the Commission's NPDES permit and ultimately improve water quality.

Budget Message

As part of the CMOM Corrective Action Plan filed with the EPA, the Commission must increase its inspection and assessment of its sewer and drainage systems. The program represents progressive increases in the quantity of pipes cleaned and televised with an end goal of completing approximately 10% of the system annually.

The Commission has embraced the Consent Decree requirements from senior management through all divisions and departments. The Commission views the requirements as an opportunity to enhance its current practices and procedures in operating and maintaining the sewer system. Staffing leadership changes have been implemented; for example, a CMOM director and an SSO manager were hired in 2013 to ensure compliance with the requirements enforced by the Consent Decree.

The Consent Decree offers an unprecedented opportunity for the Commission to increase its role as an environmental steward for Boston's waterways. The Commission is committed to meeting and surpassing the benchmarks outlined in the Consent Decree. To fulfill this commitment, the Commission has begun implementing both short-term and long-term measures that are designed to improve water quality, increase public awareness, and protect the environment. The City of Boston, the Commission and its ratepayers have helped clean up Boston Harbor and Boston's waterways to a level where they are accessible for the public use 90% of the time. South Boston's beaches are recognized as the cleanest urban beaches in the U.S. and the Charles River has been recognized by the EPA and internationally as one of the cleanest urban rivers in America. The Commission's illicit discharge detection protocol and sampling program have been cited as an example and standard by EPA. These achievements are a direct result of the Commission's investment in improved sewer and stormwater infrastructure, implementation of best management practices and working with other stakeholders in the City of Boston. The Commission will continue a tenable, sustainable path to improve water quality and maintain outstanding access to the City's waterways.

In 2013, as required under the Consent Decree, the Commission submitted to EPA, DEP and CLF a Phase I Best Management Practices (BMP) Implementation Plan. The Phase I BMP Implementation Plan contained recommendations and schedules for the implementation of specific BMP and Green Infrastructure (GI) demonstration projects at Central Square (East Boston), Audubon Circle (Beacon Street/Park Drive area), and Boston City Hall Plaza. Construction of the Central Square project was completed in 2018, and construction of the Audubon Circle was completed in 2019. The Commission approved the design submitted by the City for the Plaza in 2020, and construction commenced in 2021. The final design of City Hall Plaza includes the installation of almost 23,000 square feet of permeable pavers and an infiltration reservoir capable of storing approximately 24,434 cubic feet of stormwater. Construction of the new City Hall Plaza is anticipated to be completed in 2022.

The Commission has implemented green infrastructure/low impact development (GI/LID) projects in collaboration with other Boston city agencies, including one which took advantage of the Boston Public Schools (BPS) comprehensive Educational and Facility Master Planning process known as BuildBPS to construct GI pilot projects at five public schools. All five schools were located in areas of high phosphorus loading. Construction of GI at the Washington Irving Middle School, Rafael Hernandez K-8 School, David A. Ellis Elementary, Jackson/Mann K-8

Budget Message

and Edward M. Kennedy Academy for Health Careers schools was completed by 2019. The Commission also worked with Boston Public Schools to develop stormwater related curriculum for 5th and 7th graders. Completed in 2018, the curriculum was designed to use the GI constructed at the schools to demonstrate various GI measures and to educate the students regarding GI benefits.

The Commission continues to work with city agencies, including Boston Public Works Department (BPW), Boston Parks and Recreation Department, Boston Transportation Department, Boston Planning and Development Agency, and others, to design and construct BMP/GI projects at various locations throughout the city. Ongoing projects in conjunction with the PWD include the construction of bioretention BMPs at Codman Square in Dorchester, design of BMPs along Coolidge Road in Brighton, and construction of bioretention areas along New England Avenue. The Commission also continued working with Nitsch Engineering Inc., under an on-call contract to design GI structural BMPs for collaboration project with city agencies. Ongoing projects with Nitsch include design of a drainage structure retrofit with phosphorus removal technology on Talbot Avenue in Dorchester with an approximately 122-acre drainage areas, and design of a subsurface gravel filter at Daisy Field that would treat stormwater from an approximately 71-acre drainage area. Recently Nitsch completed the Commission's Green Infrastructure Planning and Design Manual.

Effective January 1, 2022 the Commission increased its water and sewer rates by an average of 4.5%. The 2022 Current Expense Budget ("CEB"), as outlined in the following pages, details \$413.6 million in anticipated revenues and expenses. This represents a 1.9% increase over the 2021 budget.

The Commission's fiscal priorities for 2022 include adhering to management objectives and mitigating the effects of the Massachusetts Water Resources Authority ("MWRA") five-year projected wholesale rate increases. Successful achievement of these priorities will allow the Commission to accomplish its main goal of: providing Boston with the highest quality water and sewer service at the lowest possible price.

MWRA Five-Year Rate Forecast

The MWRA regularly updates its estimates of anticipated revenues and expenses over a multi-year planning horizon. These planning estimates provide a context for budget discussions and a planning tool for the MWRA and those affected by its rate revenue requirements. Increasing debt service to finance the capital improvement program is the most important factor driving estimates of future budget increases. New water system improvements and the impact of recent financing strategies will increase capital financing costs over the next several years.

The payment of the cost of such MWRA programs will be included in the MWRA's assessments to its Member Communities for the supply of water and sewer services. Because the Commission is approximately one-third of the MWRA's rate revenue requirement, it is expected that these programs will have a significant financial impact on the Commission, inevitably leading to increased water and sewer rates for our customers.

Budget Message

In developing future rate projections, the Commission must utilize the most current rate and future projections, which have been issued by the MWRA. The MWRA Assessment is based on an actual 0.5% reduction for 2022, a projected average of 3.3% for 2023 to 2026. These anticipated rate increases are based on the MWRA fiscal year, which began on July 1, 2021.

The 2022 budgeted assessment of \$247.2 million is anticipated to escalate to \$281.7 million by the year 2026. This forecast amount represents approximately 62.2% of the total expenses of the Commission for that year. Consequently, the current rate increase to Boston's ratepayers for 2022 is 4.5%, with forecasted increases of 3.0% each year from 2023 through 2026.

The Commission will aggressively pursue all available state relief funding, grant and low interest loans, and continue to control total expenses, in an effort to offset these rate increases. Based on the projected rate increases for 2023-2026, annual household charges for the typical Commission customer are forecast into an average dollar cost increase from \$1,270 in 2022 to \$1,429 in the year 2026.

The 2022 Current Expense Budget enables the Boston Water and Sewer Commission to fulfill its commitment to our ratepayers. That commitment is to operate the water, wastewater, stormwater systems in a modern and efficient manner; provide the highest quality and most cost effective water distribution and wastewater collection services; while improving the water quality in Boston Harbor, its beaches and tributary rivers.



Henry F. Vitale,
Executive Director

THIS PAGE INTENTIONALLY LEFT BLANK

The Financial Planning Process

The Commission's annual financial planning process adheres to established procedures in completing each vital planning phase in the implementation of the Commission's overall financial plan. The phases, described below in chronological order, are the Goal Setting Process, the Capital Improvement Program ("CIP") Budget Process, Direct Expense and CEB Development and the Rate Setting Process. Together, these phases outline the level of expenses for which the Commission must secure necessary financial resources, the revenue requirement to meet these expenses and the sources of the funds to implement these spending plans. The primary source for funding the current expenses for each fiscal year is customer water and sewer charges.

Program Based Budgeting

In 1989 the Commission implemented the "Program Based Budgeting" methodology. Under this methodology each operating unit within the Commission identifies areas of concern on an annual basis and declares new goals and objectives, which outline the mission and the duties of each operating unit. Program goals and objectives when successfully completed result in reduced costs, increased operating efficiencies and elevated levels of service being provided to our customers.

The Goal Setting Process

The Goal Setting Process commences in June each year. Division Chiefs and Department Managers submit preliminary goals and objectives to the Budget and Financial Planning Department staff ("Budget staff") for review. The goals are categorized as Monthly Management Report Goals, Goals included in the Commission-wide Report Status Update, Tactical Goals and Strategic Goals. Monthly Management Report Goals are those, which carry out the core duties and responsibilities of an operating unit within the Commission for delivery of basic water and sewer services. Goals included in the Commission-wide Report Status Update are reports submitted by staff for internal distribution or as required by law or permit to be completed and submitted to any external agency. Tactical Goals are one-time improvements and/or enhancements to a technical or service-oriented process. Strategic Goals outline the long-range plans and direction of each division and department in the Commission. In each case, the Division Chiefs and Department Managers must declare goals and objectives which meet at least one of the following criteria: cost control, revenue enhancement, service improvement or environmental protection. Each division and department must explain how the progress of the objective is to be measured - the measurement criteria. After review by Budget staff, proposed goals are forwarded to the Chief Financial Officer ("CFO") for review and comment. The final goals for the ensuing year are then reviewed and approved by the Executive Director.

The Capital Improvement Program Budget Development

The Commission is required under its Enabling Act and the General Bond Resolution, adopted on December 6, 1984, and supplemental resolutions ("the Resolution") to annually publish a CIP for the succeeding three years. The ultimate goal of the CIP is to ensure the uninterrupted

Plans, Policies and Procedures

delivery of high quality water and wastewater services while minimizing water loss and the pollution of Boston Harbor and its tributary waters. The CIP process, which also begins in June each year, outlines the improvements, which are necessary to maintain and enhance the infrastructure. The overall objectives of the CIP are to ensure the adequate delivery of high quality potable water for consumption and fire protection and the efficient and environmentally sound collection of wastewater for transport and delivery to a treatment facility or for approved discharge. The projects included in the CIP are divided into three categories: water distribution system projects, sewer system projects and support projects. Commission staff establishes a time line for the design and construction phases of each project along with projected cash flow requirements based on engineering information and a priority ranking system. As part of the CIP development process the Commission solicits input from private and public entities regarding planned capital projects and any potential impact on the Commission's systems and/or CIP. Project information is then submitted to Budget staff for review and compilation into the annual CIP. The proposed CIP is then forwarded to the CFO for review and comment, after which it is forwarded to the Executive Director for review and approval. In accordance with the Enabling Act the proposed CIP must be delivered to the Mayor of the City of Boston on or before November 1, annually. Prior to adoption of the CIP, the Enabling Act requires that the Commission hold a public hearing on its proposed CIP for the purpose of allowing interested parties the opportunity to review and comment. After the public hearing, the Commission maintains a fifteen-day open comment period for the public to present views or arguments on the proposed CIP. The Commission responds to these public comments and the final CIP is presented to the Board of Commissioners for adoption in December each year.

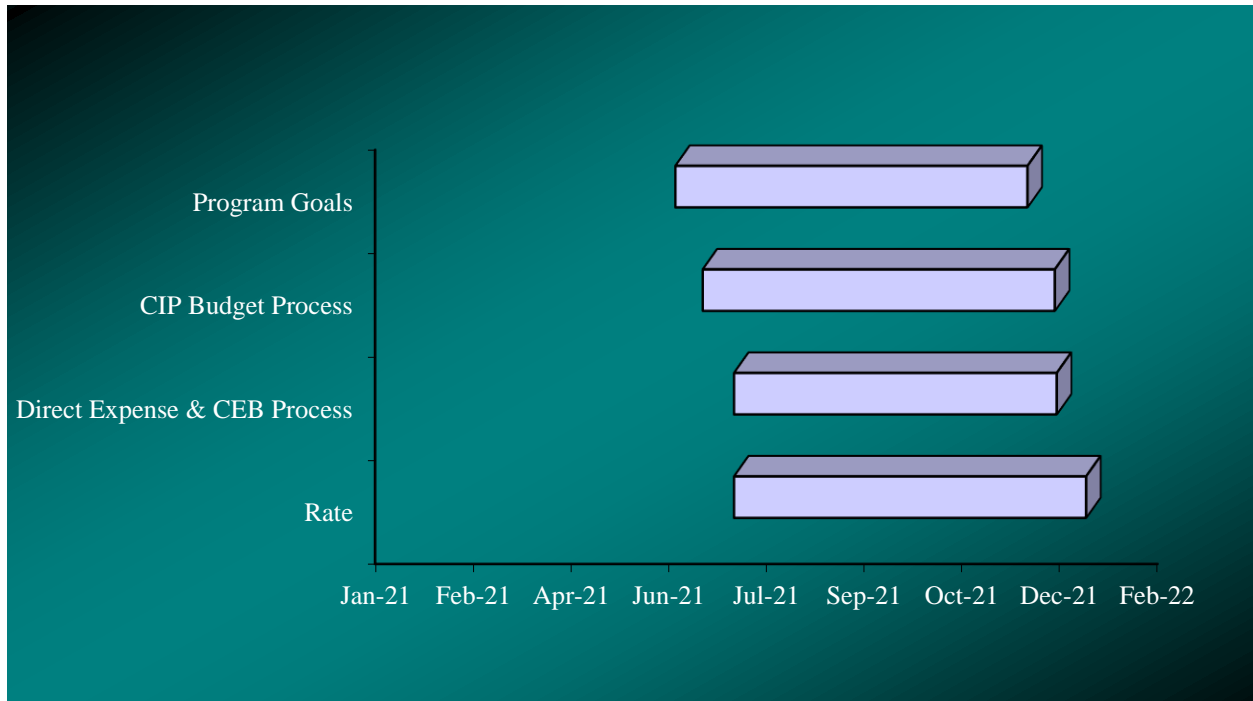
Direct Expense and Current Expense Budget Development

In July, the process for the Direct Expense Budget and CEB Development begins. Initially, Division Chiefs and Department Managers submit their requests for the funding necessary to fulfill the duties, responsibilities and new goals for the following fiscal year. Budget staff evaluates these requests in light of the current level of spending, historical spending patterns, availability of resources and the tactical and strategic goals declared by each department. Based on this analysis, the Budget staff determines a recommended level of funding. This recommendation is then submitted to the CFO for review and modification before finalizing the Direct Expense Budget at the Executive Director's Planning Meeting with Senior Management. The Commission then determines the total level of expenditures, which will be required to operate and maintain the systems, provide basic services and fulfill all financial obligations for the next fiscal year. Staff considers all financial obligations such as the wholesale costs of water and sewer services paid to the MWRA, the Direct Expenses as determined above, rate revenue funded costs of renewal and replacement of the water and sewer systems as included in the CIP, the Safe Drinking Water Act ("SDWA") Assessment, payment of State Revolving Loan Fund ("SRF") debt service, principal payments on MWRA loans, total debt service expense on outstanding general revenue bonds of the Commission and required deposits to various reserve funds which are stipulated by the Resolution ("Contractual Funding Obligations"). Once the level of these expenses is determined for the following year, the Commission must determine the level of revenue required to meet these expenses and to meet the debt service coverage test, which is covenanted in the Resolution.

The Rate Setting Process

The Rate Setting Process completes the final phase of the annual financial planning process by evaluating all the financial obligations of the Commission and determining the rate revenue requirement for the ensuing fiscal year. In accordance with legislative and policy mandates, the Commission adheres to an annual process in developing and setting the level of water and sewer rates for a given year. The Commission's Rate Setting Methodology incorporates the following four phases: Legislative/Policy Analysis; Water Demand Analysis; Financial Analysis; and the Water and Sewer Rate Calculation. Legislative/Policy Analysis is undertaken annually to ensure that the Rate Setting Process is conducted in compliance with all generally accepted rate making practices and that it adheres to all existing legal and policy directives mandated by the Enabling Act and the Resolution. The Water Demand Analysis considers factors, which have an impact on the level of consumption from year to year. Analysis of changes in the composition of the Commission's customer base, the occurrence of extreme weather conditions and its effects, the impact of increasing rates and economic activity and the extent to which system-wide water conservation efforts may alter usage patterns are considered. The third component of the Rate Setting Methodology is the Financial Analysis phase, which considers the past, present, and future financial position of the Commission in determining a projection of revenues, adjustments to revenues and expenses for a given year. The result of this phase is the total projected level of expenses for the ensuing year, which is used to determine the rate revenue requirement for that year. The Commission next estimates the level of non-rate revenue, which is derived from Special service fees, investment income, late payment charges, fire pipe charges, prior year net operating income, if any, and other miscellaneous income. The amount of non-rate revenue is applied to the level of expenses plus the level of adjustments to revenue and the resulting shortfall is the rate revenue requirement for the year. The final phase of this process is Water and Sewer Rate Calculation. The rate revenue requirement is allocated between water and sewer costs to derive a water revenue requirement and a sewer revenue requirement. The percent change in rates is determined by dividing the water and sewer rate revenue requirement by the estimated revenue from current water and sewer rates. The estimated percent changes are then applied to current water and sewer rates resulting in the calculation of new water and sewer rates. The Commission implemented a rate increase of 4.5% to be effective January 1, 2022. Also in 2005, the Commission completed a rate structure study in which it was determined that the rate structure should be reduced to six blocks. The 2022 Rate Schedule calculates charges based on a six-block inclining rate structure. From 1986 to 2005, the Commission used a ten-block inclining rate structure in order to promote water conservation. The inclining block rate structure charges a higher per-unit price as a customer's average daily consumption increases. It is a pricing structure widely used by water and sewer utilities throughout the country, and has contributed to the desired decline of water consumption in Boston over the past twenty years.

Plans, Policies and Procedures



2022 BUDGET PROCESS SCHEDULE

The above chart illustrates the process, which took place in 2021 in preparation for the 2022 fiscal year. At the beginning of June, the Program Goals and Objectives process was initiated, followed by the start of the CIP process in mid-June. During the first week of July, development of the direct and current expense budgets commenced, along with the development of the rates required to support all planned program spending.

Financial Policies

The Commission has established specific Financial Policies, which set the parameters within which decisions of a financial or budgetary nature are made. Many of the policies establish guidelines for operation in accordance with the requirements of the Enabling Act and the Resolution. Along with the broad-reaching policies described below, departmental level policies and procedures have been designed and instituted to ensure compliance with generally accepted accounting principles (“GAAP”) and applicable laws and statutes. Under the Enabling Act, the Commission is required to maintain its books and records in accordance with GAAP and to have an annual audit performed by an independent certified public accountant or firm of certified public accountants. The Commission has complied with this requirement and has received an unqualified opinion each year since inception.

The Commission follows the accounting standards set forth in Governmental Accounting Standards Board Statement No. 62, (“GASB 62”). Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements. GASB 62 allows certain (a) revenues provided for future allowable costs to be deferred until the costs are actually incurred (deferred credits) and (b) costs incurred to be capitalized if future recovery is reasonably assured (deferred charges). These changes allow a more meaningful presentation of the results of operations in that the financial statements prepared under GAAP more closely reflect the Commission’s rate setting policies.

Policy for the Investment of Boston Water and Sewer Commission Funds

This policy sets forth the principles, which the Commission shall follow in investing all of its cash assets, with the exception of the Pension Fund. Investment of Commission funds is governed by federal and state law and is restricted to Permitted Investments as defined by the Commission’s General Revenue Bond Resolution and Supplemental Resolutions. Revenues generated from the investment of Commission funds reduce the amount the Commission must charge its customers, while any investment losses would negatively affect the Commission’s general rates and charges. Consequently, the Commission shall at all times maintain a fully invested, diversified portfolio with the objective of achieving the highest yield that is attainable in conjunction with preservation of capital.

The basic criteria that will be used in making investment decisions include the evaluation of risk/reward tradeoffs, historical price spreads between different securities, the slope of the yield curve and the anticipated cash flows of the different investment accounts of the Commission. In addition, the prudent investor rule will be applied to all investment decisions.

Commercial Banking Policy Statement

This policy statement sets forth the principles governing the Commission’s commercial bank relationships. Commercial banks serve the Commission in two primary capacities. First, they provide a range of financial services including custody, trustee, check clearing, cash management and accounting. Second, commercial bank deposit accounts, including checking accounts, non-collateralized certificates of deposit and similar general obligations of the bank,

Plans, Policies and Procedures

are forms of investment securities. Banking relationships will be evaluated from both perspectives. Bank service relationships will be evaluated based on the quality of service provided and the full cost of service relative to similar service offered by other institutions. Bank deposit accounts in excess of amounts insured by the Federal Depository Insurance Corporation (“FDIC”) will be analyzed relative to their compliance with the Resolution and their overall investment risk and return. Every attempt will be made to minimize the investment risks associated with bank deposit accounts by maintaining deposits below the level insured by the FDIC whenever possible or by requiring that bank deposits be fully-collateralized. Non-collateralized deposit accounts in excess of FDIC-insured levels will be placed to the fullest extent practicable with banks that have high credit ratings consistent with the general credit levels established by the Resolution for Permitted Investments.

Banking Policy

This policy was adopted in 1991 when operating losses, downgrades and failures spread throughout the banking industry in New England, in order to ensure the safety of the Commission’s bank deposits. This policy was designed to further restrict the list of Permitted Investments as defined in the Commission’s Resolution. The Banking Policy dictates that any funds maintained with the Trustee or any other bank would have to be invested, collateralized or otherwise secured so as to provide the Commission with the security equivalent to at least an A rating. The Resolution requires that bank deposits in excess of FDIC limits can only be maintained in banks with combined capital and surplus of more than \$50 million. This policy imposes the stricter requirement that unsecured deposits in excess of FDIC limits be maintained only in banks with commercial paper ratings of A-1/P-1 or credit ratings of A or better.

Policy on the Funding and Utilization of Reserve Funds

This policy sets forth the purposes of the contractual requirements and additional funding guidelines of the Commission’s reserve funds. At a minimum the Commission will maintain each reserve fund at the amount required by the Resolution adopted December 6, 1984 and Supplemental Resolutions. It is the intention of the Commission to augment, withdraw from, pledge or otherwise utilize its reserve funds in accordance with the Resolution and this policy in order to provide a high level of security to its bondholders and to potentially moderate future rate increases.

The Commission is self-supporting entity that provides water and sewer services to the City of Boston. The Commission has established a fund structure that ensures necessary funds are made available to meet its various responsibilities in the relative order of priority. The fund structure is prescribed in the General Resolution under which bonds are issued to fund its infrastructure needs.

The funds established under the General Resolution include the Project Fund, the Redemption Fund, the Revenue Fund, The Operating and Maintenance Fund, the Debt Service Funds, the Debt Service Reserve Funds, the Stabilization Fund, the Operating Reserve Fund, the Insurance Reserve Fund, the Renewal Replacement Fund, and the General Fund (as well as some inactive Funds not presented here).

Plans, Policies and Procedures

The funding structure requires all bond proceeds to be deposited in the Project Fund and thus, to be available for the purpose for which the bonds were issued.

The funding structure also requires revenues of the Commission to be deposited in the Revenue Fund and thereafter to be dispersed in the order stipulated in the General Resolution. The order ensures that funds are first available to meet operation and maintenance requirements of the Commission, and then to meet the debt service requirements of the Commission, and finally to maintain the reserves of the Commission. Thereafter, remaining revenues are deposited in the General Fund for use by the Commission as it sees fit.

Operating Reserve Fund

The basic purpose of the Operating Reserve Fund is to provide funds if at any time the amount on deposit in the Operating and Maintenance Fund is insufficient to pay operating expenses due, or if there are insufficient funds in the MWRA Assessment Fund to pay the MWRA charges. The Commission's Resolution requires that the Operating Reserve Fund be maintained in an amount that is equivalent to one-sixth of the Commission's operating and maintenance expenses, plus one-sixth of the MWRA water and wastewater charges assessed to the Commission.

Insurance Reserve

The purpose of the Insurance Reserve Fund is to provide funds for the payment of awards due to personal injury or property damage in excess of \$10,000 up to the amount reimbursable from available commercial insurance coverage. In accordance with the Resolution, the Commission maintains its Insurance Reserve Fund in an amount, which is determined and certified annually via an audit conducted by an insurance consultant or an engineer consultant.

Renewal and Replacement Reserve

The basic purpose of the Renewal and Replacement Reserve Fund is to provide additional funds for Renewal & Replacement projects if there are insufficient funds in the Renewal and Replacement Account to pay for these projects. The Commission's Resolution requires that the Renewal and Replacement Reserve Fund must be maintained at an amount equal to or above 25% of the current fiscal year's budgeted Renewal and Replacement expenditures.

Stabilization Reserve

The purpose of the Stabilization Reserve Fund is to provide additional security to bondholders and to moderate the impact on the Commission's ratepayers of any substantial increases in expenses or reductions in revenues. In particular, the Stabilization Reserve Fund can be utilized to offset any sharp increase in the Commission's variable rate interest obligations or large increases in wholesale water and sewer charges due from the Commission to the MWRA. The Stabilization Fund required balance, as defined in the Resolution, is 4% of the aggregate principal amount of any variable rate bonds outstanding. In the event additional variable rate bonds containing provisions for interest rate changes on an annual or more frequent basis are issued by the Commission, the Stabilization Fund required balance shall include an additional amount equal to 4% of such bonds.

Plans, Policies and Procedures

Under guidelines pertaining to reserve funds, adopted by the Commission in October 1990 and revised April 1994, additional deposits may be made to the Stabilization Fund from projected audited year end surpluses realized by the Commission, in amounts equal to 50% of any savings on budgeted relative to actual MWRA charges unless otherwise approved by the Commissioners.

In December of 2000, this policy was amended to read as follows: The amount on deposit in the Stabilization Fund shall equal the greater of the Stabilization Fund Requirement or 10% of the previous fiscal year's net billed charges. If, at the start of the fiscal year, the balance of the Stabilization Fund is projected to exceed such requirement, then the Commission, on the last business day of the current fiscal year, may transfer to the Revenue Fund an amount up to the greater of 20% of such excess or \$20 million, but in either case, an amount not to exceed \$20 million in any one fiscal year.

The Commission has established supplemental guidelines for reserve fund contributions and withdrawals. In addition to the reserve fund requirements specified in the Resolution, the Commission shall manage its reserves in order to:

1. Provide additional security to bondholders where feasible and cost effective.
2. Ensure that sufficient funds are available to pay all operating and capital costs; meet, and to the extent cost-effective, exceed the net revenue requirements of the Resolution.
3. Moderate rate increases.
4. Or otherwise reduce the cost of maintaining and operating the water and sewer systems.

As part of the annual budgeting and rate setting processes the Commission shall review the funding levels of its debt service, operating, renewal and replacement, stabilization and insurance reserve funds. Withdrawals from or additional contributions to these funds shall be proposed in accordance with the Resolution and the objectives listed above.

Policy for Departmental Program Plans and Budgets

Through the 1990s the Commission has faced, and will continue to face, in the new millennium, increasing demands on its resources. At the same time the Commission must continue to improve and expand, where necessary, its services to maintain public support. In order to provide essential services and priorities, promote greater accountability and match scarce resources with critical program objectives, the Commission will annually undertake a program planning and budgeting process which defines departmental missions, sets objectives, establishes measurement criteria and projects promised levels of services which form the basis of the operating and capital budgets. The budgets, primarily the operating budget, thus reflect key performance objectives and allocate the resources needed to achieve these results.

Policy for the Development, Monitoring and Amendment of the Current Expense Budget

The CEB of the Commission should provide for the Commission's essential services and current priorities promote greater accountability by division and match scarce resources with critical program objectives. The CEB is developed in conjunction with departmental program plans and performance objectives. It therefore serves as both a planning document and a management tool for monitoring financial and operational performance. The Commission will utilize the CEB development and monitoring process to minimize its total costs of operation, consistent with its responsibilities to operate reliable and efficient water and sewer systems, conserve water and protect the natural resources available to the City.

The CEB is intended to be a balanced budget. The Commission believes a balanced budget is one where all available resources equals or exceeds budgeted expenditures. Available resources must include the use of the prior year's surplus and may include a transfer from the Stabilization Fund with the intent of mitigating the impact of projected rate increases. With each budget, the Commission expects at the end of that fiscal year to produce a small revenue surplus, typically less than \$1,000,000, which would be carried forward as available funds for next fiscal year.

Policy for the Development, Monitoring and Amendment of the Capital Improvement Program

The Commission's CIP is a comprehensive plan for the enhancement of the basic infrastructure and support facilities necessary to provide water distribution, wastewater collection and storm drainage services throughout the City. The primary goals of the CIP are to protect public health and the environment, improve the reliability of water, wastewater and storm drainage systems and minimize the long-term costs of operating these systems.

As part of the Commission's annual budgeting and rate-setting process, departments shall prepare capital project requests and submit them to the Finance Division for review and analysis. The Finance Division will estimate the financial feasibility of the proposed projects and will develop a draft CIP based on prioritized criteria. These criteria are intended to present a framework for project selection and elimination, are not all-inclusive and are subject to modification as part of the annual capital budget process.

Policy for the Establishment of Water and Sewer Rates, Fees and Other Charges

The Commission shall set its rates and charges in accordance with generally accepted accounting principles, generally accepted rate-setting practices of the utility industry and applicable federal and state law. The Commission has established the following rate-setting objectives in addition to the above requirements:

1. To establish fees, rates and charges on just and equitable standards such that all consumers pay their fair share of the costs of these services.

Plans, Policies and Procedures

2. To minimize the financial burden on its customers, consistent with the Commission's statutory responsibilities to operate the water and sewer systems in an efficient and financially self-sustaining manner.
3. To ensure that cash receipts and net revenues are at least sufficient to meet the fund transfers, debt service coverage ratios and reserve provisions required by the Commission's Resolution and the CEB.
4. To design its rates in order to promote the conservation, protection and improvement of increasingly scarce water sources.
5. To establish fees, rates and charges that will protect and preserve, to the extent possible, the natural resources available to the people of the City.

Other Commission Policies

In addition to the Financial Policies detailed above the Commission has established other Commission-wide policies and procedures. The purpose of the following policies and procedures is to set forth guidelines and principles, which the Commission shall follow.

1. Continue to comply with applicable laws and policies in obtaining needed professional services to ensure fair and full public competition in the solicitation and award of contracts.
2. Provide a safe and healthy work environment through in-house safety programs such as defensive driving, back injury prevention, confined space entry, right-to-know law, cardiopulmonary resuscitation and first aid and cultural diversity sensitivity training.
3. Maintain a 25% minority employment rate on all construction contracts employing a crew of four or more.
4. Maintain a 50% Boston resident employment rate on all construction contracts employing a crew of six or more.
5. Encourage all employees to enhance their knowledge and skills through education, to maintain and improve their capabilities in their position and to foster employee commitment. The Commission offers a Tuition Assistance Program and will also reimburse an employee for authorized attendance and travel related expenses at conferences, seminars and other training, educational or professional meetings.
6. Provide an Employee Assistance Program, which will help employees, and all members of their household, cope with various professional, personal or family problems.
7. Continue to comply with applicable laws, safety and health articles by promoting a safe and healthy work environment by reducing the health risk associated with the exposure to burning tobacco smoke. The Commission has adopted a Clean Air Policy to inform all employees that smoking in non-designated smoking areas will not be tolerated.

Plans, Policies and Procedures

8. Continue to disseminate current employment information to various minority agencies and local newspapers, to allow all residents of the City of Boston the equal opportunity to apply for employment with the Commission. City of Boston residency is required for all employees hired after January 1, 1991.
9. Maintain a Drug-Free Workplace policy, which prohibits the use of alcohol and/or drugs by employees during their work shift.
10. Encourage and provide the greatest possible participation of Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) in the awarding of all contracts including contracts for supplies and equipment, services, design selection and consultants.
11. To ensure Commission employees the ability to provide efficient, high quality water and sewer services, so they will be entrusted with the public's confidence.
12. The Commission has adopted a Code of Conduct, which addresses conflict of interest, appropriate conduct, attitude and demeanor, as well as providing for a discrimination free and sexual harassment free work place.
13. To provide for the safety of Commission employees in emergency situations, with a comprehensive emergency evacuation plan that has been designed to execute the timely and orderly evacuation from Commission facilities in the event of an emergency.

Current Expense and Capital Improvement Plan Budget Process

The Commission has developed an integrated financial plan which encompasses all of its current expenses and capital improvement needs, provides for the efficient and financially self-sustaining operation of the water and sewer systems and allocates costs to all consumers in a just and equitable manner.

Current Expense Budget Process

The CEB provides for the Commission's essential services and current priorities, promotes greater accountability by departments and matches scarce resources with critical program objectives. The CEB is developed in conjunction with departmental program plans and performance objectives. The Commission's CEB is developed utilizing the full accrual method in which revenues are recognized when earned and expenses recognized when incurred, as opposed to when cash is received or spent.

The Commission's Enabling Act requires that the Commission recover its full costs of operation through fees, rates, rents, assessments and special charges. The CEB defines the operational activities and other costs that must be funded from these revenue sources during the fiscal year. The budget includes the costs of operations, maintenance and repair programs, MWRA charges for water supply and wastewater treatment, the SDWA assessment, R & R projects funded from current revenues, insurance, debt service and additions to reserves.

Plans, Policies and Procedures

The CEB is based on program priorities and objectives developed by each department. The budget process has two distinct, but interrelated aspects. The Finance Division works with each department of the Commission to develop a mission statement, a list of divisional programs and a set of specific measurable objectives for the upcoming year.

Based on the stated program performance objectives, Department Managers prepare and submit their budget requests to the Finance Division. Subsequently, the Finance Division compiles and analyzes the budget requests and allocates recommended resources according to the program priorities of each cost center. The proposed CEB is reviewed with Division Chiefs before submission to the Executive Director and the Commissioners for their final approval.

Budget Allocations

The Finance Division allocates the approved budget, by month, object code and department. Monthly allocations for MWRA Assessments, debt service and additions to reserves are determined by the Finance Division in accordance with the approved budget and the Commission's bond resolution. They also develop forecasts of monthly-billed water and sewer charges and revenue adjustments, as well as special charges and investment income. The monthly distribution serves as the basis for planned revenues, expenditures and accruals for each of the twelve months of the year, which will be compared to actual revenues, and expenses as reported in the Commission's monthly variance reports. The Finance Division produces the Budget Variance Reports and distributes to all cost center managers.

Budget Variance Monitoring and Analysis

At the close of a monthly accounting period the budget staff of the Finance Division prepares the monthly Budget Variance Reports. These reports set forth a comparison of planned expenses by object code and department for the month and year to date. Budget staff then distributes the Budget Variance Report to each Division Chief and Department Manager.

- (A) *Variance Analyses:* Division Chiefs are responsible for monitoring variance reports and for explaining variances between planned and actual expenditures and accruals by department when those variances exceed either plus or minus 10% and \$5,000. Budget staff then prepares a Budget Variance Analysis Report by department and by subsidiary account based on the written explanations given by the Division Chiefs. The Budget Variance Analysis Report is distributed to senior management, the Executive Director and the Commissioners on a monthly basis.
- (B) *Budget Reallocation and Amendments:* The Commission's CEB sets forth planned expenditures in certain categories for various areas of responsibility of the Commission and for the Commission as a whole. In addition, Divisions allocate planned expenditures by month for all departments and object codes. Changes during the year in BWSC priorities or in conditions upon which expenditure plans are predicated may require the reallocation of resources. This section delineates the authority and procedures for making reallocations of approved expenditures. It is intended to provide flexibility and discretion to Commission management and to respond to actual circumstances as they arise.

Plans, Policies and Procedures

Reallocations of the expenditure plan may occur at the end of the first, second or third fiscal quarters, as part of the Budget Variance Analysis process. All budget reallocations are documented on CEB Reallocation forms. Budget staff will consolidate these requests and prepare a forecast of the year-end expenditures by division and by subsidiary account. The quarterly year-end forecast will accompany the Budget Variance Analysis Report for distribution.

Division Chiefs may make any reallocations within their Department's budget provided that the reallocation does not change a division object code budget by either the greater of more than plus or minus \$10,000 or 5%. The Executive Director has full authority to approve budget reallocations, over the amount and percentage stated above.

The Executive Director or a Division Chief may initiate proposed budget reallocations using the CEB Budget Reallocation form. All reallocations within the authority of a Division Chief must be filed with budget staff before they are deemed to be in effect. All reallocations, which require approval by the Executive Director, must be submitted to budget staff for analysis and recommendation before approval.

Budget Staff is responsible for notifying Division Chiefs and the Accounting Department of any approved or disallowed budget reallocations. The Finance Division will also prepare a quarterly report for the Commissioners detailing all approved budget reallocations.

- (C) *Budget Amendment*: An amendment to a Commission CEB shall be defined as follows:
- a. Any increase in total Commission current expenses; or
 - b. An increase of 5% or more in total expenses for any division of the Commission; or
 - c. An addition or deletion of a specific new program or initiative, the cost of which is greater than 1% of total current expenses, less the MWRA assessment for that fiscal year.

The Executive Director must submit all proposed budget amendments to the Commissioners for their approval prior to the amendment going into effect.

Capital Improvement Program Process

The Commission's CIP is a comprehensive plan for the enhancement of the basic infrastructure and support facilities necessary to provide water distribution, wastewater collection and storm drainage services throughout the City of Boston. The primary goals of the CIP are to protect public health and the environment, improve the reliability of water, wastewater and storm drainage systems and minimize the long-term costs of operating these systems.

Plans, Policies and Procedures

The Commission is required by the Enabling Act and the Resolution to annually update a CIP for the three succeeding fiscal years. The proposed CIP must be submitted to the Mayor of the City of Boston on or by November 1st. In addition, the Commission must hold a public hearing relating to the proposed CIP, prior to adoption of the CIP by the Board of Commissioners. Three types of capital projects are considered for inclusion in the annual CIP:

1. Projects involving expansion and improvement to the water distribution and wastewater collection systems including studies, planning, etc.
2. Projects involving the renewal and rehabilitation of the existing system (in-kind replacement).
3. Improvements to other facilities and equipment owned or leased by the BWSC.

Capital expenditures are considered for inclusion in the CIP if the estimated cost of the resulting tangible asset is \$10,000 or more and have a useful life of five years or more. In addition, projects involving improvements to the water distribution system or wastewater collection system are required to have a minimum useful life of ten years. Facility improvements should have a minimum useful life of seven years and equipment five years. For non-tangible assets (studies, improvement plans, etc.) the cost must be \$50,000 or more and have an expected benefit period of five years or more. Normal maintenance costs, emergency repair costs and recurring annual expenditures for system maintenance are generally not capitalized.

Development of the Capital Improvement Program

As part of the Commission's annual budgeting and rate-setting process, departments will prepare capital project requests and submit them to the Finance Division for review and analysis. The Finance Division will estimate the financial feasibility of the proposed projects and will develop a draft CIP based upon the following criteria:

Priority One: This priority should be assigned to the most critical projects. Projects that are included in this category must meet urgent Commission needs as defined by the following criteria:

- i. The project is required by a statutory or regulatory requirement, court order or consent decree; or
- ii. The project is necessary to correct an immediate threat to public health and safety; or
- iii. The project is necessary to correct an immediate threat to worker health and safety; or
- iv. The project is necessary to prevent imminent failure of the water or wastewater systems.

Plans, Policies and Procedures

Priority Two: This category includes projects that are essential to maintain current service levels, which protect the environment, or that directly reduce costs and/or increase revenues. Projects that are included in this category must meet one or more of the following criteria:

- i. The project is necessary for environmental protection; or
- ii. The project is part of the Wastewater Facilities Plan, Water Distribution Plan, Water Conservation Plan, or other, similar Commission endorsed improvement plan; or
- iii. The project corrects a chronic water discoloration problem; or
- iv. The project directly results in a net decrease in Commission operating and/or capital costs.

Priority Three: The projects in this category are necessary to provide improved service that meets the following criteria:

- i. The project will insure proper long-term operation of the distribution and collection systems.

These criteria are intended to present a framework for project selection and elimination. They are not all-inclusive and are subject to modification as part of the annual capital budget process. Any modification of the priority framework, however, will be reviewed with the Commissioners.

Capital Project Funding

Capital projects are funded through several mechanisms: Commission general revenue bonds, current year rate revenues, traditional grant reimbursements, subsidized loans through the SRF, and funding programs provided by the MWRA. In general, BWSC bond proceeds are used to fund projects that expand or improve the water distribution and wastewater collection system. Current rate revenues are used to fund projects resulting in renewal and rehabilitation of the existing system. Intergovernmental grants and loans and MWRA funding are generally available for projects, which provide specific benefits. Grant and loan funding has been and will continue to be aggressively sought.

Capitalized costs paid for through contributed capital (grant funds) are not charged to system users through rates. Yearly debt service on outstanding BWSC revenue bonds is included in the annual calculation of rates. The Commission amortizes costs over a period not to exceed that of the estimated useful life of the obtained asset. In the case of non-tangible assets, costs are amortized over a period not longer than ten years. The Commission may elect to amortize capital costs over a shorter period than that indicated on original depreciation schedules.

Plans, Policies and Procedures

Capital Budget Amendments

All amendments to the current CIP require the approval of the Commissioners. Amendments are defined as the following:

1. Any deletion, in total, of a capital project or program specifically budgeted in the current CIP or any addition of a previously un-budgeted capital project to the current CIP; or
2. Any increase in the budget for a particular project currently contained in the CIP where the increase has a dollar value greater than 10% of the current year budget for that project; or
3. Any increase in the total three-year budget of the current CIP.

In addition to the CIP amendments, as defined above, Commission approval will be required on all change orders which increase contract bid amounts as described in the Commission's Change Order Policy. Any other changes to the CIP are deemed as reallocations.

Capital Budget Reallocations

Reallocations are changes to the current CIP, which do not require the approval of the Commission. Reallocations are defined as any change in the budget for a particular project or program, not specified as Capital Budget Amendments.

Reallocations will be governed by the following procedure. The department managing the project will notify the Finance Division, in writing, of the proposed reallocation. The notification will include the following:

1. A description of the proposed project change.
2. An explanation of why the change is necessary.
3. An indication of the monetary impact the change will have on the capital budget.
4. An indication of the impact on the project schedule.

The notification must take place as soon as the managing department is aware that a project revision is necessary. The Finance Division will review the proposed project change for its impact on cash flow and will respond with relevant recommendations within five working days. Approval of the Executive Director is required for all reallocations. A quarterly report must be submitted to the Commissioners detailing all capital budget reallocations.

Capital Program Monitoring and Reporting

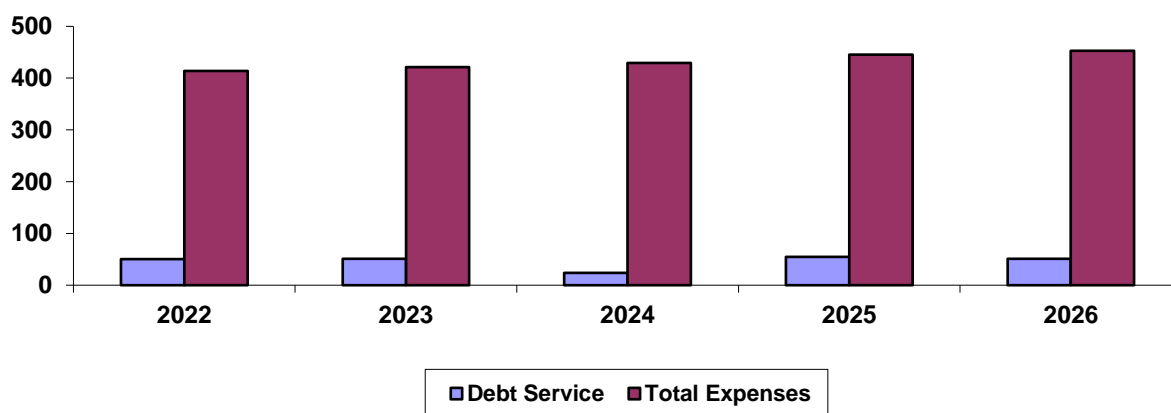
As part of the development of the CIP, Division Chiefs will develop schedules and quarterly expenditure forecasts for all capital projects. On a monthly basis actual schedule data for all capital projects are compared with the original project schedules. Capital Budget Variance Reports are produced utilizing data for actual project expenditures. These reports include an analysis of all project expenditure and schedule variances. The Commissioners receive a summary of all capital program-monitoring reports.

Plans, Policies and Procedures

Debt Plan

The Commission is empowered by the Enabling Act and the Resolution to issue bonds and notes payable solely constituted on the general obligation of the Commission. The Commission has no legal restrictions concerning the amount of debt, which it may have outstanding, subject to the coverage requirements described below.

The Commission issues General Revenue Bonds to finance portions of its CIP. The Commission's 2022-2024 CIP, which totals \$236.8 million, anticipates that projects totaling \$130.3 million or 55.0% will be funded from bond proceeds. The 2022 budget for debt service is \$62.7 million, or approximately 26.5% of the overall expenses. For the average single-family household paying \$1,270 for water and sewer services, approximately \$155 of these charges is related to debt service.



Five-year projections of debt service cost per household and five-year projections of debt service vs. total expenses are illustrated.

Year	Average Annual Cost-Single Family Home	Debt Service Cost
2022	\$1,270	\$155
2023	\$1,308	\$158
2024	\$1,347	\$169
2025	\$1,388	\$170
2026	\$1,429	\$160

Plans, Policies and Procedures

The Commission currently has eleven series of General Revenue Bonds outstanding at the end of 2021:

\$8.1	Million	1994 Series A
\$15.5	Million	2012 Series A
\$58.7	Million	2014 Series A
\$72.8	Million	2015 Series A
\$52.8	Million	2016 Series A
\$49.1	Million	2016 Series B
\$67.4	Million	2018 Series A
\$157.3	Million	2021 Series A
\$40.6	Million	2021 Series B

The current debt plan projects that the Commission will issue approximately \$70.0 million in new debt in 2023.

The Commission implemented a Commercial Paper Program in December of 2006 with an initial draw of \$25.0 million. The Commercial Paper Program was implemented to:

1. Provide very efficient and cost-effective access to the capital markets as needed.
2. Fund the bond-funded portion of the capital improvements implemented by the Commission prior to issuing permanent debt.
3. Act as a portion of the variable rate debt the Commission will have outstanding.
4. Ensure the timely expenditure of tax-exempt note proceeds in accordance with the Internal Revenue code.
5. Provide some relief to the upward pressure on rates by deferring a principal payment on the bonds to be issued (to retire the commercial paper) for one year.

Debt Service Coverage Requirements

The Commission's bond covenant requires that rates and charges be at least sufficient to provide revenues (i) to pay all current expenses of the Commission, (ii) to pay the principal of, premium if any, and interest on all bonds issued by the Commission as they become due and payable, (iii) to create and maintain such reasonable reserves as may be reasonably required by any trust agreement or resolution securing bonds, (iv) to provide funds for paying the cost of all necessary repairs, replacements and renewal of the systems and (v) to pay or provide for any and all amounts which the Commission may be obligated to pay or provide for by law or contract. The Commission is also required to establish and maintain rates and charges at levels sufficient so that total net revenues in each year during which bonds are outstanding will equal at least 125% of (1) the bond debt service requirement during such year less (2) the amount, if any, of bond proceeds available to pay interest becoming due in such year on bonds outstanding as of the first day of such year. The Commission has exceeded the 125% debt service coverage requirement of the Resolution in each year since its inception in 1977.

Plans, Policies and Procedures

The table below presents the projected 2022-2026 debt service coverage.

Debt Service Coverage Calculation (000)

	2022 Projected	2023 Projected	2024 Projected	2025 Projected	2026 Projected
Cash Receipts	\$413,615	\$421,204	\$429,511	\$445,397	\$453,095
Operating Transfers	(340,707)	(351,571)	(361,462)	(373,578)	(384,542)
Net Revenues	72,908	69,633	68,049	71,819	68,553
Senior Debt Service	43,489	45,160	48,471	49,714	46,335
Total Debt Service	43,489	45,160	48,471	49,714	46,335
Debt Service Coverage Ratio	168%	154%	140%	144%	148%

Pursuant to the Resolution, these amounts do not include principal or interest, which are expected to be paid from amounts in available escrow funds. These amounts also exclude debt service on SRF loans and loans from the MWRA.

Five-Year Debt Service Requirements

	Total Debt Service (000)
2021	\$43,489
2022	\$45,160
2023	\$48,471
2024	\$49,714
2025	\$46,335

Additional Bonds and Refunding Bonds

The Resolution permits the issuance of additional bonds for paying the cost of any project, making deposits in various funds established under the Resolution, paying Costs of Issuance, paying the principal, premium and interest on any notes issued in anticipation of additional bonds, or any combination of the above.

Additional bonds may only be issued by the Commission upon receipt by the Trustee of:

1. A certificate of the Commission setting forth the amount of net revenues (as defined in the Resolution) for the last full fiscal year prior to the year in which bonds are to be issued, showing that the net revenues were equal to at least 125% of the bond debt service requirement and the amount, if any, of bond proceeds available to pay principal and interest coming due in such fiscal year on bonds outstanding as of the first day of the fiscal year.
2. A certificate of a consulting engineer setting forth the estimated annual net revenues for each of the five full fiscal years following the issuance of additional bonds, showing that in each of those fiscal years the estimated net revenues, together with reserved revenues, will be at least equal to 125% of the aggregate of the Senior Debt Service Reserve Fund Requirement and the Subordinated Debt Service Fund Requirement calculated as of the first day the fiscal year, less the amount, if any, of bond proceeds available or projected to be available to pay principal and interest coming due that fiscal year on bonds outstanding or projected to be outstanding as of the first day of the fiscal year.

Refunding bonds may also be issued by the Commission only upon certifying that the aggregate debt service in each fiscal year in which Refunding Bonds are outstanding will not be increased as a result of the issuance of the Refunding Bonds; provided that, in lieu of such certification, the Commission may deliver to the Trustee certificates satisfying the conditions described above for the issuance of additional bonds.

Plans, Policies and Procedures

Initial Par Issue		\$40,000,000	
		General Revenue Bonds	
		(Senior Series)	
		1994 Series A (1)	
Dated		10/20/1994	
<u>Principle Due</u>		November 1	
<u>Year</u>	<u>Amount</u>		<u>Rate</u>
2022	2,500,000		5.250%
2023	2,700,000		
2024	2,900,000		

Total Issue
Outstanding

\$8,100,000

Call Provisions

Callable as a whole or in
part on any Effective Rate
Date

Ratings
(Moody's/S&P/Fitch)

VMIG 1/A-1+F-1+(LOC)

Plans, Policies and Procedures

Initial Par Issue		\$107,970,000 General Revenue Bonds (Senior Series) 2012 Series A 5/9/2012		\$100,000,000 General Revenue Bonds (Senior Series) 2014 Series A 7/22/2014	
Dated		November 1		November 1	
<u>Principle Due</u>	<u>Year</u>	<u>Amount</u>	<u>Rate</u>	<u>Amount</u>	<u>Rate</u>
	2022	7,585,000	4.250%	700,000	4.000%
	2023	7,875,000	5.000%	1,000,000	5.000%
	2024			1,000,000	5.000%
	2025			1,000,000	5.000%
	2026			5,000,000	4.000%
	2027			5,000,000	4.000%
	2028				
	2029			5,000,000	3.500%
	2030				
	2031				
	2032				
	2033				
	2034				
	2035				
	2036			5,000,000	3.500%
	2037				
	2038			5,000,000	3.500%
	2039			5,000,000	3.500%
	2040			5,000,000	3.500%
	2041			5,000,000	3.500%
	2042			5,000,000	3.625%
	2043			5,000,000	3.625%
	2044			5,000,000	3.625%
Total Issue Outstanding		\$15,460,000		\$58,700,000	
Call Provisions		Bonds maturing after November 1, 2023 are subject to redemption at the option of the Commission, on or after November 1, 2022, as a whole or in part, at any time, from maturities selected by the Commission at a redemption price equal to 100% of the principle amount to be redeemed, plus accrued interest to the date of redemption.		Bonds maturing after November 1, 2024 are subject to redemption at the option of the Commission, on or after November 1, 2024, as a whole or in part, at any time, from maturities selected by the Commission at a redemption price equal to 100% of the principle amount to be redeemed, plus accrued interest to the date of redemption.	
<u>Ratings</u> (Moody's/S&P/Fitch)		Aa1/AA+/AA+		Aa1/AA+/AA+	

Plans, Policies and Procedures

Initial Par Issue	\$157,710,000		\$40,630,000	
	General Revenue Bonds (Senior Series) 2021 Series A 7/7/2021		General Revenue Bonds (Senior Series) 2021 Series B 7/7/2021	
Dated	November 1		November 1	
<u>Principle Due</u>				
<u>Year</u>	<u>Amount</u>	<u>Rate</u>	<u>Amount</u>	<u>Rate</u>
2022	1,735,000	0.340%	400,000	5.000%
2023	1,740,000	0.440%		
2024	9,995,000	0.718%	500,000	5.000%
2025	8,865,000	0.965%		
2026	5,630,000	1.065%	485,000	5.000%
2027	5,640,000	1.374%	765,000	5.000%
2028	10,665,000	1.474%	805,000	5.000%
2029	6,575,000	1.629%	2,255,000	5.000%
2030	11,585,000	1.729%	955,000	5.000%
2031	11,505,000	1.829%	1,005,000	5.000%
2032	14,205,000	1.929%	1,820,000	5.000%
2033	14,065,000	2.029%	1,830,000	5.000%
2034	13,930,000	2.129%	1,840,000	5.000%
2035	16,800,000	2.229%	1,855,000	5.000%
2036	11,625,000	2.329%	2,480,000	5.000%
2037	12,775,000	2.379%	970,000	5.000%
2038			1,755,000	5.000%
2039			1,765,000	4.000%
2040			1,760,000	4.000%
2041*			1,755,000	4.000%
2042			1,750,000	2.421%
2043			1,700,000	2.426%
2044			1,660,000	2.431%
2045			1,625,000	2.435%
2046*			1,595,000	2.438%
2047			1,560,000	2.250%
2048			1,495,000	2.250%
2049			1,455,000	2.250%
2050			1,415,000	2.250%
2051			1,375,000	2.250%
Total Issue Outstanding	\$157,335,000		\$40,630,000	
Call Provisions	Bonds maturing after November 1, 2026 are subject to redemption at the option of the Commission, on or after November 1, 2026, as a whole or in part, any time, from maturities selected by the Commission at a redemption price equal to 100% of the principle amount to be redeemed, plus accrued interest to the date of redemption.		Bonds maturing after November 1, 2025 are subject to redemption at the option of the Commission, on or after November 1, 2026, as a whole or in part, any time, from maturities selected by the Commission at a redemption price equal to 100% of the principle amount to be redeemed, plus accrued interest to the date of redemption.	
<u>Ratings</u> (Moody's/S&P)	Aa1/AAA		Aa1/AAA	

THIS PAGE INTENTIONALLY LEFT BLANK

2021 Revenues and Expenses

BUDGET OVERVIEW

The 2021 year-end financial position for the Boston Water and Sewer Commission (“the Commission”) resulted in an unaudited surplus of \$0.5 million. Total Revenues equaled \$400.8 million. Expenses totaled \$400.3 million, resulting in the \$0.5 million surplus for FY21. The year-end financial position was mainly a result of a result of more than anticipated Total Revenues and savings realized for Indirect Operating Expenses.

REVENUES

Total Revenues for FY21 were less than originally anticipated. The total revenues equaled \$400.8 million; the budgeted amount was \$405.7 million resulting in \$4.9 million, or 1.2% less than anticipated.

Water and Sewer Revenues (excluding adjustments) represented 95.9% of revenues and equaled \$398.3 million, which was \$3.2 million, or 0.8% less than the budgeted amount of \$401.5 million. Water revenues totaled \$168.6 million; the budget amount equaled \$170.1 million and resulted in \$1.5 million or 0.9% less than budget. Sewer revenues totaled \$229.7 million; the budgeted amount equaled \$231.4 million resulting in \$1.7 million, or 0.7% less than anticipated.

Miscellaneous Revenues totaled \$16.1 million. This amount realized in 2021 was \$0.6 million, or 3.9% more than the budget amount of \$16.7 million. Late Charges equaled \$2.0 million for the year and resulted in a favorable variance of 24.4% from the budgeted amount of \$1.6 million. Investment Income totaled \$2.1 million and was \$0.5 million or 20.3% less than the budgeted amount of \$2.6 million. Fire Pipe Income totaled \$5.2 million and was \$0.1 million or 1.8% more than the budgeted amount of \$5.1 million. The amount realized for Miscellaneous Other Income totaled \$6.8 million, and was \$0.6 million, or 8.2% less than the budgeted amount of \$7.4 million.

EXPENSES

Direct Operating Expenses for FY21 were less than originally anticipated. Direct Operating Expenses in 2021 totaled \$78.9 million, which were below the budgeted amount of \$81.5 million by \$2.6 million or 3.1%. Indirect Expenses contributed to the surplus realized in 2021. Indirect Expenses totaled \$321.3 million. The budget for the year equaled \$324.2 million resulting in a favorable variance of \$2.9 million or 0.9%. The favorable variance for Indirect Expenses was mainly due to less than anticipated expenses for MWRA Assessment, Capital Improvement and Debt Service. The following page illustrates the 2021 budget versus unaudited revenues and expenses.

2021 Revenues and Expenses

	2021		VARIANCE	
	UNAUDITED	BUDGET	\$	%
Water Revenues	\$ 168,617,158	\$ 170,139,649	\$ (1,522,491)	-0.9%
Sewer Revenues	\$ 229,723,167	\$ 231,385,742	\$ (1,662,575)	-0.7%
Total	\$ 398,340,325	\$ 401,525,391	\$ (3,185,066)	-0.8%
Less:				
Adjustments	\$ (11,039,924)	\$ (11,041,948)	\$ 2,024	0.0%
Discounts	\$ (2,913,517)	\$ (1,701,397)	\$ (1,212,120)	71.2%
Bad Debt	\$ (48,071)	\$ (401,525)	\$ 353,454	-88.0%
Subtotal	\$ (14,001,512)	\$ (13,144,870)	\$ (856,642)	6.5%
Net Billed Charges	\$ 384,338,813	\$ 388,380,521	\$ (4,041,708)	-1.0%
Prior Year Surplus	\$ 371,904	\$ 590,598	\$ (218,694)	-37.0%
Miscellaneous Revenues				
Late Charges	\$ 1,997,249	\$ 1,606,102	\$ 391,147	24.4%
Fire Pipe	\$ 5,198,352	\$ 5,104,286	\$ 94,066	1.8%
Investment Income	\$ 2,064,571	\$ 2,591,102	\$ (526,531)	-20.3%
Other Income	\$ 6,826,883	\$ 7,436,084	\$ (609,201)	-8.2%
Subtotal	\$ 16,087,055	\$ 16,737,574	\$ (650,519)	-3.9%
TOTAL REVENUES	\$ 400,797,772	\$ 405,708,693	\$ (4,910,921)	-1.2%
Direct Expenses				
Wages and Salaries	\$ 42,932,011	\$ 44,086,396	\$ 1,154,385	2.6%
Overtime	\$ 1,532,403	\$ 839,440	\$ (692,963)	-82.6%
Fringe Benefits	\$ 8,835,942	\$ 9,830,125	\$ 994,183	10.1%
Supplies and Materials	\$ 2,858,432	\$ 3,160,198	\$ 301,766	9.5%
Repair and Maintenance	\$ 13,012,563	\$ 13,013,195	\$ 632	0.0%
Utilities	\$ 1,830,000	\$ 1,923,280	\$ 93,280	4.9%
Professional Services	\$ 4,314,016	\$ 4,678,900	\$ 364,884	7.8%
Space & Equipment Rentals	\$ 347,550	\$ 386,250	\$ 38,700	10.0%
Other Services	\$ 1,807,226	\$ 2,337,700	\$ 530,474	22.7%
Insurance	\$ 981,381	\$ 930,634	\$ (50,747)	-5.5%
Inventory	\$ 23,000	\$ 23,000	\$ -	0.0%
Capital Outlay	\$ 85,000	\$ 96,000	\$ 11,000	11.5%
Travel/Training/Seminar	\$ 58,180	\$ 48,000	\$ (10,180)	-21.2%
Damage Claims	\$ 325,536	\$ 145,000	\$ (180,536)	-124.5%
Total Direct Expenses	\$ 78,943,240	\$ 81,498,118	\$ 2,554,878	3.1%
Indirect Expenses				
MWRA Assessment	\$ 243,396,224	\$ 248,379,059	\$ 4,982,835	2.0%
Capital Improvements	\$ 11,236,371	\$ 18,690,000	\$ 7,453,629	39.9%
Debt Service	\$ 49,578,796	\$ 51,777,529	\$ 2,198,733	4.2%
Contractual Funding	\$ 16,904,000	\$ 5,148,550	\$ (11,755,450)	-228.3%
SDWA Assessment	\$ 215,437	\$ 215,437	\$ -	0.0%
Total Indirect Expenses	\$ 321,330,828	\$ 324,210,575	\$ 2,879,747	0.9%
TOTAL EXPENSES	\$ 400,274,068	\$ 405,708,693	\$ 5,434,625	1.3%
	\$ 523,704	SURPLUS		

Requirements and Future Impact

The Commission is required by the Enabling Act to:

1. Establish fees, rates, rents, assessments and other charges to provide revenues at least sufficient to pay the current expenses of the Commission.
2. Pay the principal, premium, if any, and interest on all bonds issued by the Commission.
3. Maintain its reserve funds as stipulated by its General Bond Resolution.
4. Provide funds for paying the costs of all necessary repair, replacements, and renewals of the water and wastewater systems.
5. Pay all other amounts which the Commission by law or contract is obligated to pay.

The Commission's rates must comply with all applicable laws and statutes, and the rates must be set in a manner to ensure the eligibility for any federal and state funding.

The Proposed CEB and corresponding rate impact was presented to the Board of Commissioners for its review and comment. In accordance with the Commission's Rules of Procedure, the Commission is required to conduct a public hearing for the purpose of promulgating proposed water and sewer rate increases prior to implementation of new rates. The public hearing allows interested parties the opportunity to present data, views and arguments on the proposed schedule of fees, rates and other charges to be implemented.

Due to the financial condition of the Commission at year-end 2021, the 2022 Water and Sewer rates will increase by 4.50%.

Budgeting and Accounting Basis

The Commission is autonomous and self-sustaining, separate and apart from the City. As an enterprise fund, the Commission provides goods and services to the public, which it funds primarily through revenues it collects from user charges. Periodically, the Commission will examine revenues earned, expenses incurred and net income to determine how best to deal with issues such as capital maintenance, public policy, management control, accountability and other issues. The Commission follows Generally Accepted Accounting Principles (GAAP) and Governmental Accounting Standards Board Statement 62 (GASB 62).

The Commission's Current Expense Budget is developed using a full accrual method, a method of accounting in which revenues are recognized when earned and expenses recognized when incurred, as opposed to when cash is received or spent. Monthly deposits to all appropriate funds are made in an amount sufficient to equal the total projected level of accrued expenditures for each line item and to enable the Commission to have sufficient funds available to meet scheduled payments of all financial obligations.

The CEB includes the following:

- Anticipated operating and maintenance expenses
- Costs of wholesale water supply and wastewater treatment services provided by the MWRA
- Capital projects are funded from current rate revenues
 - ➔ renewal and replacement program
- Debt service
 - ➔ repayment of principal and interest
 - ➔ insurance
 - ➔ contractual funding obligations
 - ➔ working capital requirements

The Commission's CEB does not include (nor are its rates intended to provide for)

- Depreciation expenses
- Amortization of debt issuance costs
- Inventory expenses

2021 Budget Summary

The 2022 CEB totals \$412 million in Revenues, which is offset by an equal amount of Expenses. The amount budgeted for FY22 is a 1.9% increase from FY21.

In the illustration below, components of Revenues and Expenses are compared from 2022 to 2021 with variances in dollars and as a percentage changed. Dollar amounts are rounded and expressed in thousands of dollars (columns may not add up correctly due to rounding).

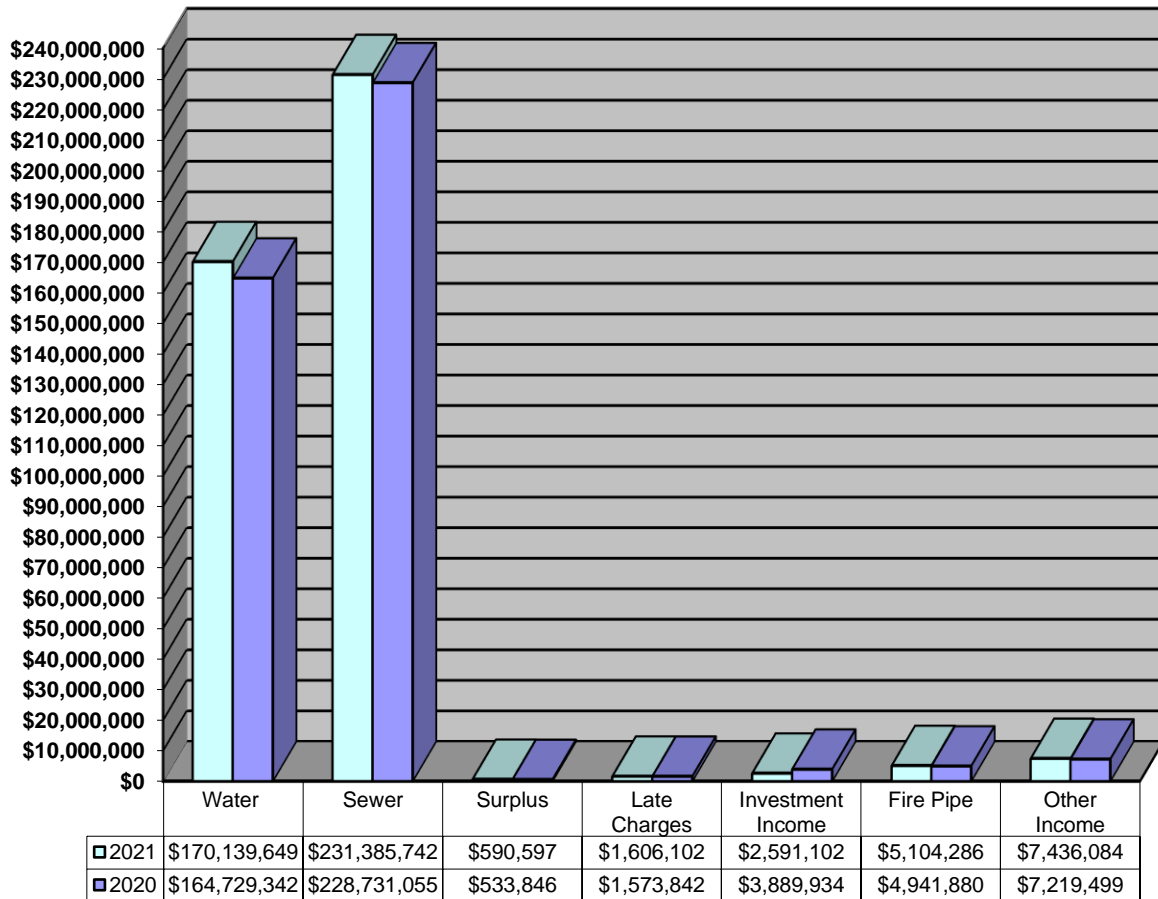
	BUDGET 2022	BUDGET 2021	VARIANCE	%
Revenues				
Water & Sewer Rate Revenue	\$ 412,036,016	\$ 401,525,391	\$ 10,510,625	2.6%
Less: Adjustments	\$ (11,330,990)	\$ (11,041,948)	\$ (289,042)	2.6%
Discounts	\$ (4,120,360)	\$ (1,701,396)	\$ (2,418,964)	142.2%
Bad Debt	\$ (412,036)	\$ (401,525)	\$ (10,511)	2.6%
Net Operating Revenues	\$ 396,172,629	\$ 388,380,522	\$ 7,792,107	2.0%
Other Income				
Prior Year Surplus	\$ 523,704	\$ 590,598	\$ (66,894)	-11.3%
Miscellaneous Income	\$ 14,694,616	\$ 14,146,472	\$ 548,144	3.9%
Investment Income	\$ 2,223,829	\$ 2,591,102	\$ (367,273)	-14.2%
Total Revenues	\$ 413,614,778	\$ 405,708,694	\$ 7,906,084	1.9%
Expenses				
Direct Expenses	\$ 85,967,572	\$ 81,498,118	\$ 4,469,454	5.5%
MWRA Assessment	\$ 247,158,902	\$ 248,379,059	\$ (1,220,157)	-0.5%
Capital Improvement	\$ 24,435,000	\$ 18,690,000	\$ 5,745,000	30.7%
Debt Service	\$ 50,324,224	\$ 51,777,529	\$ (1,453,305)	-2.8%
Contractual Funding Obligations	\$ 5,525,619	\$ 5,148,550	\$ 377,069	7.3%
SDWA Assessment	\$ 203,462	\$ 215,437	\$ (11,975)	-5.6%
Total Current Expenses	\$ 413,614,779	\$ 405,708,693	\$ 7,906,086	1.9%

Financial Analysis

	ACTUAL 2017	ACTUAL 2018	ACTUAL 2019	ACTUAL 2020	UNAUDITED 2021	BUDGET 2022
Revenues:						
Water Revenue	\$ 146,125,562	\$ 154,570,890	\$ 155,856,895	\$ 151,395,689	\$ 168,617,158	\$ 166,833,961
Sewer Revenue	\$ 200,297,529	\$ 211,774,201	\$ 213,568,719	\$ 212,105,684	\$ 229,723,167	\$ 245,202,055
Subtotal	\$ 346,423,091	\$ 366,345,091	\$ 369,425,614	\$ 363,501,373	\$ 398,340,325	\$ 412,036,016
Less:						
Adjustments	\$ (9,767,045)	\$ (10,879,886)	\$ (10,562,235)	\$ (10,720,098)	\$ (11,039,924)	\$ (11,330,990)
Discounts	\$ (1,213,001)	\$ (1,250,369)	\$ (1,218,447)	\$ (1,321,341)	\$ (2,913,517)	\$ (4,120,360)
Bad Debt	\$ (36,131)	\$ (1,111,957)	\$ (378,627)	\$ (51,057)	\$ (48,071)	\$ (412,036)
Subtotal	\$ (11,016,177)	\$ (13,242,212)	\$ (12,159,309)	\$ (12,092,496)	\$ (14,001,512)	\$ (15,863,387)
Net Billed Charges	\$ 335,406,914	\$ 353,102,879	\$ 357,266,305	\$ 351,408,877	\$ 384,338,813	\$ 396,172,629
Prior Year Surplus	\$ 689,086	\$ 570,607	\$ 558,206	\$ 689,554	\$ 371,904	\$ 523,704
Miscellaneous Revenues:						
Late Charges Revenue	\$ 1,177,752	\$ 1,098,123	\$ 679,568	\$ 350,258	\$ 1,997,249	\$ 2,060,180
Investment Income	\$ 3,507,142	\$ 4,336,497	\$ 4,609,528	\$ 5,110,863	\$ 5,198,352	\$ 5,198,352
Fire Pipe Revenue	\$ 4,701,840	\$ 4,869,306	\$ 4,958,922	\$ 1,980,533	\$ 2,064,571	\$ 2,223,829
Other Income	\$ 10,754,546	\$ 7,549,162	\$ 11,584,275	\$ 24,379,632	\$ 6,826,883	\$ 7,436,084
Total Revenues	\$ 356,237,280	\$ 371,526,574	\$ 379,656,804	\$ 383,919,717	\$ 400,797,772	\$ 413,614,778
Direct Operating Expenses						
Salaries and Wages	\$ 44,951,979	\$ 49,686,397	\$ 43,648,298	\$ 44,008,211	\$ 42,932,011	\$ 47,301,863
Overtime	\$ 863,588	\$ 911,159	\$ 1,185,585	\$ 1,229,981	\$ 1,532,403	\$ 1,209,113
Fringe Benefits	\$ 8,234,524	\$ 8,100,581	\$ 8,519,218	\$ 8,652,971	\$ 8,835,942	\$ 9,492,077
Supplies and Materials	\$ 2,082,549	\$ 2,111,561	\$ 2,372,934	\$ 2,195,934	\$ 2,858,432	\$ 3,332,457
Repairs and Maintenance	\$ 7,662,450	\$ 8,107,578	\$ 10,123,538	\$ 10,745,786	\$ 13,012,563	\$ 14,016,745
Utilities	\$ 1,305,207	\$ 1,430,558	\$ 1,617,652	\$ 1,456,755	\$ 1,830,000	\$ 2,021,480
Professional Services	\$ 3,141,403	\$ 3,304,198	\$ 3,336,607	\$ 3,288,593	\$ 4,314,016	\$ 4,851,300
Space and Equipment Rentals	\$ 303,229	\$ 236,964	\$ 331,653	\$ 291,919	\$ 347,550	\$ 370,250
Other Services	\$ 1,829,979	\$ 1,822,935	\$ 1,773,605	\$ 1,428,584	\$ 1,807,226	\$ 1,887,500
Insurance	\$ 508,943	\$ 491,401	\$ 717,545	\$ 949,730	\$ 981,381	\$ 1,083,787
Inventory	\$ 67,629	\$ 79,542	\$ 17,870	\$ 17,890	\$ 23,000	\$ 23,000
Capital Outlay	\$ 84,415	\$ 286,008	\$ 86,952	\$ 4,160	\$ 85,000	\$ 98,000
Travel/Training/Seminar	\$ 21,183	\$ 15,104	\$ 62,912	\$ 5,840	\$ 58,180	\$ 80,000
Damage Claims	\$ 59,986	\$ 40,060	\$ 257,515	\$ 46,574	\$ 325,536	\$ 200,000
Total Direct Operating Expenses	\$ 71,117,064	\$ 76,624,046	\$ 74,051,884	\$ 74,322,928	\$ 78,943,240	\$ 85,967,572
Indirect Operating Expenses:						
MWRA Assessment	\$ 218,461,866	\$ 227,082,053	\$ 235,786,344	\$ 241,360,172	\$ 243,396,224	\$ 247,158,902
Capital Improvement	\$ 14,593,495	\$ 12,585,360	\$ 15,382,251	\$ 15,948,387	\$ 11,236,371	\$ 24,435,000
Debt Service	\$ 50,346,545	\$ 49,998,932	\$ 51,784,123	\$ 50,179,641	\$ 49,578,796	\$ 50,324,224
Contractual Funding Obligations	\$ 945,000	\$ 4,474,113	\$ 1,768,000	\$ 1,516,000	\$ 16,904,000	\$ 5,525,619
SDWA Assessment	\$ 202,703	\$ 203,864	\$ 194,650	\$ 220,685	\$ 215,437	\$ 203,462
Total Indirect Operating Expenses	\$ 284,549,609	\$ 294,344,322	\$ 304,915,368	\$ 309,224,885	\$ 321,330,828	\$ 327,647,207
Total Current Expenses	\$ 355,666,673	\$ 370,968,368	\$ 378,967,252	\$ 383,547,813	\$ 400,274,068	\$ 413,614,779
Current Year Rate Surplus	\$ 570,607	\$ 558,206	\$ 689,552	\$ 371,904	\$ 523,704	\$ (0)

Revenue Sources

The 2022 CEB includes anticipated fees for Miscellaneous Revenues, Late Charges Revenue, Fire Pipe Revenue, and Investment Income (on certain operating and reserve fund balances Other Income, and Prior Year Surplus. The CEB also includes Adjustments to Revenue such as Bad Debt provisions, Discounts, and Billing Adjustments. The graph below compares the Commission’s budgeted revenue sources in 2022 versus 2021.



Revenue Sources

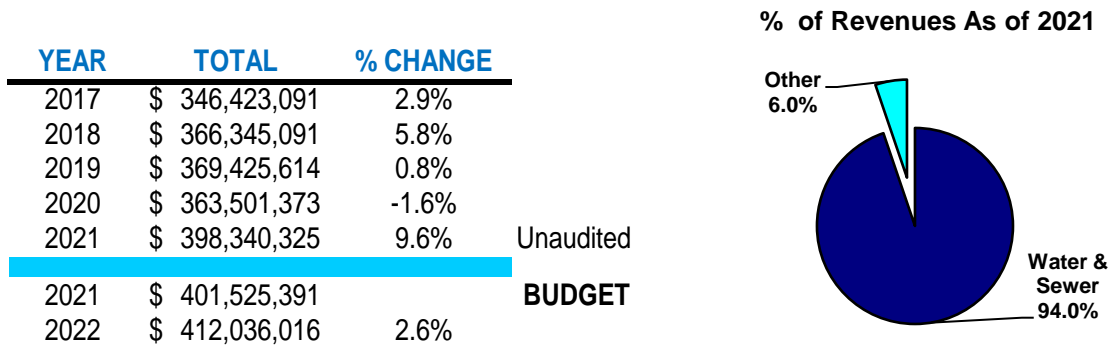
The following pages analyze each of the revenue sources in greater detail. The revenue analysis provides a brief description of each source, a five-year historical perspective and the assumptions used in preparing the 2022 budget. This information is supplemented by the utilization of various graphical displays to facilitate a better understanding of each revenue source.

The Commission's total revenues in FY22 are projected at \$413.6 million, an increase of \$7.9 million or 1.9% from FY21. The table below shows a breakdown of the revenue sources and adjustments to rate revenue. Variances from the 2022 budget to the 2021 budget are discussed on the following pages.

	BUDGET 2022	BUDGET 2021	VARIANCE	%
REVENUES				
Water	\$ 166,833,961	\$ 170,139,649	\$ (3,305,688)	-1.9%
Sewer	\$ 245,202,055	\$ 231,385,742	\$ 13,816,313	6.0%
SUBTOTAL	\$ 412,036,016	\$ 401,525,391	\$ 10,510,625	2.6%
LESS:				
Adjustments	\$ (11,330,990)	\$ (11,041,948)	\$ (289,042)	2.6%
Discounts	\$ (4,120,360)	\$ (1,701,396)	\$ (2,418,964)	142.2%
Bad Debt	\$ (412,036)	\$ (401,525)	\$ (10,511)	2.6%
SUBTOTAL	\$ (15,863,387)	\$ (13,144,869)	\$ (2,718,518)	20.7%
NET BILLED CHARGES	\$ 396,172,629	\$ 388,380,522	\$ 7,792,107	2.0%
PRIOR YEAR SURPLUS	\$ 523,704	\$ 590,598	\$ (66,894)	-11.3%
MISCELLANEOUS REVENUES:				
Late Charges	\$ 2,060,180	\$ 1,606,102	\$ 454,078	28.3%
Investment Income	\$ 5,198,352	\$ 2,591,102	\$ 2,607,250	100.6%
Fire Pipe	\$ 2,223,829	\$ 5,104,286	\$ (2,880,457)	-56.4%
Other Income	\$ 7,436,084	\$ 7,436,084	\$ (0)	0.0%
SUBTOTAL	\$ 16,918,445	\$ 16,737,574	\$ 180,871	1.1%
TOTAL REVENUE	\$ 413,614,778	\$ 405,708,694	\$ 7,906,084	1.9%

Rate Revenue

The primary source of the Commission’s revenue is from billing for water and sewer services from various consumers. The Commission method for calculating water and sewer sales is to use last year’s projected consumption and reduce it by 1.0%, then apply the rate increase (if any). Below annual amounts and the percentage of revenues are illustrated.



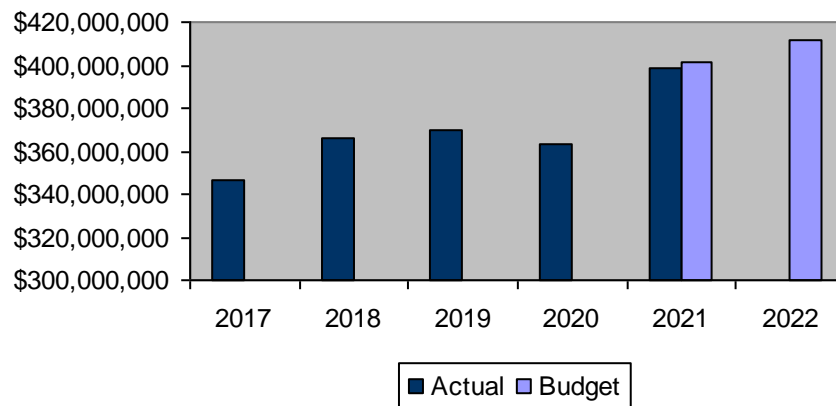
Historical Viewpoint

Due to decreasing consumption and increasing costs, the Commission was required to raise rates. There were rate increases in 2017, 2018, 2019, 2020 and 2021. Because of these past increases, Rate Revenues increased from \$346.4 million in 2017 to \$398.3 million in 2021, an increase of \$51.9 million, or 15.0%.

Funding

The Commission has increased rates in 2017, 2018, 2019, 2020 and 2021, and plans a 4.50% increase for 2022. The Commission anticipates Water and Sewer Revenues to total \$412.0 million in 2022.

Rate Revenue



Adjustments to Rate Revenue

Adjustments to rate revenue are divided into three categories:

- I. Billing adjustments represent modifications to customer accounts, which can be attributed to a variety of factors such as inaccurate usage estimates, erroneous meter readings, sewer abatements and transfers of property ownership.
- II. Discounts are a requirement of the Commission’s Enabling Act to elderly (65 years of age or older) or disabled homeowners living in structures with one to four dwelling units. These homeowners are entitled to a 30% discount on the water portion of their bills.
- III. Bad debt is the provision made for the uncollectible amount of adjusted billed revenue.

ADJUSTMENTS			
YEAR	TOTAL	% CHANGE	
2017	\$ 9,767,045	23.4%	ACTUAL
2018	\$ 10,879,886	11.4%	
2019	\$ 10,562,235	-2.9%	
2020	\$ 10,720,098	1.4%	
2021	\$ 11,039,924	3.0%	
			BUDGET
2021	\$ 11,041,948		
2022	\$ 11,330,990	2.6%	

DISCOUNTS			
YEAR	TOTAL	% CHANGE	
2017	\$ 1,213,001	-4.5%	ACTUAL
2018	\$ 1,250,369	3.1%	
2019	\$ 1,218,447	-2.6%	
2020	\$ 1,321,341	9.1%	
2021	\$ 2,913,517	120.5%	
			BUDGET
2021	\$ 1,701,396		
2022	\$ 4,120,360	142.2%	

BAD DEBT			
YEAR	TOTAL	% CHANGE	
2017	\$ 36,131	-89.9%	ACTUAL
2018	\$ 1,111,957	2977.6%	
2019	\$ 378,627	-65.9%	
2020	\$ 51,057	-85.3%	
2021	\$ 48,071	-5.8%	
			BUDGET
2021	\$ 401,525		
2022	\$ 412,036	2.6%	

Adjustments to Rate Revenue

Historical Viewpoint

Adjustments to Rate Revenue include Adjustments, Discounts, and Bad Debt. Adjustments have totaled \$9.8 million in 2017, \$10.9 million in 2018, \$10.6 million in 2019, \$10.7 million in 2020 and \$11.0 million in 2021.

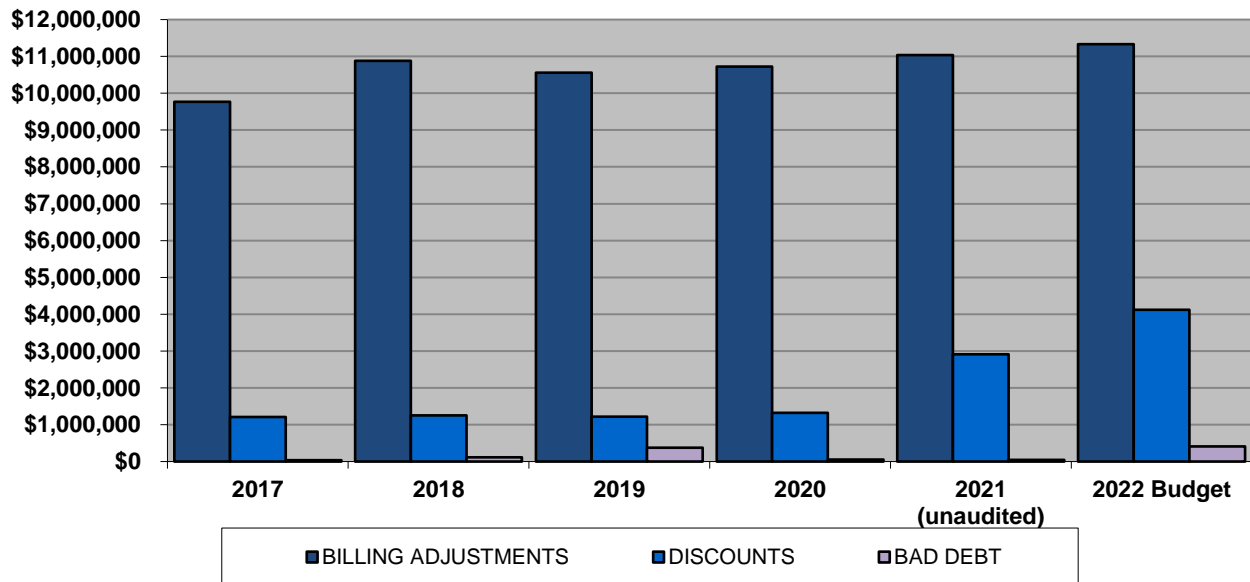
Discounts have totaled \$1.2 million in 2017, \$1.3 million in 2018, \$1.2 million in 2019, \$1.3 million in 2020 and \$2.9 million in 2021.

Bad Debt has totaled \$36,131 in 2017, \$1,111,957 in 2018, \$378,627 in 2019, \$55,699 in 2020 and \$48,071 in 2021.

Funding

The funding for Adjustments to Rate Revenue is based on a percentage of water and sewer revenues. Adjustments have been budgeted at 2.75% of revenues, Discounts 1.0% (of water only), and Bad Debt at 0.1%, respectively. The amounts budgeted for these items in 2022 are Adjustments: \$11.3 million, Discounts: \$4.1 million, and Bad Debt: \$0.4 million, respectively.

Adjustments to Rate Revenue



Prior Year Net Operating Surplus

As required by the Enabling Act, the Commission must use any net operating surplus generated in any year to reduce the revenue requirement in the following year, or transfer that operating surplus to the City of Boston. In a given year, the prior year net operating surplus is determined by subtracting the previous year's actual expenses from the actual revenues. In other words, the prior year net operating surplus of the 2021 budget reflects the actual (unaudited) surplus realized in 2020. Data and Graphs are shown below for additional information.

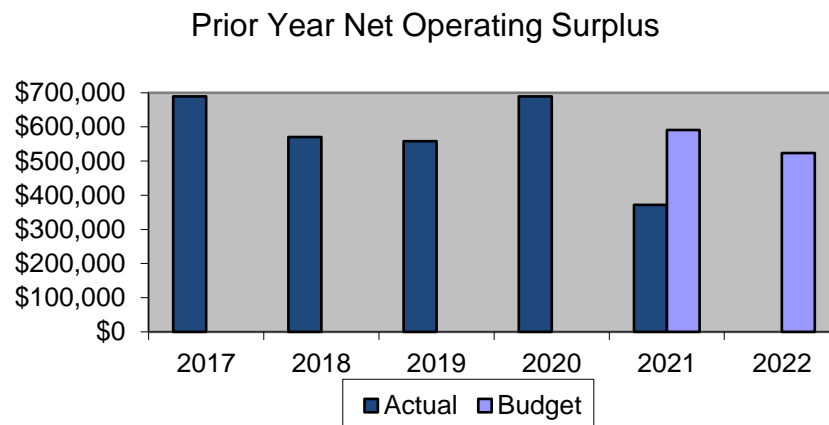
YEAR	TOTAL	% CHANGE	
2017	\$ 689,086	77.1%	ACTUAL
2018	\$ 570,607	-17.2%	
2019	\$ 558,206	-2.2%	
2020	\$ 689,554	23.5%	
2021	\$ 371,904	-46.1%	
2021	\$ 590,598		BUDGET
2022	\$ 523,704	-11.3%	

Historical Viewpoint

The Commission has experienced a prior year net operating surplus in each of the past five years presented here. In 2017, the Commission recognized \$0.7 million in prior year net operating surplus, \$0.6 million in 2018, \$0.6 million in 2019, \$0.7 million in 2020, and a prior year surplus of \$0.4 million in 2021.

Funding

The 2022 budget will utilize the 2021 surplus of \$0.4 million to offset anticipated expenditures. The Commission anticipates a similar surplus in the future.



Miscellaneous Revenue – Late Charge Fees

It is the policy of the Commission to impose a late payment charge with each billing on all amounts past due over 30 days. The imposition of late charges encourages the prompt payment of bills to prevent subsidies to customers who do not pay their bills on time. The late payment charge is 14% per annum or 0.03836% per diem.

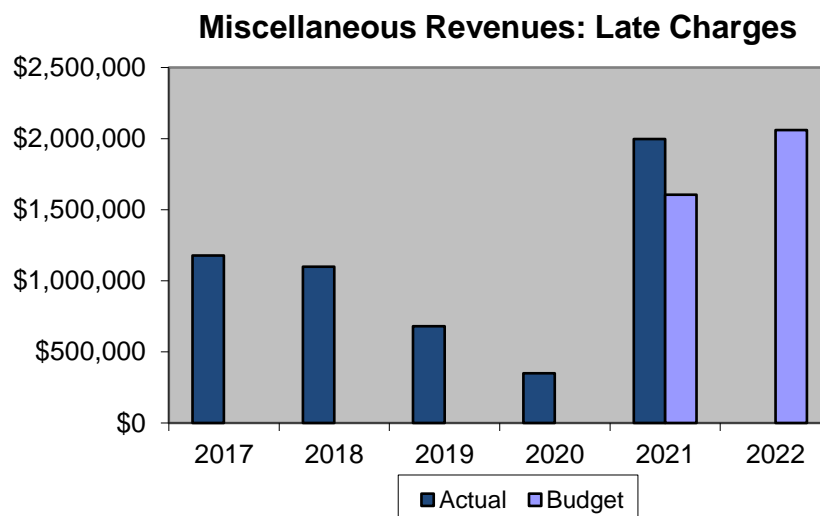
YEAR	TOTAL	% CHANGE	
2017	\$ 1,177,752	-16.8%	ACTUAL
2018	\$ 1,098,123	-6.8%	
2019	\$ 679,568	-38.1%	
2020	\$ 350,258	-48.5%	
2021	\$ 1,997,249	470.2%	Unaudited
2021	\$ 1,606,102		BUDGET
2022	\$ 2,060,180	28.3%	

Historical Viewpoint

Late Charges have remained steady annually, which is a result of the Commission’s efforts to collect outstanding balances. Late Charges were below budget in 2019 and 2020, due to an interest moratorium that was imposed because of the Covid-19 pandemic. In 2017, the Commission observed \$1.2 million in Late Charges, \$1.1 million in 2018, \$0.7 million in 2019 and \$0.4 million in 2020. In 2021, the Commission anticipates Late Charges to equal \$2.0 million.

Funding

In the 2022 budget, Late Charges are estimated at 0.4% of billed Water and Sewer charges. Thus, the 2022 budget accounts for \$2.1 million in Late Charges, which is \$454,078 or 28.3% more than the budgeted amount in 2021.



Miscellaneous Revenue – Investment Income

Large expenditures such as the MWRA Assessment and principal and interest payments on outstanding debt are paid in periodic installments. The funds accumulated to pay these expenses earn Investment Income for the Commission. In addition, according to Commission policy, certain fund balances are available for investment purposes.

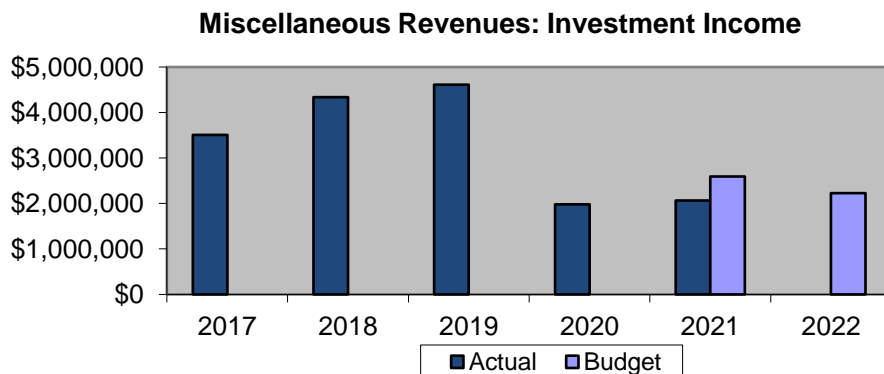
YEAR	TOTAL	% CHANGE	
2017	\$ 3,507,142	24.2%	ACTUAL
2018	\$ 4,336,497	23.6%	
2019	\$ 4,606,528	6.2%	
2020	\$ 1,980,533	-57.0%	
2021	\$ 2,064,571	4.2%	
			Unaudited
2021	\$ 2,591,102		BUDGET
2022	\$ 2,223,829	-14.2%	

Historical Viewpoint

Investment Income totaled \$3.5 million in 2017, \$4.3 million in 2018, \$4.6 million in 2019, \$2.0 million in 2020 and \$2.1 million in 2021. The amount of assets available for investing purposes has decreased in previous years due to declines in operating surpluses experienced during this time period. The ongoing Commission investment strategy is preservation of capital. Rates are at historic lows due to COVID-19, current investments have been in short-term 30 to 60-day federal agency securities, Federal Home Loan Bank step up securities and Ginnie Maes, which typically pay down within a 3 to 5-year period.

Funding

Investment Income in 2022 is budgeted for \$2.2 million, which is \$0.4 million or 14.2% less than budgeted in 2021. Monies invested have returned slightly higher returns, due to lower interest rate yields as a result of COVID-19 and a cautious strategy during in the past couple of years.



Miscellaneous Revenue – Fire Pipe Fees

Fire Pipe connections are billed separately by the Commission. Fire Pipe connections are used to service internal sprinkler systems and stand pipes which are utilized for fire protection in buildings. Generally accepted rate making practices recommend the imposition of special service fees for private fire protection.

YEAR	TOTAL	% CHANGE	
2017	\$ 4,701,840	4.8%	ACTUAL
2018	\$ 4,869,306	3.6%	
2019	\$ 4,958,922	1.8%	
2020	\$ 5,110,863	3.1%	
2021	\$ 5,198,352	1.7%	
2021	\$ 5,104,286		BUDGET
2022	\$ 5,198,352	1.8%	

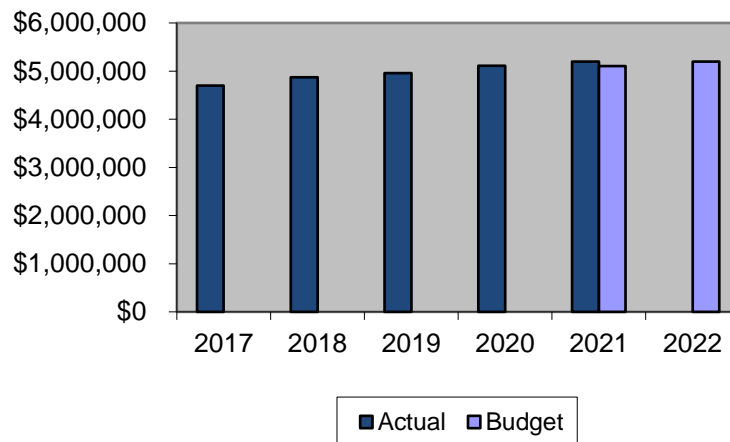
Historical Viewpoint

Fire Pipe Revenue has gradually increased since 2017. Increase in Fire Pipe Revenues can be attributed to new construction in the Boston area and the requirement for fire pipes in the city. The amount realized in 2021 was \$5.2 million, the largest amount in the five-year period.

Funding

The amount budgeted for Fire Pipe Revenue in the 2022 budget is \$5.2 million, which is \$0.1 million or 1.8% more than the 2021 budget.

Miscellaneous Revenues: Fire Pipe Fees



Miscellaneous Revenue – Other Income

The Commission provides special services to some customers, the costs of which are not imposed upon the general ratepayer. These services come under the title “Special Service Fees.” Special services include cross connection inspections, general service applications, water and sewer lien certificates, water and sewer pipe inspections, and special meter tests. Another component of Other Income is Deferred Revenues, which are revenues that have been deferred for the primary purpose of being recognized later.

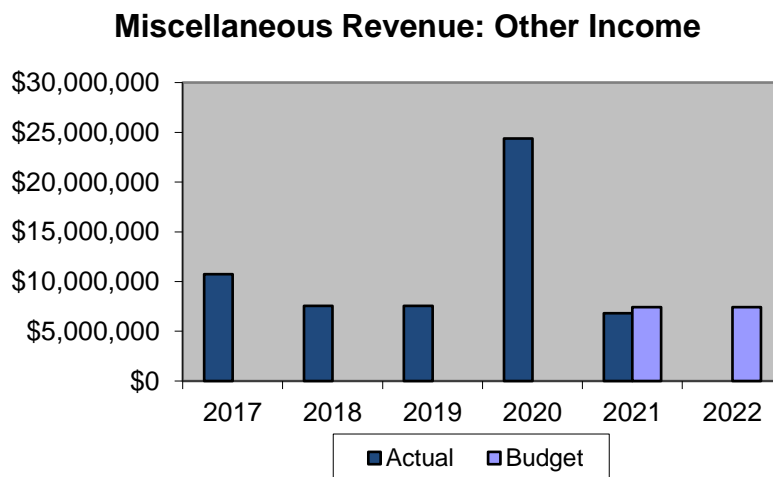
YEAR	TOTAL	% CHANGE	
2017	\$ 10,754,546	70.9%	ACTUAL
2018	\$ 7,549,162	-29.8%	
2019	\$ 11,680,537	54.7%	
2020	\$ 24,379,632	108.7%	
2021	\$ 6,826,883	-72.0%	
			Unaudited
2021	\$ 7,436,084		BUDGET
2022	\$ 7,436,084	0.0%	

Historical Viewpoint

Other Income totaled \$10.8 million in 2017, \$7.6 million in 2018, \$11.6 million in 2019, \$24.6 million in 2020 and \$6.8 million in 2021. The increase in 2020 is the result of the transfer of funds from the Stabilization Fund due to the COVID-19 pandemic and the resulting decrease in consumption and revenue.

Funding

Monies budgeted for Other Income in 2022 equal \$7.4 million, equal to the 2021 budget.



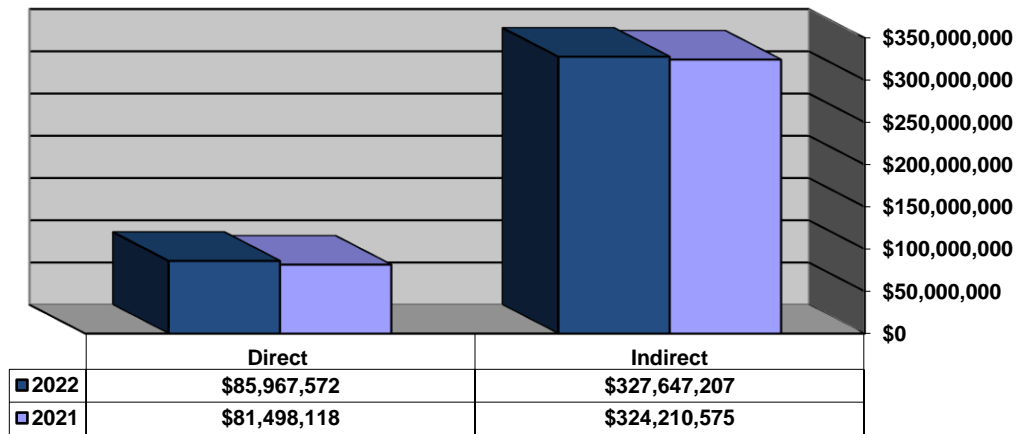
Total Expenses

The 2022 Current Expense Budget includes \$413.6 million in total expenses.

The budget includes:

- ➔ Direct Expenses - \$86.0 million
- ➔ Indirect Expenses - \$327.6 million
 - MWRA Assessment - \$247.2 million
 - Debt Service - \$50.3 million
 - Capital Improvements - \$24.4 million
 - Contractual Funding Obligations - \$5.5 million
 - SDWA Assessment - \$0.2 million

2022 Budget vs. 2021 Budget Expenses



Direct Expense Budget Comparison

Direct Expenses are those expenses directly associated with a division, department, or operating unit's daily activity. The Direct Expense budget for 2022 totals \$86.0 million which is greater than the 2021 budget by \$4.5 million or 5.5%. The Commission is dedicated to reducing the required level of future rate increases by controlling expenses wherever possible through strong financial management and policy controls. The chart below displays the 2022 Direct Expense budget by line item versus the 2021 budget along with the percentage change from year to year.

	2022 Budget	2021 Budget	Variance %
Wages and Salaries	\$ 47,301,863	\$ 44,086,396	7.3%
Overtime	\$ 1,209,113	\$ 839,440	44.0%
Fringe Benefits	\$ 9,492,077	\$ 9,830,125	-3.4%
Supplies & Materials	\$ 3,332,457	\$ 3,160,198	5.5%
Repair & Maintenance	\$ 14,016,745	\$ 13,013,195	7.7%
Utilities	\$ 2,021,480	\$ 1,923,280	5.1%
Professional Services	\$ 4,851,300	\$ 4,678,900	3.7%
Space & Equipment Rentals	\$ 370,250	\$ 386,250	-4.1%
Other Services	\$ 1,887,500	\$ 2,337,700	-19.3%
Insurance	\$ 1,083,787	\$ 930,634	16.5%
Inventory	\$ 23,000	\$ 23,000	0.0%
Capital Outlay	\$ 98,000	\$ 96,000	2.1%
Training/Seminar/Travel	\$ 80,000	\$ 48,000	66.7%
Damage Claims	\$ 200,000	\$ 145,000	37.9%
TOTAL	\$ 85,967,572	\$ 81,498,118	5.5%

Direct Expense Budget

The Commission's Direct Expenses are divided into two distinct categories, Labor Costs and Other Costs. These two categories are subsequently divided into fourteen line items with three line items attributed to Labor Costs and eleven attributed to Other Costs. Listed below are the line items and categories that are contained within them.

LABOR COSTS

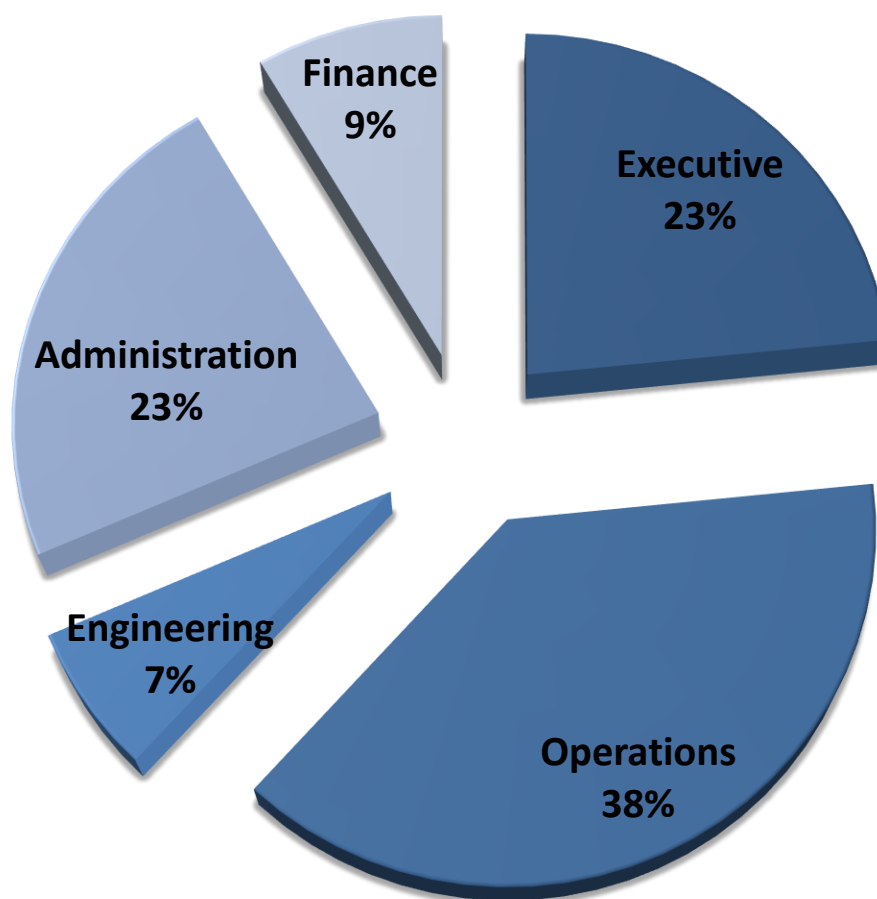
- **Wages and Salaries** – Medicare, Contract Allowances, Other Post Employee Benefits Liability, Mass Hospital Tax, and Pension
- **Overtime**
- **Fringe Benefits** – Health, Life, Dental, Workers' Compensation and Unemployment Insurance, Long Term Disability, Tuition Reimbursement

OTHER COSTS

- **Supplies and Materials** – Office, Program and Health/Safety Supplies, Work Clothes, and Vehicle Fuel
- **Repair and Maintenance** – Contract Repairs, Sewer Lateral, Television Inspections
- **Utilities** – Heating Oil, Gas, Electricity
- **Professional Services** – Audit Services, Trustee Services, Risk Management, Engineering Services, and Legal Services
- **Space & Equipment Rentals** – Space and Copier Leases, and Other Rentals
- **Other Services** – Printing and Duplication, Advertising, Police Details
- **Insurance** – Excess Liabilities, Employment Practices Liability, Cyber, Fiduciary Liability, Property/Casualty Insurance, Vehicle Insurance, Crime Insurance and Permit/Bonding
- **Inventory** – Water and Sewer related items
- **Capital Outlay** – Office and Field Equipment
- **Training/Seminar/Travel** – Local and Out-Of-State Training/Seminar, Local Meeting/Conference, Out-Of-State Conference
- **Damage Claims**

2022 Direct Expense Budget by Division

	Executive	Operations	Engineering	Administration	Finance	Total
Wages and Salaries	\$ 12,170,866	\$ 17,586,379	\$ 4,655,716	\$ 8,082,375	\$ 4,806,527	\$ 47,301,863
Overtime	\$ 25,000	\$ 850,000	\$ 210,924	\$ 115,754	\$ 7,435	\$ 1,209,113
Labor Related Costs/Benefits	\$ 8,861,875	\$ 117,992	\$ 164,965	\$ 118,885	\$ 228,360	\$ 9,492,077
Total Labor Costs	\$ 21,057,741	\$ 18,554,371	\$ 5,031,605	\$ 8,317,014	\$ 5,042,322	\$ 58,003,053
Supplies and Materials	\$ 656,400	\$ 1,506,000	\$ 67,750	\$ 468,350	\$ 633,957	\$ 3,332,457
Repair and Maintenance	\$ 2,968,645	\$ 9,592,850	\$ 17,250	\$ 1,100,000	\$ 338,000	\$ 14,016,745
Utilities	\$ 564,480	\$ -	\$ -	\$ 1,457,000	\$ -	\$ 2,021,480
Professional Services	\$ 2,022,000	\$ 1,515,000	\$ 240,500	\$ 287,000	\$ 786,800	\$ 4,851,300
Space and Equipment Rentals	\$ 316,900	\$ -	\$ -	\$ 53,350	\$ -	\$ 370,250
Other Services	\$ 188,100	\$ 750,000	\$ 7,550	\$ 799,400	\$ 142,450	\$ 1,887,500
Insurance	\$ -	\$ -	\$ -	\$ -	\$ 1,083,787	\$ 1,083,787
Inventory	\$ -	\$ 23,000	\$ -	\$ -	\$ -	\$ 23,000
Capital Outlay	\$ -	\$ 60,000	\$ -	\$ 38,000	\$ -	\$ 98,000
Training/Travel/Seminar	\$ 24,750	\$ 15,000	\$ 24,500	\$ 10,750	\$ 5,000	\$ 80,000
Damage Claims	\$ 200,000	\$ -	\$ -	\$ -	\$ -	\$ 200,000
Total Other Costs	\$ 6,941,275	\$ 13,461,850	\$ 357,550	\$ 4,213,850	\$ 2,989,994	\$ 27,964,519
Total Direct Expenses	\$ 27,999,016	\$ 32,016,221	\$ 5,389,155	\$ 12,530,864	\$ 8,032,316	\$ 85,967,572

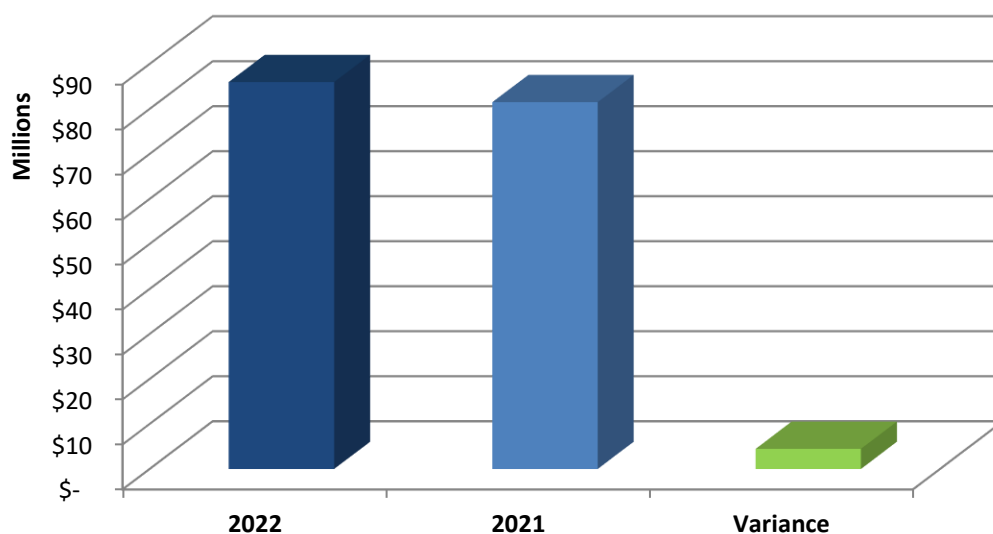


Budget Comparison by Line Item: 2022 vs. 2021

The following illustration shows the line items for Direct Expenses. The amounts from 2022 are compared to 2021, which includes the dollar and percentage variance from year to year.

Line Item	2022 Budget	2021 Budget	Variance \$	Variance %
Wages & Salaries	\$ 47,301,863	\$ 44,086,396	\$ 3,215,467	7.3%
Overtime	\$ 1,209,113	\$ 839,440	\$ 369,673	44.0%
Labor Related Costs/Benefits	\$ 9,492,077	\$ 9,830,125	\$ (338,048)	-3.4%
Total Labor Costs	\$ 58,003,053	\$ 54,755,961	\$ 3,247,092	5.9%
Supplies and Materials	\$ 3,332,457	\$ 3,160,198	\$ 172,259	5.5%
Repairs and Maintenance	\$ 14,016,745	\$ 13,013,195	\$ 1,003,550	7.7%
Utilities	\$ 2,021,480	\$ 1,923,280	\$ 98,200	5.1%
Professional Services	\$ 4,851,300	\$ 4,678,900	\$ 172,400	3.7%
Space and Equipment Rentals	\$ 370,250	\$ 386,250	\$ (16,000)	-4.1%
Other Services	\$ 1,887,500	\$ 2,337,700	\$ (450,200)	-19.3%
Insurance	\$ 1,083,787	\$ 930,634	\$ 153,153	16.5%
Inventory	\$ 23,000	\$ 23,000	\$ -	0.0%
Capital Outlay	\$ 98,000	\$ 96,000	\$ 2,000	2.1%
Travel/Training/Seminar	\$ 80,000	\$ 48,000	\$ 32,000	66.7%
Damage Claims	\$ 200,000	\$ 145,000	\$ 55,000	37.9%
Total Other Cost	\$ 27,964,519	\$ 26,742,157	\$ 1,222,362	4.6%
Total Direct Expenses	\$ 85,967,572	\$ 81,498,118	\$ 4,469,454	5.5%

Direct Expenses 2022 Budget vs. 2021 Budget

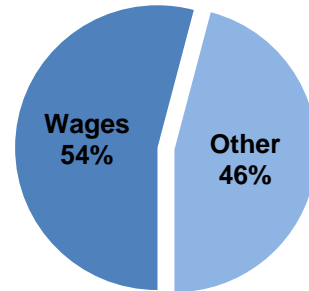


Wages and Salaries

The Wages and Salaries line item provides funding for compensation paid to Commission employees. Along with full time equivalent employees, this line reflects costs of part-time employees, interns, co-op students, and the summer youth program.

YEAR	TOTAL	% CHANGE	
2017	\$ 44,951,979	-4.2%	ACTUAL
2018	\$ 49,686,397	10.5%	
2019	\$ 43,648,296	-12.2%	
2020	\$ 44,008,211	0.8%	
2021	\$ 42,932,011	-2.4%	
2021	\$ 44,086,396		BUDGET
2022	\$ 47,301,863	7.3%	

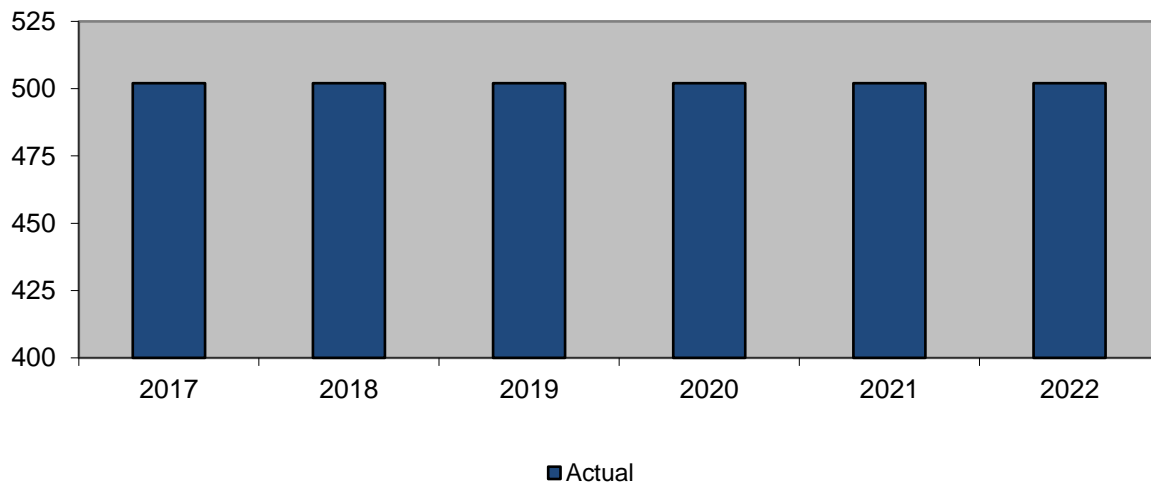
2022 Budget
Wages vs. Other Direct Expenses



Historical Viewpoint

Increases seen over the last year are based on contract settlements and performance reviews for various employees and unions within the Commission. The Commission's diverse workforce is comprised of executive employees and four collective bargaining units. The Commission will maintain the head count for 2022 at 502 positions, unchanged from the 2021 head count.

Budgeted Number of Employees at BWSC

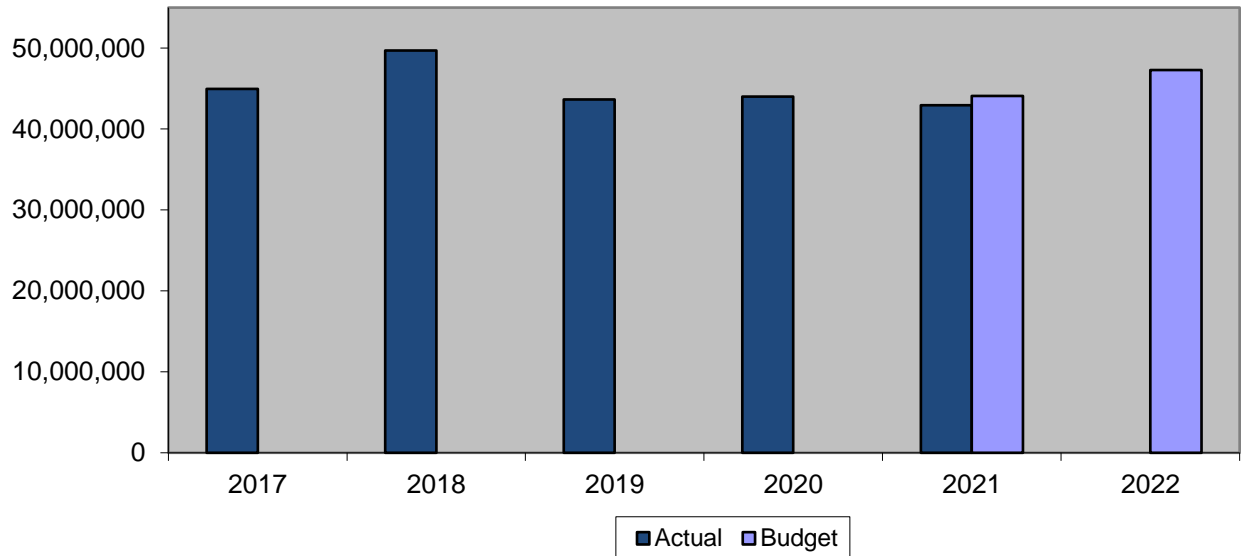


Wages and Salaries

Funding

The 2022 budget for Wages and Salaries is \$47.3 million, which is a decrease of \$3.2 million or 7.3% from the 2020 budget.

Historical Amounts for Wages and Salaries



Overtime

The Commission establishes a budget for Overtime in order to respond to services related to emergencies requiring attention outside the normal hours of operation.

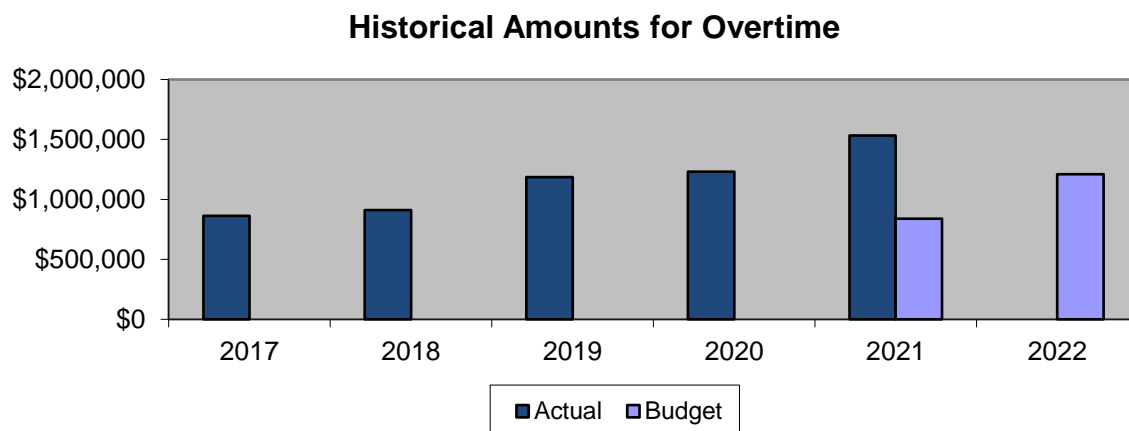
YEAR	TOTAL	% CHANGE	
2017	\$ 752,156	-4.7%	ACTUAL
2018	\$ 863,588	14.8%	
2019	\$ 911,159	5.5%	
2020	\$ 1,229,981	35.0%	
2021	\$ 1,532,403	24.6%	
<hr/>			
2021	\$ 839,440		BUDGET
2022	\$ 1,209,113	44.0%	

Historical Viewpoint

Overtime spending has stayed within the range of \$750,000 - \$1.5 million over the past five years. Fluctuations in overtime spending are primarily due to varying numbers of unanticipated situations requiring overtime from year to year. Expenditures for Overtime have equaled \$863,588 in 2017, \$911,159 in 2018, \$1.2 million in 2019, \$1.2 million in 2020 and \$1.5 million in 2021.

Funding

The amount allocated for 2022 Overtime is budgeted at \$1.2 million which is \$369,673 greater than the 2021 budget of \$839,440.



Labor Related Costs/Benefits

Labor Related Costs/Benefits provides funding for Health, Life, Dental, and Unemployment Insurance, Workers' Compensation, Tuition Reimbursement, and Sick, Compensatory, and Vacation Time Buy Back.

YEAR	TOTAL	% CHANGE	
2017	\$ 8,234,524	6.8%	ACTUAL
2018	\$ 8,100,581	-1.6%	
2019	\$ 8,516,218	5.1%	
2020	\$ 8,652,971	1.6%	
2021	\$ 8,835,942	2.1%	
2021	\$ 9,830,125		BUDGET
2022	\$ 9,492,077	-3.44%	

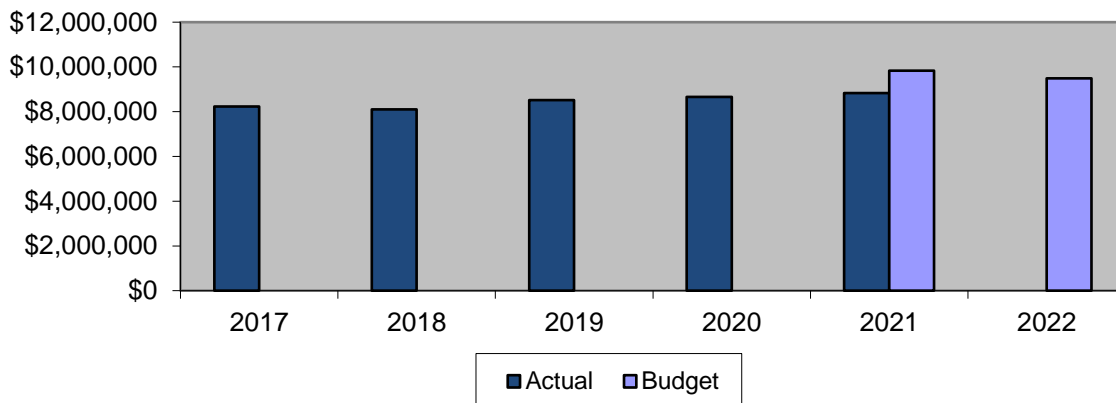
Historical Viewpoint

Increases in annual expenses have been caused by increasing premiums for health, dental, long-term disability, and unemployment insurance throughout the state of Massachusetts. The health care industry and premiums to employees continue to increase annually.

Funding

The 2022 budget equals \$9.5 million, which is a decrease of \$338,048 over the 2021 Budget.

Labor Related Costs/Benefits



Supplies and Materials

Supplies and Materials include funding for office supplies, work clothes, health/safety supplies, program supplies, postage and delivery services, vehicle fuel, and all other materials not classified as inventory items.

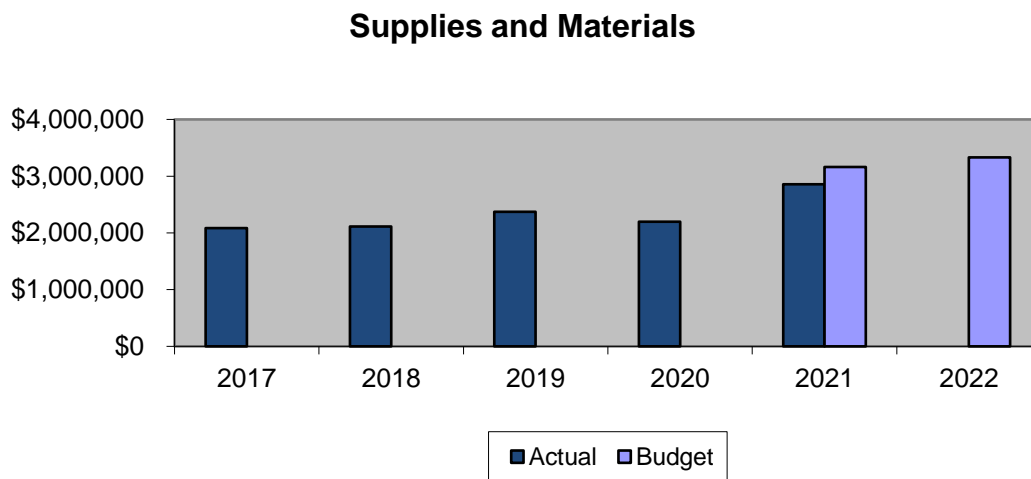
YEAR	TOTAL	% CHANGE	
2017	\$ 2,082,549	-9.3%	ACTUAL
2018	\$ 2,111,561	1.4%	
2019	\$ 2,372,934	12.4%	
2020	\$ 2,195,934	-7.5%	
2021	\$ 2,858,432	30.2%	
2021	\$ 3,160,198		BUDGET
2022	\$ 3,332,457	5.5%	

Historical Viewpoint

The Commission has focused on centralization for the purchasing of supplies and materials by management. Spending for supplies and materials totaled \$2.1 million in 2017, \$2.1 million in 2018, \$2.4 million in 2019, \$2.5 million in 2020 and \$2.9 million in 2021.

Funding

Supplies and Materials are budgeted for \$3.3 million in 2022, which reflects a \$172,259 or 5.5% increase over the 2021 budget.



Repair and Maintenance

The Repair and Maintenance line item includes: Materials, Service and Maintenance, Contractual Repairs to the Water System and the Sewer System, Television Inspections, Sewer Laterals, Solid Fill Disposals, and Other Repair and Maintenance.

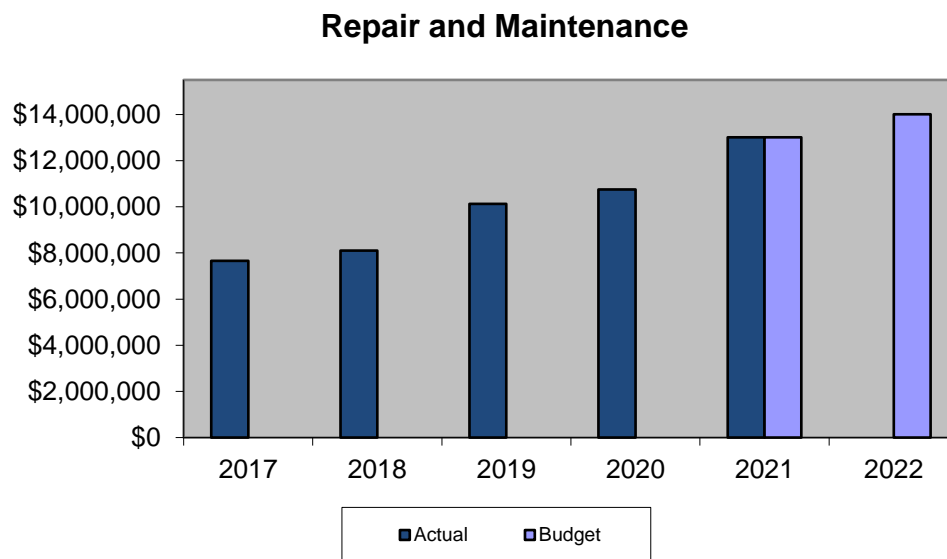
YEAR	TOTAL	% CHANGE	
2017	\$ 7,662,450	14.6%	ACTUAL
2018	\$ 8,107,578	5.8%	
2019	\$ 10,123,538	24.9%	
2020	\$ 10,745,786	6.1%	
2021	\$ 13,012,563	21.1%	
2021	\$ 13,013,195		BUDGET
2022	\$ 14,016,745	7.7%	

Historical Viewpoint

Costs associated with Repair and Maintenance equaled \$7.7 million in 2017, \$8.1 million in 2018, \$10.1 million in 2019, \$11.4 million in 2020 and \$13.0 million in 2021.

Funding

Repair and Maintenance is budgeted for \$14.0 million in 2022. This amount is \$1.0 million or 7.7% more than the 2021 budget amount.



Utilities

This line item includes funding for natural gas, electricity, water/sewer, and telephone expenses (long distance and cellular).

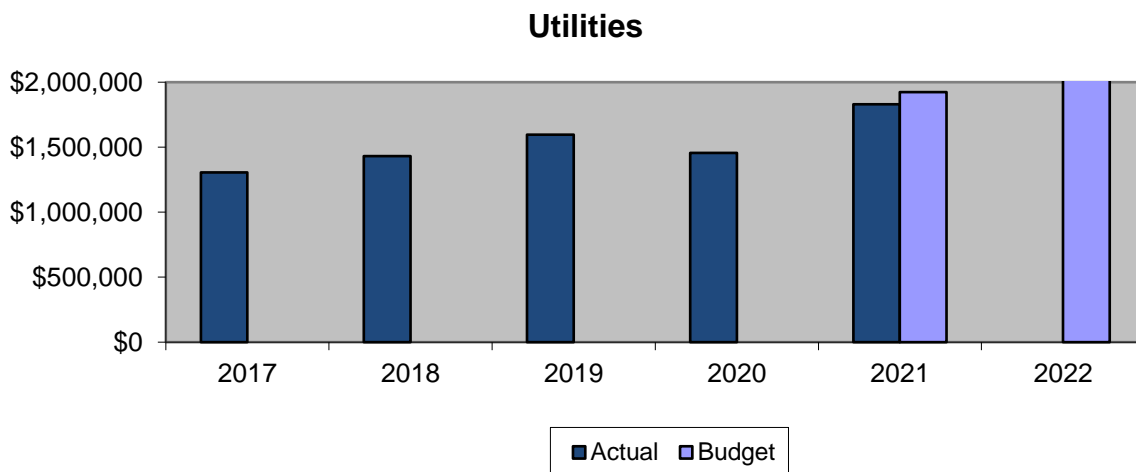
YEAR	TOTAL	% CHANGE	
2017	\$ 1,305,207	19.3%	ACTUAL
2018	\$ 1,430,558	9.6%	
2019	\$ 1,617,652	13.1%	
2020	\$ 1,456,755	-9.9%	
2021	\$ 1,830,000	25.6%	
2021	\$ 1,923,280		BUDGET
2022	\$ 2,021,480	5.1%	

Historical Viewpoint

The cost of Utilities had been rising over the past several years due to the higher cost of energy but due to COVID-19 and fewer people in the office, the cost of Utilities was lower in 2020. The upward trend continued in 2021 with the return of more staff to the office. Expenses increased by 25.6% in 2021.

Funding

Utilities in 2022 are budgeted for \$2.0 million. The amount is a \$98,200 or 5.1% increase from the 2020 budget.



Professional Services

The Professional Services line item includes funding for Audit Services, Trustee Services, Financial Consultants, Risk Management, Bond Remarketing, Rating Agencies, Letter of Credit, Miscellaneous Financial, Legal, Liens and Taking, Engineering, Personnel, and Other Professional Services.

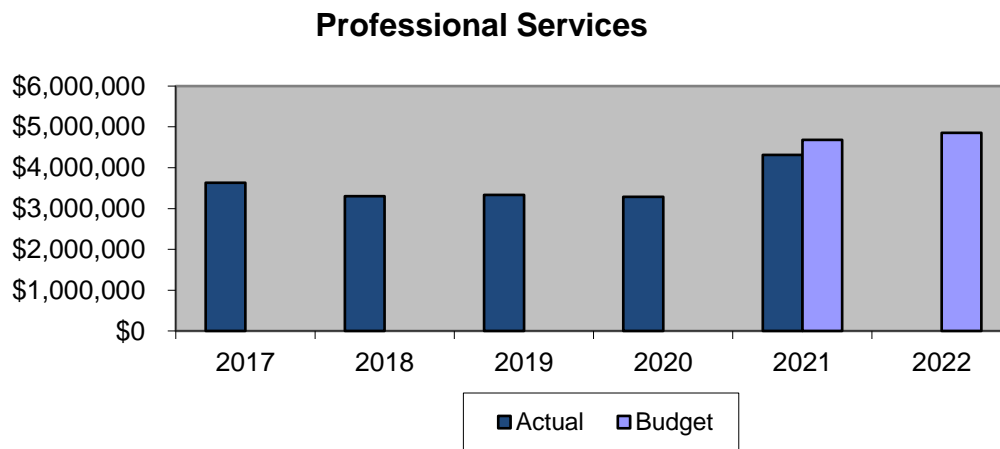
YEAR	TOTAL	% CHANGE	
2017	\$ 3,141,403	15.3%	ACTUAL
2018	\$ 3,304,198	5.2%	
2019	\$ 3,336,607	1.0%	
2020	\$ 3,288,593	-1.4%	
2021	\$ 4,314,016	31.2%	
2021	\$ 4,678,900		BUDGET
2022	\$ 4,851,300	3.7%	

Historical Viewpoint

In the year 2000, the Commission awarded a contract to service the pumping stations throughout the City of Boston. These services have been very effective in reducing flooding in various areas of Boston. These services have continued into the present and account for most of the Commission's annual expenses for Professional Services.

Funding

Professional Services are budgeted for \$4.9 million in 2022, which is \$0.2 million or 3.7% more than the 2021 budget.



Space and Equipment Rentals

The Space and Equipment Rentals line item includes funding for Space/Lease Rentals, Copier Leases, and Other Rentals. The funds allocated for this line item are also used for miscellaneous and emergency equipment rental costs.

YEAR	TOTAL	% CHANGE	
2017	\$ 303,229	20.4%	ACTUAL
2018	\$ 236,964	-21.9%	
2019	\$ 331,653	40.0%	
2020	\$ 291,919	-12.0%	
2021	\$ 347,550	19.1%	
2021	\$ 386,250		BUDGET
2022	\$ 370,250	-4.1%	

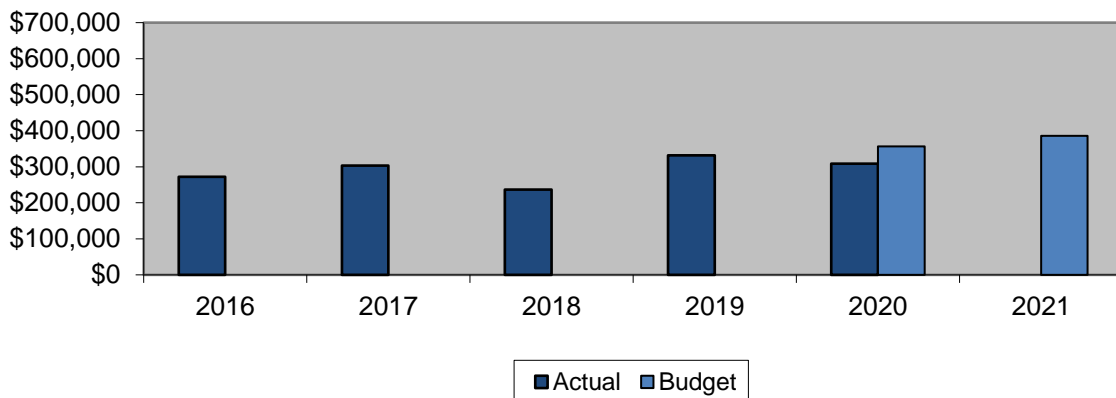
Historical Viewpoint

The Commission has seen fluctuations in Space and Equipment Rental spending over the last five years due to changing rental needs. Expenses for 2021 totaled \$347,550, a 19.1% increase from 2020.

Funding

Space and Equipment Rentals are budgeted for \$370,250 in 2022. This amount for the 2022 budget is \$16,000 or 4.1% less than the 2021 budget.

Space and Equipment Rentals



The Other Services line item includes all non-professional services, such as Printing and Duplication, Memberships/Dues, Subscriptions, Advertising (Public Information, Recruitment,

Other Services

Procurement), Police Details, Facilities Security, Billing, and Miscellaneous Other Services. Private police details are services that are required by law for work performed on the streets of Boston.

YEAR	TOTAL	% CHANGE	
2017	\$ 1,829,979	17.3%	ACTUAL
2018	\$ 1,822,935	-0.4%	
2019	\$ 1,773,605	-2.7%	
2020	\$ 1,428,584	-19.5%	
2021	\$ 1,807,226	26.5%	
2021	\$ 2,337,700		BUDGET
2022	\$ 1,887,500	-19.3%	

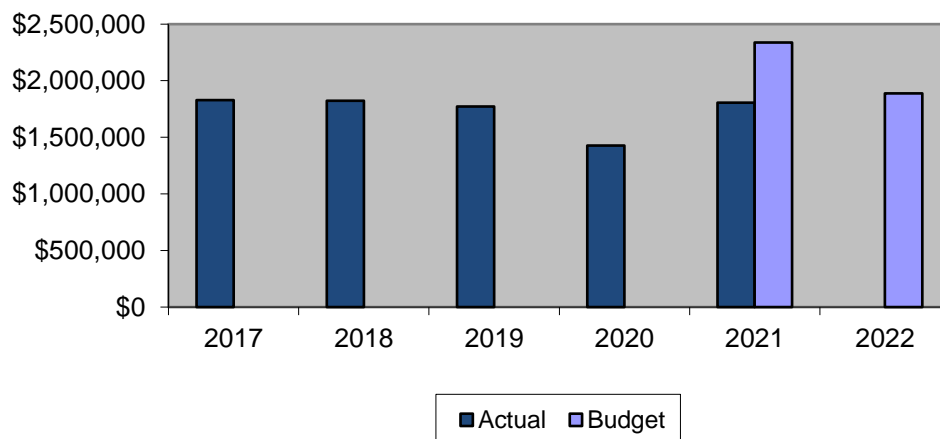
Historical Viewpoint

Expenses for Other Services have remained relatively steady over the last five years. Expenses equaled \$1.8 million in 2017, \$1.8 million in 2018, \$1.8 million in 2019, \$1.4 million in 2020 and \$1.8 million in 2021. Printing and Duplication, Police Details, Advertising, Facilities Security, and Miscellaneous Other Services are the main components of the annual expenses made by the Commission for Other Services.

Funding

The Commission has allocated \$1.9 million in funds for Other Services in the 2022 budget, which is \$450,200 or 19.3% less than the 2021 amount.

Other Services



Insurance

The Insurance line item includes funding for Excess Liabilities, Fiduciary Liability, Property/Casualty, Vehicle Insurance, Crime Insurance, and Permit/Bonding.

YEAR	TOTAL	% CHANGE		Types of Insurance Coverage	% of Budget
2017	\$ 508,943	-4.7%	ACTUAL	Excess Liabilities	28.2%
2018	\$ 491,401	0.0%		Employment Practices Liability	29.5%
2019	\$ 717,545	46.0%		Cyber	5.1%
2020	\$ 949,730	32.4%		Fiduciary Liability	2.1%
2021	\$ 981,381	3.3%		Property/Casualty	12.4%
			BUDGET	Vehicle Insurance	21.4%
2021	\$ 930,634			Crime Insurance	1.3%
2022	\$ 1,083,787	16.5%		Permit/Bonding	0.0%
				Total Insurance	100.0%

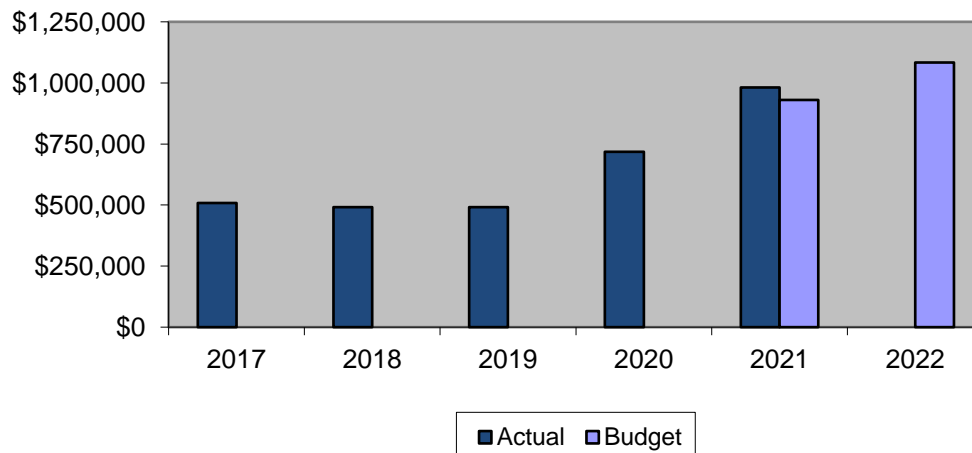
Historical Viewpoint

For Insurance over the last five years, the Commission has expensed \$508,943 in 2017, \$491,401 in 2018, \$717,545 in 2019, \$949,731 in 2020 and \$981,381 in 2021. Future costs are intended to decrease as premiums continue to fluctuate in the market.

Funding

The Insurance line item is budgeted at \$1,083,787 in 2022. The amount budgeted is \$153,153 or 16.5% more than the previous year. The amount budgeted incorporates rates for five months of actual expenses and seven months of estimated renewals, which begin in June for the next fiscal year thus creating overlapping fiscal years.

Insurance

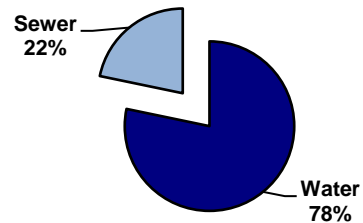


Inventory

The Commission’s Inventory budget includes funding for water and sewer related items, such as, copper, tubing, gate valves, fittings, and couplings. Also included in this line item are replacement parts for hydrants.

YEAR	TOTAL	% CHANGE	
2017	\$ 21,183	96.5%	ACTUAL
2018	\$ 15,104	-28.7%	
2019	\$ 17,870	18.3%	
2020	\$ 5,840	-67.3%	
2021	\$ 23,000		
			Unaudited
2021	\$ 23,000		BUDGET
2022	\$ 23,000	0.0%	

Inventory Fund Distribution

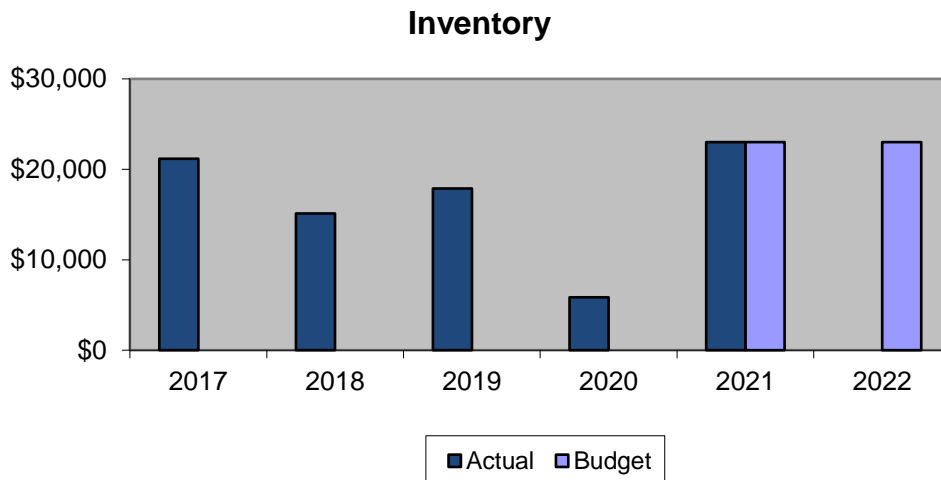


Historical Viewpoint

The Commission reclassified materials that were previously considered inventory into program supplies. Annual expenses for inventory totaled \$21,183 in 2017, \$15,104 in 2018 and \$17,870 in 2019, \$5,840 in 2020 and \$23,000 in 2021. The increase in spending for 2021 can be attributed to restocking all supplies.

Funding

Funding for inventory in the 2022 budget is \$23,000, which is level funded with the 2021 budget.



Capital Outlay

The Capital Outlay line item includes funding for Office Equipment and Field Equipment.

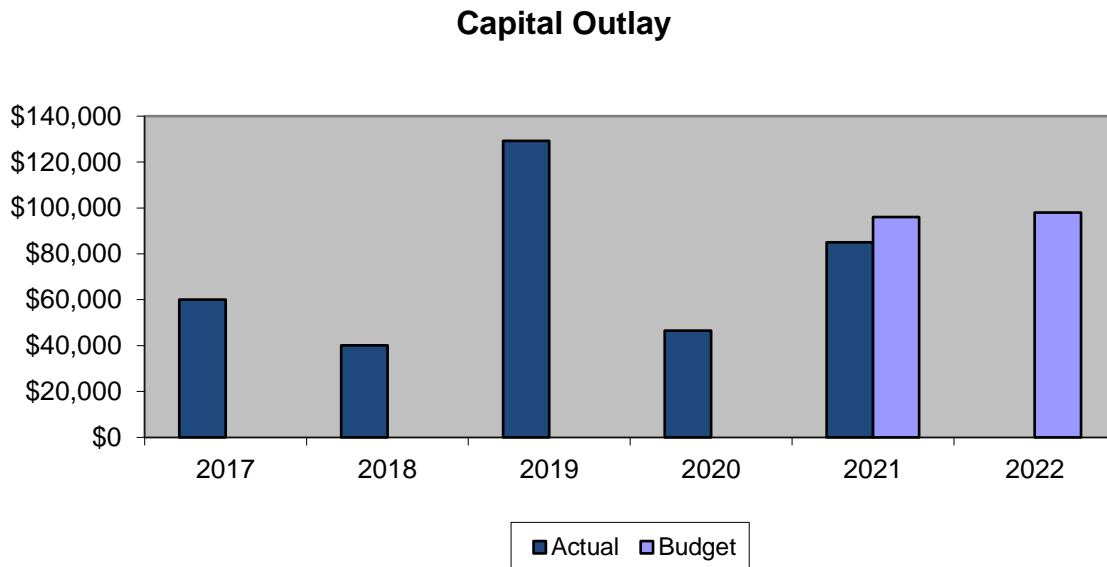
YEAR	TOTAL	% CHANGE	
2017	\$ 59,986	-21.4%	ACTUAL
2018	\$ 67,000	11.7%	
2019	\$ 129,161	92.8%	
2020	\$ 46,574	-63.9%	
2021	\$ 85,000	82.5%	
			Unaudited
2021	\$ 96,000		BUDGET
2022	\$ 98,000	2.1%	

Historical Viewpoint

In prior years, the Commission purchased replacement furniture and office equipment. Annual expenses for Capital Outlay totaled \$59,986 in 2017, \$40,060 in 2018 and \$129,161 in 2019, \$85,538 in 2020 and \$85,000 in 2021.

Funding

Funding for Capital Outlay in the 2022 budget is \$98,000, which is \$2,000 or 2.1% less than the 2021 budget.



Travel/Training/Seminar

Travel/Training/Seminar is funded in order to provide Commission employees the opportunity to enhance professional development and stay current with the trends in their fields of expertise by attending job-related seminars or training sessions.

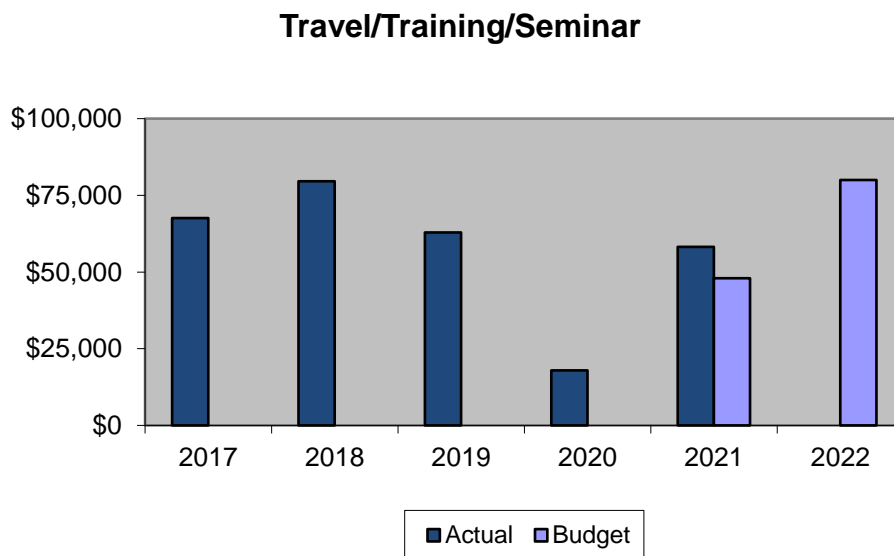
YEAR	TOTAL	% CHANGE	
2017	\$ 67,629	-7.4%	ACTUAL
2018	\$ 79,542	17.6%	
2019	\$ 62,912	-20.9%	
2020	\$ 17,890	-71.6%	
2021	\$ 58,180	225.2%	
2021	\$ 48,000		BUDGET
2022	\$ 80,000	66.7%	

Historical Viewpoint

Travel/Training/Seminar expenditures totaled \$67,629 in 2017, \$79,542 in 2018, \$62,912 in 2019, \$18,314 in 2020 and \$58,180 in 2021. The significant drop in spending in 2020 was due to less Travel because of Covid-19 restrictions.

Funding

Travel/Training/Seminar is funded at \$80,000 for 2022, which is \$32,000 more than the 2021 budget.



Damage Claims

The Damage Claims line item is budgeted to pay claims sustained against the Commission for personal injury, property damage, or employee liability damages. The Commission’s current policy calls for a self-insured retention limit of \$1.0 million per occurrence and \$2.5 million in annual aggregate retention. In addition, damages relating to employee liability are subject to a \$100,000 self-insured retention limit. Claims exceeding \$10,000 are paid from the Insurance Reserve Account.

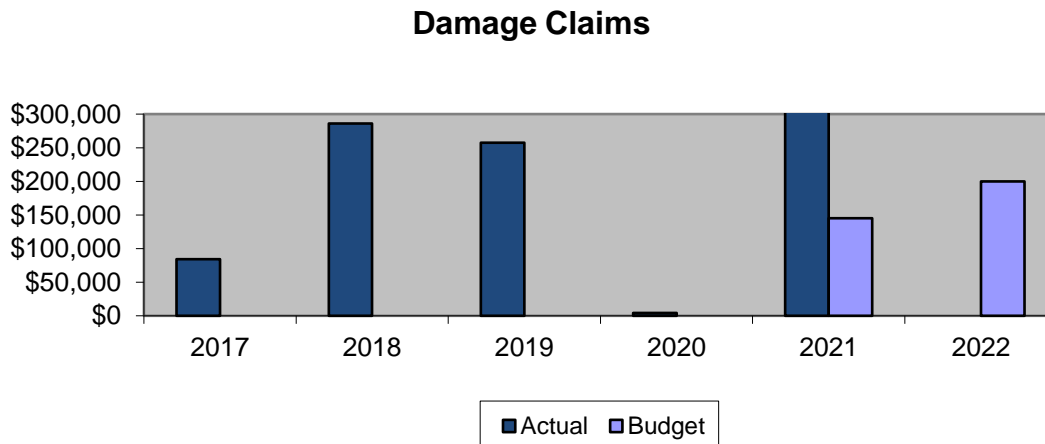
YEAR	TOTAL	% CHANGE	
2017	\$ 84,415	36.8%	ACTUAL
2018	\$ 286,008	238.8%	
2019	\$ 257,515	-10.0%	
2020	\$ 4,160	-98.4%	
2021	\$ 325,536	7725.4%	
2021	\$ 145,000		BUDGET
2022	\$ 200,000	37.9%	

Historical Viewpoint

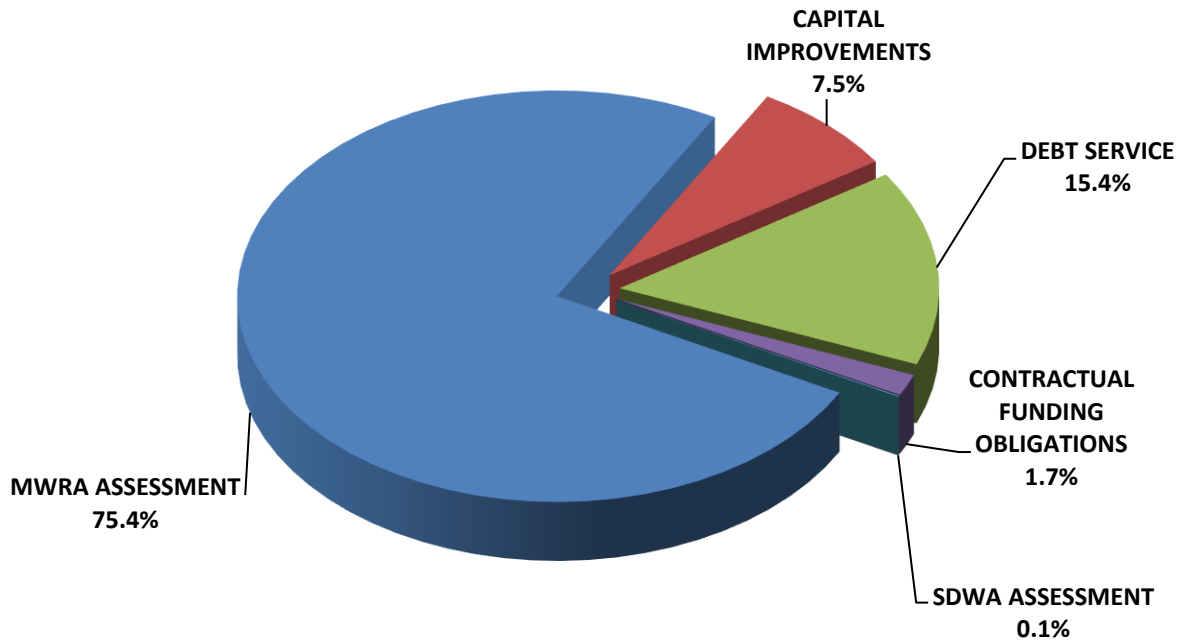
Damage Claims in a given year depend on how many claims are brought against the Commission. Over the past few years, actual expenses have been lower than the correlative budget amounts, which can be attributed to less damages claims being filed against the Commission. Expenses for Damage Claims totaled \$84,415 in 2017, \$286,008 in 2018 and \$257,515 in 2019, \$6,882 in 2020 and \$325,536 in 2021.

Funding

Funding for Damage Claims in the 2022 budget is \$200,000, which is \$55,000 more than the 2021 budget.



INDIRECT EXPENSES FOR 2022 BUDGET



MWRA Assessment	\$	247,158,902
Capital Improvements	\$	24,435,000
Debt Service	\$	50,324,224
Contractual Funding	\$	5,525,619
SDWA Assessment	\$	203,462
Total Indirect Expenses for FY 2022	\$	327,647,207

Indirect Expenses: 2022 vs. 2021

The table below displays the breakdown of Indirect Expenses. Variances from the 2022 to the 2021 budget are discussed in the following sections.

	2022 Budget		2021 Budget		Variance %
MWRA Assessment	\$	247,158,902	\$	248,379,059	-0.5%
Capital Improvements	\$	24,435,000	\$	18,690,000	30.7%
Debt Service	\$	50,324,224	\$	51,777,529	-2.8%
Contractual Funding	\$	5,525,619	\$	5,148,550	7.3%
SDWA Assessment	\$	203,462	\$	215,437	-5.6%
TOTAL	\$	327,647,207	\$	324,210,575	1.1%

Indirect Expenses – MWRA Assessment

The Commission obtains its water supply and sewer treatment services from the MWRA. The MWRA provides wholesale water and sewer services to 3.1 million people and more than 5,500 large industrial users in 61 metropolitan Boston communities.

Background

On December 19, 1984, Chapter 372 of the Acts of 1984, known as the MWRA Act, was passed by the legislature, creating the MWRA. The MWRA was formed as a body politic and corporate and public instrumentality of the Commonwealth of Massachusetts (“the Commonwealth”). Effective July 1, 1985 the ownership, possession, and control of all personal property comprising the Metropolitan District Commission (“MDC”) water and sewer systems were transferred to the MWRA. It was recognized at that time that the MDC was unable to effectively manage the collection, treatment, and disposal of sewage in the Boston metropolitan area. The MWRA Act made the MWRA responsible for the repair, replacement, rehabilitation, modernization, and extension of the water delivery system and of the sewage collection, disposal, and treatment systems on a self-sustaining basis. The Act also allows for the issuance of bonds and notes to finance any of its corporate activities.

Rates and Charges

The MWRA was empowered to establish charges for its services and commodities without supervision by other agencies or governmental bodies. One of the basic goals achieved by the MWRA Act was the substitution of assessments, or user fees, to the member communities for the prior tax-based system of charges.

The Commission continues to be the single largest customer of the MWRA. For the MWRA fiscal year 2022, the Commission will be assessed \$94.0 million or 33.9% of MWRA total water system charges and \$148.9 million or 28.9% of the MWRA sewer system charges. On a combined basis, the Commission will pay \$242.8 million or 30.6% of the total MWRA combined assessments.

Assessments for water services are calculated by the MWRA based on the metered water use in the calendar year immediately preceding the MWRA fiscal year. The Commission’s water charges for MWRA Fiscal year 2022 total \$93,962,296 based on the Commission’s 2021 calendar year metered water use.

Sewer Assessments allocate operating and maintenance costs based on total metered annual flow and total annual average strength, septage contributions, and high strength flow loads. Septage contributions are allocated based on volume, total suspended solids (“TSS”), and biochemical oxygen demand (“BOD”) loadings. High strength flow loads are generated by those permitted entities whose flows exceed 25,000 gallons per day and whose TSS and/or BOD concentrations exceed 400 milligrams per liter.

Indirect Expenses – MWRA Assessment

The 2022 CEB includes funding for the MWRA Assessments totaling \$247.2 million. Since the MWRA fiscal year begins July 1 each year, the Commission’s budgeted amount is based on MWRA rates for two fiscal years.

YEAR	TOTAL	% CHANGE	
2017	\$ 218,461,866	5.6%	ACTUAL
2018	\$ 227,082,053	3.9%	
2019	\$ 235,786,344	3.8%	
2020	\$ 241,360,172	2.4%	
2021	\$ 243,396,224		
			Unaudited
2021	\$ 248,379,059		BUDGET
2022	\$ 247,158,902	-0.5%	

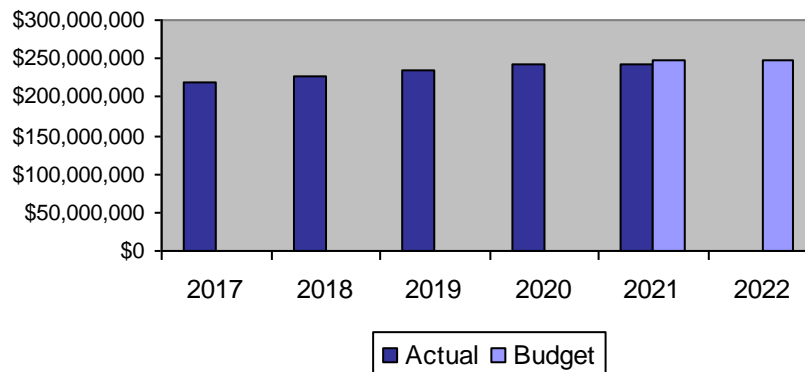
Historical Viewpoint

Expenses for MWRA Assessments have gradually increased in the past five years. Rate increases imposed by the MWRA have contributed to the rising expenditures. Amounts for MWRA Assessments totaled \$218.5 million in 2017, \$227.1 million in 2018, \$235.8 million in 2019, \$241.4 million in 2020 and \$243,396,224 in 2021.

Funding

The 2022 Budget for the MWRA Assessment is \$247.2 million, a decrease of \$1.2 million or 0.5% from the 2021 Budget. The MWRA and Commission have different fiscal years, thus, the budget for 2022 is based on a decrease of 0.5% in MWRA FY22, and a projected 3.5% increase in MWRA FY23.

MWRA Assessment



Indirect Expenses – Capital Improvements

The Commission has an aggressive annual Capital Improvement Program in place to ensure the proper long-term integrity of its water distribution and wastewater collection systems. Capital Improvement expenses represent the costs associated with rate revenue funded projects undertaken in the CIP. In 2012, the Commission began to implement the recommendations made in the Water Distribution System Study. This study recommended that the Commission rehabilitate 11 miles of water mains per year through 2030. This ranking system was updated in 2016 resulting in a recommendation to replace and rehabilitate 8 miles of pipe per year. The Water Infrastructure Program, which is a grant loan provided by the MWRA, assists the Commission to pay for related projects.

2017	\$ 14,593,495	63.2%	ACTUAL
2018	\$ 12,585,360	-13.8%	
2019	\$ 15,382,251	22.2%	
2020	\$ 15,948,387	3.7%	
2021	\$ 11,236,371	-29.5%	Unaudited
<hr/>			
2021	\$ 18,690,000		BUDGET
2022	\$ 24,435,000	30.7%	

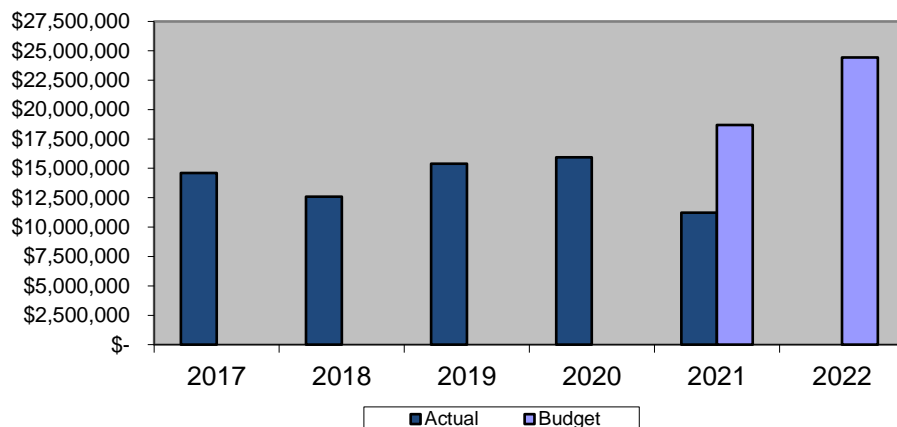
Historical Viewpoint

Costs associated with Capital Improvements have fluctuated during the last five years, but increases have occurred in the previous three years. Expenses have totaled \$14.6 million in 2017, \$12.6 million in 2018, \$15.4 million in 2019, \$14.0 million in 2020 and \$11.2 million in 2021.

Funding

The amount budgeted in 2022 equals \$24.4 million, which is \$5.7 million or 30.7% more than 2021. The amount budgeted annually is based on project detail of new and ongoing water and sewer main rehabilitation projects outlined in the 2022-2024 Capital Improvement Program.

Capital Improvements



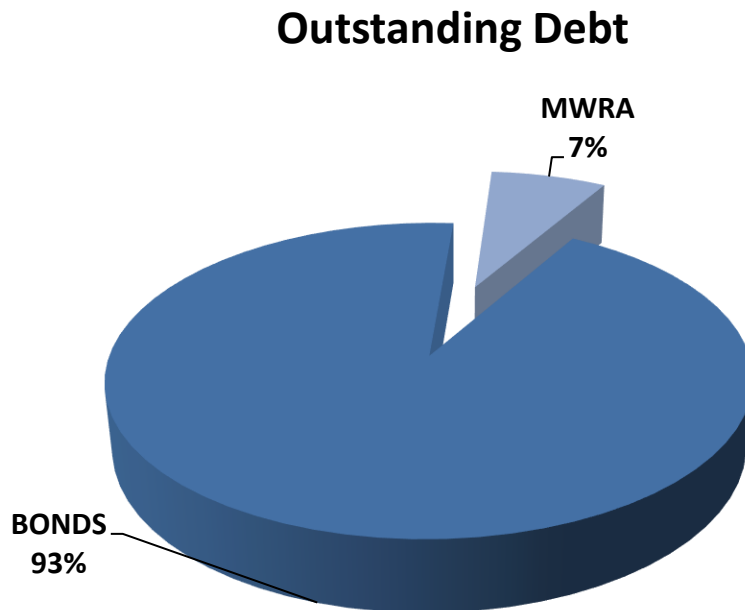
Indirect Expenses – Debt Service

The Commission issues General Revenue Bonds to finance a portion of its Capital Improvement Program. The Commission has \$522.3 million of General Revenue Bonds outstanding with different maturity dates on which there will be required principal and interest payments in 2022. In addition to its debt service obligations associated with General Revenue Bonds, the Commission must pay debt service relating to the MWRA and Massachusetts Abatement Trust Loan and Grant Programs.

YEAR	TOTAL	% CHANGE	
2017	\$ 50,346,545	4.7%	ACTUAL
2018	\$ 49,998,932	-0.7%	
2019	\$ 51,777,116	3.6%	
2020	\$ 50,179,641	-3.1%	
2021	\$ 49,578,796	-1.2%	
			Unaudited
2021	\$ 51,777,529		BUDGET
2022	\$ 50,324,224	-2.8%	

Historical Viewpoint

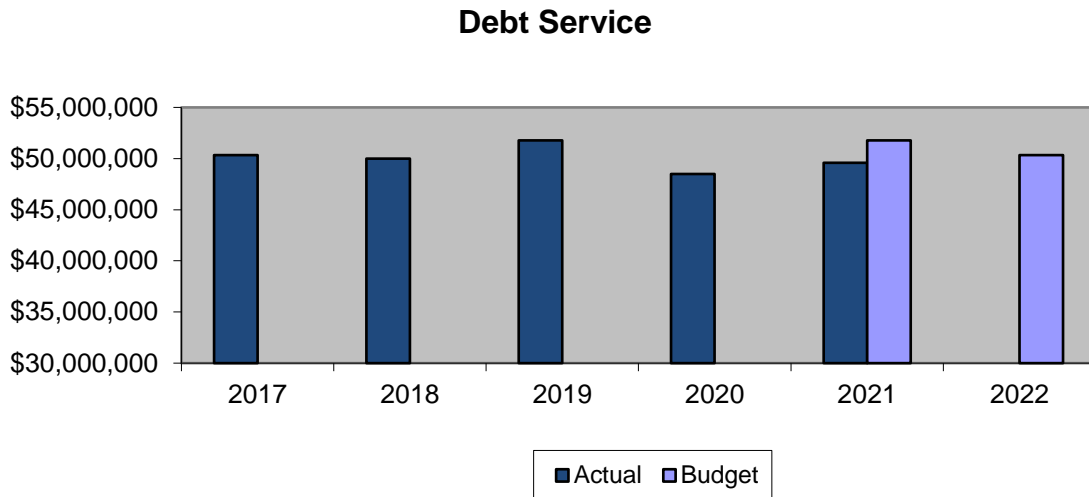
In 2016, the Commission issued \$145.1 million in general revenue bonds and a partial refunding of the 2009 and 2010 Series A Bonds, to realize a net present value savings of \$9.1 million. In 2018, the Commission issued \$78.4 million in general revenue bonds. In 2021, the Commission issued \$198.3 million in general revenue bonds and a partial refunding of the 2012, 2014 and 2018 Series A Bonds, and the 2016 Series B Bonds, to realize a net present value savings of \$17.4 million.



Indirect Expenses – Debt Service

Funding

Funding for Debt Service is set at \$50.3 million for 2022, which is \$1.5 million or 2.8% less than 2021. The budget anticipates variable rate debt at 4.0%. The amount budgeted incorporates principal and interest payments on \$562.4 million, which consists of \$522.3 million Senior Debt and \$40.1 million MWRA loans.



Current outstanding debt includes the following General Revenue Bonds:

Indirect Expenses – Debt Service

1994 Series A = \$8.1 million

2016 Series B = \$49.1 million

2012 Series A = \$15.5 million

2018 Series A = \$67.4 million

2014 Series A = \$58.7 million

2021 Series A = \$157.3 million

2015 Series A = \$72.8 million

2021 Series B = \$40.6 million

2016 Series A = \$52.8 million

2022 Debt Service				
	INTEREST		PRINCIPAL	TOTAL
1994 Series A (Senior)	\$ 542,700	\$	2,500,000	\$ 3,042,700
2012 Series A (Senior)	\$ 716,114	\$	7,585,000	\$ 8,301,114
2014 Series A (Senior)	\$ 2,171,750	\$	700,000	\$ 2,871,750
2015 Series A (Senior)	\$ 3,461,550	\$	-	\$ 3,461,550
2016 Series A (Senior)	\$ 2,390,800	\$	12,220,000	\$ 14,610,800
2016 Series B (Senior)	\$ 1,504,050	\$	500,000	\$ 2,004,050
2018 Series A (Senior)	\$ 2,436,750	\$	500,000	\$ 2,936,750
2021 Series A (Senior)	\$ 2,788,458	\$	1,735,000	\$ 4,523,458
2021 Series B (Senior)	\$ 1,563,875	\$	400,000	\$ 1,963,875
Total of Senior Bonds	\$ 17,576,047	\$	26,140,000	\$ 41,752,172
SRF Debt Service	\$ -	\$	-	\$ -
MWRA I/I	\$ -	\$	1,012,946	\$ 1,012,946
MWRA SAP	\$ -	\$	5,562,023	\$ 5,562,023
MWRA LLP	\$ -	\$	260,242	\$ 260,242
	\$ -	\$	6,835,211	\$ 6,835,211
Total Debt Service	\$ 17,576,047	\$	32,975,211	\$ 48,587,383

Indirect Expenses – Debt Service

- MWRA I/I includes two phases

	INTEREST	PRINCIPAL	TOTAL
PHASE 8	\$ -	\$ 206,022	\$ 206,022
PHASE 9	\$ -	\$ 806,924	\$ 806,924
	<u>\$ -</u>	<u>\$ 1,012,946</u>	<u>\$ 1,012,946</u>

- MWRA includes SAP and LLP

	INTEREST	PRINCIPAL	TOTAL
SAP	\$ -	\$ 5,562,023	\$ 5,562,023
LLP	\$ -	\$ 260,242	\$ 260,242
	<u>\$ -</u>	<u>\$ 5,822,265</u>	<u>\$ 5,822,265</u>

Indirect Expenses – Contractual Funding Obligations

The Commission, as required by its Bond Resolution, maintains an Operating Reserve Fund, a Renewal and Replacement Reserve Fund, an Insurance Reserve Fund, and Stabilization Fund. The Contractual Funding Obligation line item represents mandated funding of all of these funds. The Commission is annually required to maintain a balance in the Operating Reserve Fund an amount equal to one-sixth of the Commission’s operating and maintenance expenses and the accrued MWRA Assessments for that year.

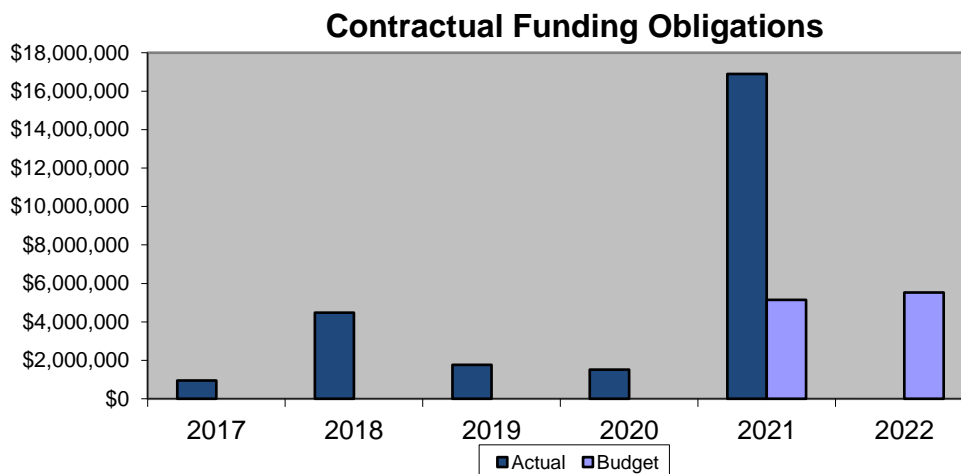
YEAR	TOTAL	% CHANGE	
2017	\$ 945,000	-86.5%	ACTUAL
2018	\$ 4,474,113	373.5%	
2019	\$ 1,768,000	-60.5%	
2020	\$ 1,516,000	-14.3%	
2021	\$ 16,904,000	1015.0%	
			Unaudited
2021	\$ 5,148,550		BUDGET
2022	\$ 5,525,619	7.3%	

Historical Viewpoint

Contractual Funding Obligations have totaled \$0.9 million in 2017, \$4.5 million in 2018, \$1.8 million in 2019, \$1.5 million in 2020 and \$16.9 million in 2021. Changes in spending can be attributed to different monthly deposit amount requirements by year per the Bond Resolution.

Funding

The amount funded for Contractual Funding Obligations in the 2022 budget is \$5.5 million, which is an increase of \$0.4 million from the 2021 budget. Changes in spending can be attributed to different monthly deposit amount requirements by year per the Bond Resolution.



Indirect Expenses – Safe Drinking Water Act Assessment

The Safe Drinking Water Act (“SDWA”) Assessment line item was established as a result of a federal mandate. Massachusetts has opted to oversee the implementation of the SDWA throughout the Commonwealth (“Primacy”). A funding mechanism for Primacy was approved by the Legislature in 1993 that entails an assessment to all water suppliers.

YEAR	TOTAL	% CHANGE	
2017	\$ 202,703	2.2%	ACTUAL
2018	\$ 203,864	0.6%	
2019	\$ 194,650	-4.5%	
2020	\$ 220,685	13.4%	
2021	\$ 215,437	-2.4%	
			Unaudited
2021	\$ 215,437		BUDGET
2022	\$ 203,462	-5.6%	

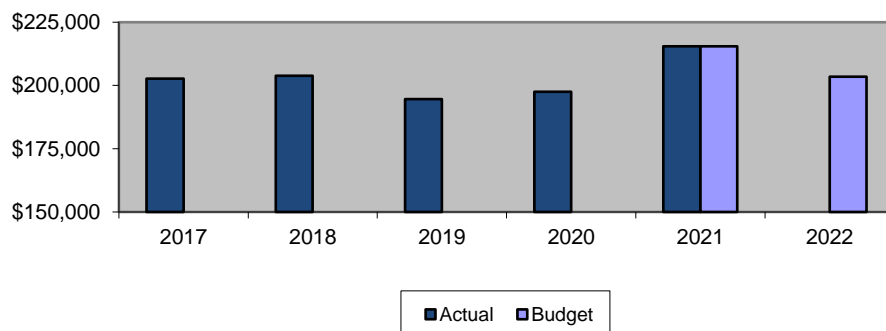
Historical Viewpoint

The SDWA Assessment is based upon the volume of water purchased during the previous calendar year. Declining water purchases have caused the SDWA Assessment to diminish over the last five years realizing amounts of \$202,703 in 2017, \$203,864 in 2018, \$194,650 in 2019, \$197,456 in 2020 and \$203,462 in 2021.

Funding

The 2022 budget for the Safe Drinking Water Act Assessment is \$203,462, which is a decrease of 5.6% from the 2021 budget. Massachusetts opted to oversee the implementation of the SDWA throughout the Commonwealth; the Legislature approved a funding mechanism that entails an assessment to all water suppliers. This assessment is calculated at \$0.0095 per thousand gallons of water purchased to offset expenses incurred by the Department of Environmental Protection, which includes monitoring, inspection, and enforcement of activities.

SDWA Assessment



Fund Balances

The statements of net assets provide the information on the assets and liabilities of the Commission, with net assets (deficits) reported as the difference between assets and liabilities. Condensed financial information for the three most recent fiscal years is presented below.

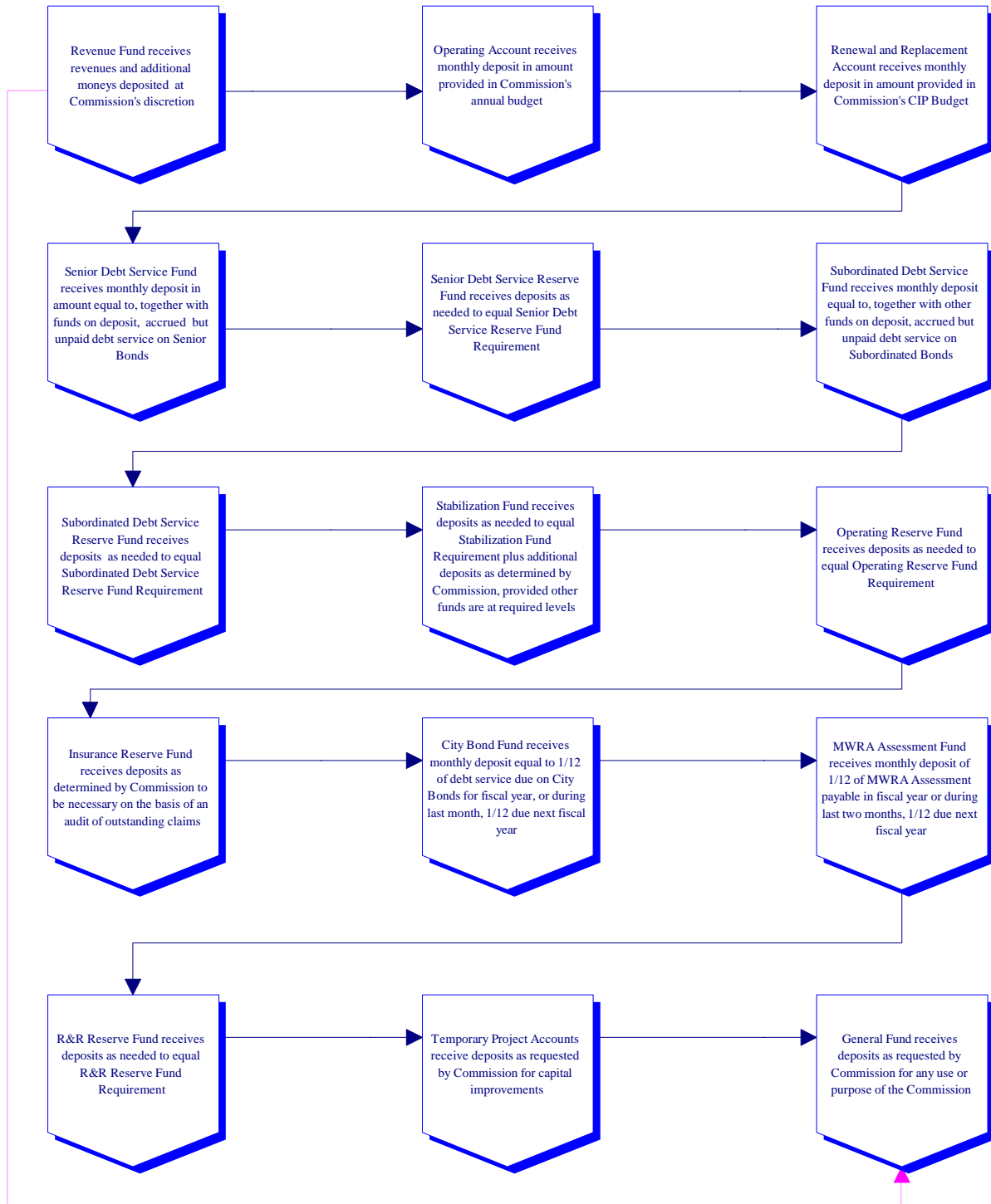
	2018	2019	2020
Current Assets	58,632,557	64,018,550	74,664,919
Capital Net Assets	1,416,708,837	1,445,700,482	1,472,357,738
Other Assets	274,126,177	259,903,906	236,649,402
Total Assets	<u>1,749,467,571</u>	<u>1,769,622,938</u>	<u>1,783,672,059</u>
Current Liabilities	61,726,409	79,514,733	112,448,710
Noncurrent Liabilities	671,318,561	630,154,293	587,234,582
Total Liabilities	<u>733,044,970</u>	<u>709,669,026</u>	<u>699,683,292</u>
Net Assets			
Invested in Capital Assets	800,308,937	856,309,985	878,725,980
Restricted Net Assets	111,812,119	113,573,100	114,653,017
Unrestricted Net Deficits	<u>(520,006,540)</u>	<u>(574,446,086)</u>	<u>(602,554,117)</u>
Total Net Assets	392,114,516	395,436,999	390,824,880

The Commission's Resolution required the establishment of the following funds and accounts shown below in the table presented. The table below illustrates historic and projected year-end balances for these funds. Further details on each individual fund follow.

Fund	Actual 2017	Actual 2018	Actual 2019	Actual 2020	Unaudited 2021	Projected 2022
Revenue	\$ 1,312,119	\$ 124,252	\$ 29,074	\$ 16,148	\$ 31,766	\$ 31,766
Operating & Maintenance	\$ 8,309,450	\$ 8,546,483	\$ 3,100,333	\$ 9,570,446	\$ 6,232,561	\$ 6,232,561
Sr. Debt Service	\$ 7,352,098	\$ 8,680,027	\$ 7,823,164	\$ 7,987,765	\$ 7,413,440	\$ 7,505,095
Sr. Debt Service Reserve	\$ 44,287,889	\$ 47,248,574	\$ 46,955,417	\$ 46,558,089	\$ 44,992,476	\$ 44,992,476
Operating Reserve	\$ 48,384,732	\$ 49,921,339	\$ 52,411,409	\$ 54,987,878	\$ 55,783,874	\$ 56,335,874
Insurance Reserve	\$ 1,176,698	\$ 1,212,250	\$ 1,687,510	\$ 1,996,733	\$ 1,996,733	\$ 1,996,733
MWRA	\$ 19,331,272	\$ 19,561,343	\$ 17,103,837	\$ 5,550,586	\$ 15,051,399	\$ 15,244,639
R & R Reserve	\$ 4,001,323	\$ 4,347,087	\$ 4,183,643	\$ 4,289,213	\$ 4,672,838	\$ 6,112,838
General	\$ 1,877,471	\$ 1,552,666	\$ 12,666	\$ 3,063	\$ 2,141	\$ 2,141
Stabilization	\$ 63,825,541	\$ 66,809,998	\$ 61,746,104	\$ 42,861,947	\$ 58,818,332	\$ 62,366,332
Total	\$ 199,858,594	\$ 208,004,019	\$ 195,053,157	\$ 173,821,868	\$ 194,995,560	\$ 200,820,455

→ NOTE: None of the Commission Funds are subject to appropriation

Flow of Funds



Revenue Fund

The Commission's Bond Resolution establishes funds dedicated to the payment of certain obligations of the Commission. In accordance with the Commission's Bond Resolution, all reserves (except certain sale, insurance and condemnation proceeds and certain investment earnings) are deposited in the Revenue Fund, which is held by the Commission's trustee. The Bond Resolution provides that the Trustee make monthly transfers from the Revenue Fund to the other funds and accounts as directed and required.

The Commission projects that in 2022, \$413.1 million will be deposited and \$413.1 million will be withdrawn from the Revenue Fund. The net of these transactions will produce a year-end balance of \$0.1 million. The transactions are summarized in the table below.

	<u>Begin Balance</u>	<u>Deposits</u>	<u>Withdrawals</u>	<u>Ending Balance</u>
2017	\$ 5,243,028	\$ 358,235,091	\$ (362,166,000)	\$ 1,312,119
2018	\$ 1,312,119	\$ 373,194,133	\$ (374,382,000)	\$ 124,252
2019	\$ 124,252	\$ 371,820,822	\$ (371,916,000)	\$ 29,074
2020	\$ 29,074	\$ 382,187,074	\$ (382,200,000)	\$ 16,148
2021	\$ 16,148	\$ 409,774,018	\$ (409,758,400)	\$ 31,766
2022	\$ 31,766	\$ 413,091,074	\$ (413,091,074)	\$ 31,766

2021 Figures are Unaudited

2022 Figures are Projected

→ Deposits include:

- Water and Sewer Receipts
- Interest income earned from Revenue Fund
- Liens
- Write-off recovery
- Fees collected for special services
- Interest income transferred from other funds

→ Withdrawals include transfers to other funds

Operating and Maintenance Fund

Deposits are made into the Operating and Maintenance Fund at the end of each month for the following month as provided for in the annual budget. The monies deposited into this fund are used to pay for the Commission's day-to-day expenditures such as wages and salaries and payments to vendors for goods and services received. Department heads are required on a monthly basis to inform the Treasury Services Department of any unforeseen expenditures so that the Operating Account deposit can be modified based on the revised expenditure plan.

As illustrated below, the Commission projects that in 2022, \$200.4 million will be deposited and \$200.4 million will be withdrawn, resulting in an ending balance of \$6.2 million.

	<u>Begin Balance</u>	<u>Deposits</u>	<u>Withdrawals</u>	<u>Ending Balance</u>
2017	\$ 7,540,407	\$ 203,287,061	\$ (202,518,018)	\$ 8,309,450
2018	\$ 8,309,450	\$ 214,332,580	\$ (214,095,547)	\$ 8,546,483
2019	\$ 8,546,483	\$ 222,586,133	\$ (228,032,283)	\$ 3,100,333
2020	\$ 3,100,333	\$ 247,319,493	\$ (240,849,380)	\$ 9,570,446
2021	\$ 9,570,446	\$ 249,257,799	\$ (252,595,684)	\$ 6,232,561
2022	\$ 6,232,561	\$ 200,403,245	\$ (200,403,245)	\$ 6,232,561

2021 Figures are Unaudited

2022 Figures are Projected

Senior Debt Service Fund

The Senior Debt Service Fund provides for the payment of debt service on senior bonds. Deposits are made monthly in equal amounts, together with funds already on deposit, which are sufficient to meet scheduled debt service payments for a given year.

The Commission projects a beginning balance of \$7.4 million in 2022. Deposits made in 2022 are projected to be \$43.6 million and amounts withdrawn are projected to total \$43.5 million, resulting in a projected ending balance of \$7.5 million.

	Begin Balance	Deposits	Withdrawals	Ending Balance
2017	\$ 7,147,627	\$ 42,850,635	\$ (42,646,165)	\$ 7,352,097
2018	\$ 7,352,097	\$ 45,568,739	\$ (44,240,810)	\$ 8,680,026
2019	\$ 8,680,026	\$ 45,230,078	\$ (46,074,785)	\$ 7,835,319
2020	\$ 7,835,319	\$ 46,676,166	\$ (46,524,423)	\$ 7,987,062
2021	\$ 7,987,062	\$ 46,599,721	\$ (47,173,343)	\$ 7,413,440
2022	\$ 7,413,440	\$ 43,580,668	\$ (43,489,013)	\$ 7,505,095

2021 Figures are Unaudited

2022 Figures are Projected

- ➔ Deposits represent:
 - Transfers from the Revenue Fund
 - Amounts escrowed to pay debt service
 - Interest income received on the Senior Debt Service Fund
 - Interest earned is not transferred to Revenue Fund

- ➔ Withdrawals represent actual senior debt service payments

Senior Debt Service Reserve Funds

The Senior Debt Service Reserve Funds are maintained at a level sufficient to meet the respective requirements as outlined in the Bond Resolution. These funds are to be used in the event there are insufficient funds in the respective debt service funds. The requirement for each account is equal to the total maximum aggregate amount of principal and interest becoming due in any fiscal year for fixed rate bonds plus the maximum aggregate amount of principal and interest becoming due in any fiscal for variable rate bonds.

The 2022 beginning balance is projected at \$45.0 million. The projected deposit for 2022 is \$0.6 million, and the projected withdrawal is \$0.6 million, resulting in an ending balance of \$45.0 million.

	Begin Balance	Deposits	Withdrawals	Ending Balance
2017	\$ 44,213,737	\$ 1,264,153	\$ (1,190,000)	\$ 44,287,889
2018	\$ 44,287,889	\$ 4,315,685	\$ (1,355,000)	\$ 47,248,574
2019	\$ 47,248,574	\$ 1,453,382	\$ (1,435,000)	\$ 47,266,956
2020	\$ 47,266,956	\$ 1,966,133	\$ (2,675,000)	\$ 46,558,089
2021	\$ 46,558,089	\$ 934,387	\$ (2,500,000)	\$ 44,992,476
2022	\$ 44,992,476	\$ 562,406	\$ (562,406)	\$ 44,992,476

2021 Figures are Unaudited
2022 Figures are Projected

- ➔ Deposits to the Senior Debt Service Reserve represents:
 - Interest Income received on the fund
 - Additional monthly accruals deposited

- ➔ Any excess reserve gets transferred to the Revenue Fund

- ➔ Reserve Requirement is equal to \$43,716,045

- ➔ In the Reserve Fund is \$43,716,045 cash, as well as \$7,168,001 in a surety policy

- ➔ Assets valued at amortized cost

Operating Reserve Fund

The Operating Reserve Fund receives deposits as needed to meet the requirements outlined in the Bond Resolution. The purpose of the Operating Reserve Fund is to provide funds if at any time the amount on deposit in the Operating Account is insufficient to meet operating expenses that are payable, or if there are insufficient funds in the MWRA Assessment Fund to pay the MWRA charges due. The Operating Reserve Fund requirement is equal to one-sixth, or two months of the Commission's projected annual operating expenses and MWRA charges.

The Commission's beginning balance in 2022 is projected to be \$55.8 million. The Commission projects deposits to equal \$1.2 million and withdrawals to equal \$0.7 million resulting in a year-end balance projection of \$56.3 million.

	<u>Begin Balance</u>	<u>Deposits</u>	<u>Withdrawals</u>	<u>Ending Balance</u>
2017	\$ 47,005,939	\$ 1,778,793	\$ (400,000)	\$ 48,384,732
2018	\$ 48,384,732	\$ 2,036,607	\$ (500,000)	\$ 49,921,339
2019	\$ 49,921,339	\$ 2,940,070	\$ (450,000)	\$ 52,411,409
2020	\$ 52,411,409	\$ 2,576,469	\$ -	\$ 54,987,878
2021	\$ 54,987,878	\$ 1,150,996	\$ (355,000)	\$ 55,783,874
2022	\$ 55,783,874	\$ 1,249,298	\$ (697,298)	\$ 56,335,874

2021 Figures are Unaudited
2022 Figures are Projected

- ➔ Withdrawals represent transfers of earned interest to the Revenue Fund
 - Withdrawals equals any excess reserves

- ➔ 2022 Requirement equals one-sixth of the MWRA Assessment plus one-sixth of the Direct Expenses

Insurance Reserve Fund

The Insurance Reserve Fund receives deposits as required to maintain the balance at a level sufficient to cover the costs of pending claims against the Commission, as certified annually by the Commission's insurance consultant.

Currently, the Commission utilizes the Insurance Reserve Fund to pay all damage claims in excess of \$10,000. Deposits in 2022 are projected for \$24,959 and the withdrawal amount is projected for \$24,959, resulting in a projected ending balance of \$2.0 million for 2022.

	Begin Balance	Deposits	Withdrawals	Ending Balance
2016	\$ 1,559,564	\$ 2,110	\$ (350,000)	\$ 1,211,674
2017	\$ 1,211,674	\$ 5,024	\$ (40,000)	\$ 1,176,698
2018	\$ 1,176,698	\$ 35,552	\$ -	\$ 1,212,250
2019	\$ 1,212,250	\$ 475,260	\$ -	\$ 1,687,510
2020	\$ 1,687,510	\$ 438,996	\$ (129,773)	\$ 1,996,733
2021	\$ 1,996,733	\$ 29,951	\$ (29,951)	\$ 1,996,733
2022	\$ 1,996,733	\$ 24,959	\$ (24,959)	\$ 1,996,733

2021 Figures are Unaudited
2022 Figures are Projected

- ➔ Deposits reflect interest income received on Insurance Reserve Fund
- ➔ Withdrawals represent interest income transferred to the Revenue Fund

MWRA Assessment Fund

The MWRA Assessment Fund receives monthly deposits of one-twelfth of the MWRA Assessment payable in a given fiscal year. Scheduled payments are made monthly in ten equal monthly payments (excluding January and July) to satisfy the MWRA's wholesale water and sewer charges.

The ending balance in 2021 equals \$15.1 million. The ending balance in 2021 is the beginning balance projected in 2022. Deposits in 2022 are projected for \$247.4 million and the withdrawal amount is projected for \$247.2 million, resulting in an ending balance of \$15.2 million.

	Begin Balance	Deposits	Withdrawals	Ending Balance
2017	\$ 18,840,880	\$ 218,952,258	\$ (218,461,866)	\$ 19,331,272
2018	\$ 19,331,272	\$ 227,312,124	\$ (227,082,054)	\$ 19,561,342
2019	\$ 19,561,342	\$ 233,528,838	\$ (235,986,344)	\$ 17,103,836
2020	\$ 17,103,836	\$ 230,070,043	\$ (241,623,293)	\$ 5,550,586
2021	\$ 5,550,586	\$ 252,897,037	\$ (243,396,224)	\$ 15,051,399
2022	\$ 15,051,399	\$ 247,352,142	\$ (247,158,902)	\$ 15,244,639

2021 Figures are Unaudited

2022 Figures are Projected

➔ Deposits represent

- Transfers from the Revenue Fund
- Interest income

➔ Withdrawals reflect

- Payments to the MWRA
- Transfers of Interest Income to the Revenue Fund

Renewal and Replacement Reserve Fund

The Renewal and Replacement (“R & R”) Reserve Fund is intended to provide additional funds for R & R projects if there are insufficient funds in the Renewal and Replacement Account to pay for these projects. In addition, this fund may also be used to pay debt service if certain other funds are insufficient to meet this purpose. The requirement for this fund is 25% of the budgeted R & R expenditures for the year.

The Commission projects \$4.7 million for its beginning balance in 2022. Deposits for 2022 are projected at \$1.5 million and withdrawals at \$58,410 resulting in an ending balance of \$6.1 million.

	<u>Begin Balance</u>	<u>Deposits</u>	<u>Withdrawals</u>	<u>Ending Balance</u>
2017	\$ 3,805,716	\$ 195,608	\$ -	\$ 4,001,324
2018	\$ 4,001,324	\$ 345,763	\$ -	\$ 4,347,086
2019	\$ 4,347,086	\$ 76,556	\$ (240,000)	\$ 4,183,642
2020	\$ 4,183,642	\$ 105,571	\$ -	\$ 4,289,213
2021	\$ 4,289,213	\$ 383,625	\$ -	\$ 4,672,838
2022	\$ 4,672,838	\$ 1,498,410	\$ (58,410)	\$ 6,112,838

2021 Figures are Unaudited
2022 Figures are Projected

- ➔ Deposits represent interest earned
- ➔ Withdrawals reflect interest transfers to the Revenue Fund
- ➔ Fully funded at the beginning of year

General Fund

Deposits to the General Fund must occur on the last business day of the year and may be held and applied by the Commission for any use or purpose. The Commission is currently using the General Fund as a repository for the funds, which are required to satisfy the Commission's obligation to the Massachusetts Pollution Abatement Trust.

As illustrated below, the December 2021 year-end balance equals \$2,141, which represents the projected 2022 beginning balance. The Commission projects an ending balance of \$2,141 for 2022.

	<u>Begin Balance</u>	<u>Deposits</u>	<u>Withdrawals</u>	<u>Ending Balance</u>
2017	\$ 2,370,616	\$ 56,600	\$ (549,745)	\$ 1,877,471
2018	\$ 1,877,471	\$ 55,195	\$ (380,000)	\$ 1,552,666
2019	\$ 1,552,666	\$ 58,000	\$ (1,598,000)	\$ 12,666
2020	\$ 12,666	\$ 190	\$ (10,715)	\$ 2,141
2021	\$ 2,141	\$ -	\$ -	\$ 2,141
2022	\$ 2,141	\$ -	\$ -	\$ 2,141

2021 Figures are Unaudited
2022 Figures are Projected

- ➔ Deposits reflect
 - Transfers from Revenue Fund
 - Interest Income

- ➔ Deposits into General Fund incorporate any expenses for SRF loans in the following year

- ➔ Withdrawals represent
 - Principal and Interest payments on loans to Massachusetts Pollution Abatement Trust

Stabilization Fund

The Rate Stabilization Fund, as established in the Bond Resolution, is to be used to minimize the rate impact of extraordinary cost increases, such as large increases in the MWRA Assessments to the Commission; or significant increases in interest rates on the Commission’s variable rate debt. The Stabilization Fund Requirement is defined in the Resolution as an amount equal to 4% of the aggregate principal amount of Outstanding Variable Rate Bonds (referred to as the “Stabilization Fund Resolution Requirement”). The Resolution also provides discretion to the Commission to make additional deposits to the Stabilization Fund and to withdraw amounts as needed to fund Commission expenses.

Currently, the Commission policy, which was amended in December 2000, further states that the amount on deposit in the Stabilization Fund shall equal the greater of the Rate Stabilization Fund Resolution Requirement or 10% of the previous fiscal year’s net-billed charges. If at the start of the fiscal year the balance of the Rate Stabilization Fund is projected to exceed such requirements then the Commission on the last business day of the current fiscal year may transfer to the Revenue Fund an amount up to the greater of 20% of such excess or \$20 million, but in either case, an amount not to exceed \$20 million in any one fiscal year.

The Commission has been very aggressive in managing the funding and utilization of the Rate Stabilization Fund to have the greatest impact of future rate mitigation. The recent amendment to the policy ensures that funds withdrawn at a sensible pace that mitigates sharp ratepayer increases and permits the availability of the surplus balance for future fiscal years.

The Commission projects the 2022 year-end balance to equal \$62.4 million.

	Begin Balance	Deposits	Withdrawals	Ending Balance
2017	\$ 64,956,984	\$ 1,003,581	\$ (3,945,000)	\$ 62,015,565
2018	\$ 62,015,565	\$ 4,109,457	\$ (1,125,000)	\$ 65,000,022
2019	\$ 65,000,022	\$ 1,146,106	\$ (6,210,000)	\$ 59,936,128
2020	\$ 59,936,128	\$ 2,295,819	\$ (19,370,000)	\$ 42,861,947
2021	\$ 42,861,947	\$ 16,071,385	\$ (115,000)	\$ 58,818,332
2022	\$ 58,818,332	\$ 4,283,229	\$ (735,229)	\$ 62,366,332

2021 Figures are Unaudited

2022 Figures are Projected

- ➔ Deposits represent transfers from the Revenue Fund plus Interest Income
- ➔ Withdrawals reflect transfers to other Commission funds
- ➔ Commission has solicited the Board of Commissioners to modify the policy on Rate Stabilization so that future anticipated increases might be gradually implemented

THIS PAGE INTENTIONALLY LEFT BLANK

The Commission

Commission Organization

The Boston Water and Sewer Commission is overseen by a three-member Board of Commissioners appointed by the Mayor of Boston, subject to approval by the City Council. The primary responsibility of the Board is to ensure the sound economical and efficient operation and maintenance of the systems to ensure the highest quality services to the City of Boston. The Board of Commissioners is also responsible for setting clear financial and operational policy directives.

The Commission consists of five divisions: Executive, Operations, Engineering, Administration and Finance.

The Executive Division provides executive management, including policy formation and strategic planning, to the entire Commission. The Executive Division also represents the Commission in all legislative lobbying efforts pertaining to securing continued federal and state funded rate relief. This Division is also responsible for implementing and monitoring the Commission's affirmative action plans and ensuring the participation of women and minority owned businesses in obtaining goods, services contracts and safety management to the entire Commission. Additionally, the Executive Division represents the Commission in all litigation. The Human Resources Department is now part of the Executive Division and provides its employees with proactive personnel services. The Information Technology ("IT") Department is now part of the Executive Division and is responsible for the preservation of the Commission's technical infrastructure. The Executive Division is also comprised of the Commission's Safety and Training department which ensures that the Commission staff conduct themselves in a safe manner and receive the education necessary to do so. The Safety and Training department is also responsible for the management and maintenance of the Commission's automotive fleet for the entire Commission.

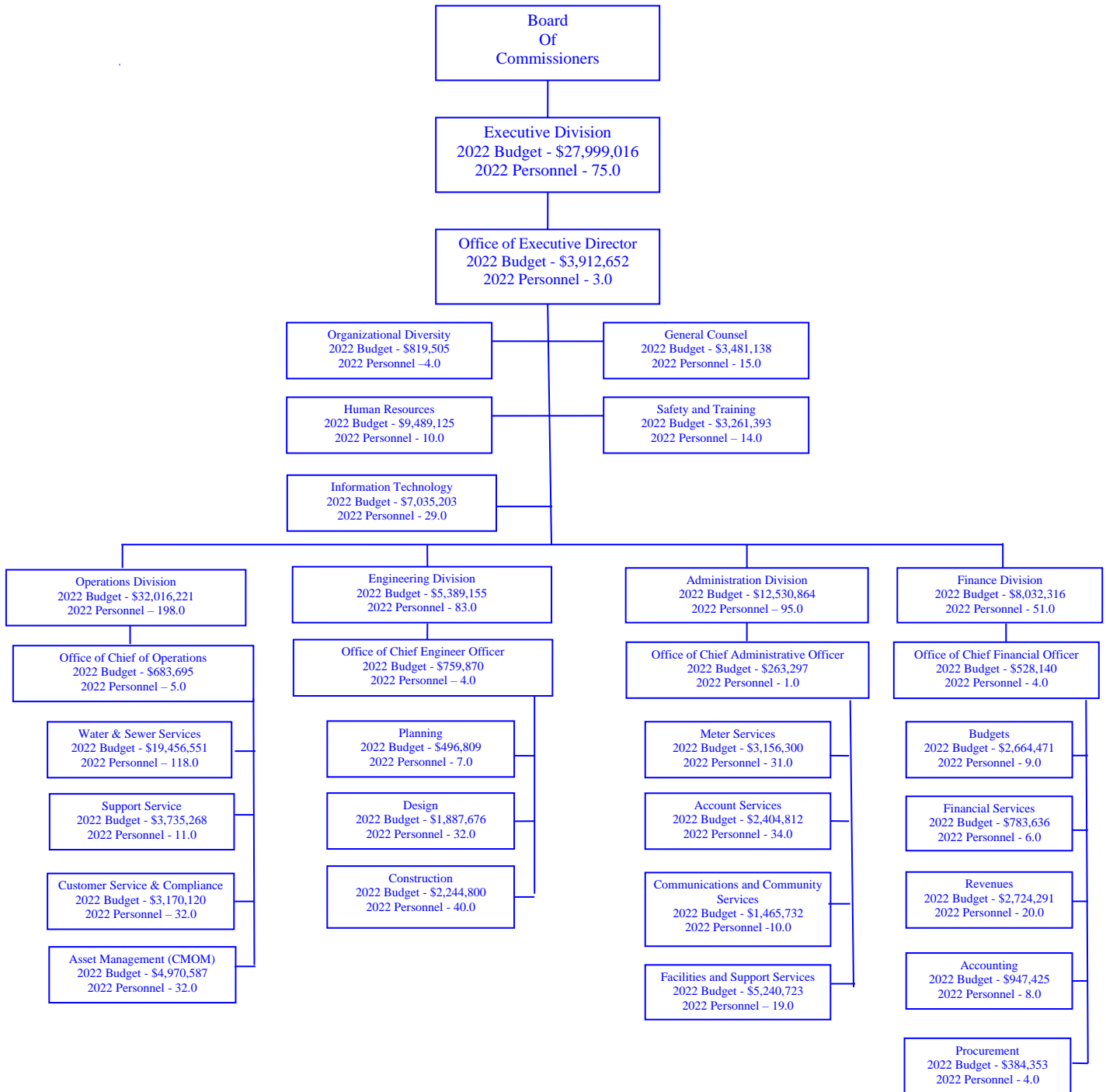
The Operations Division ensures the ongoing maintenance and emergency repairs to the Commission's water and sewer mains, service connections, hydrants and drains. The Division is also responsible for inventory control.

The Engineering Division is responsible for high quality, reliable water, sewer and drainage services. These services are achieved by effectively planning, designing, managing and providing contract compliance for the construction of the Commission's Capital Improvement Projects.

The Administration Division provides the Commission and the Commission's customers with administrative support services. The Administration Division provides its employees with proactive personnel services. This Division is responsible for representing the Commission at various public and community meetings, maintaining collections, customer services and the installation and repair of meters and the provision of facilities and support services.

The Finance Division provides effective management of the Commission's revenues and all its resources. The Finance Division accomplishes this through its financial budgeting, rate setting, accounting and cash management, billing and adjustments. This Division is also responsible for debt financing, investment management, providing procurement, investigate, document and resolve meter problems and erratic consumption.

Commission-Wide Organizational Chart

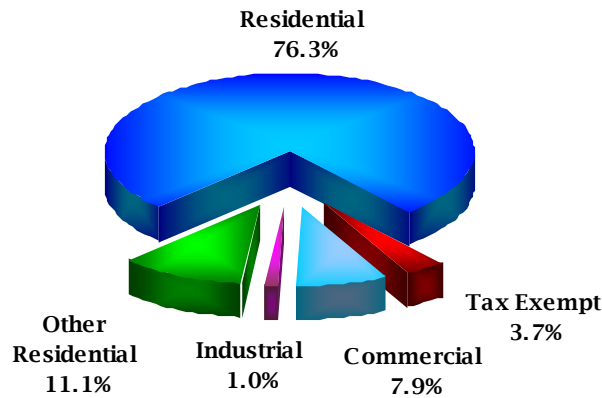


The Commission

Customer Base

The Commission provides water and sewer services to residential, commercial, industrial, public, private and non-profit institutional properties throughout the city. The distribution of the Commission’s 88,172 accounts in 2021 was as follows: 76.3% were one to three family dwellings; other residential dwellings accounted for 11.1%. Commercial customers represented 7.9%; Tax-exempt customers accounted for an additional 3.7%; the remaining 1.0% of the customer base is made of the industrial customers. It should be noted that the Boston Housing Authority, which is tax exempt and is the Commission’s largest customer, falls into the classification “other residential.”

2021 Distribution of Customers by Account



Account Type by Land Code	Number of Accounts	% of Total Accounts
Residential	67,232	76.3%
Other Residential	9,793	11.1%
Commercial	7,007	7.9%
Tax Exempt	3,278	3.7%
Industrial	862	1.0%
Total by Land Code	88,172	100.0%

In the above table and graph, one to three family dwellings have accounted for 76.3% of the total accounts. The actual consumption for residential accounts is much lower, using only 28.1%. Other residential customers accounted for an additional 23.0%. Tax Exempt organizations, which include hospitals, universities, religious institutions and government agencies, accounted for 23.9%. The commercial and industrial customers consumed 25.0% with 22.2% and 2.8% used, respectively.

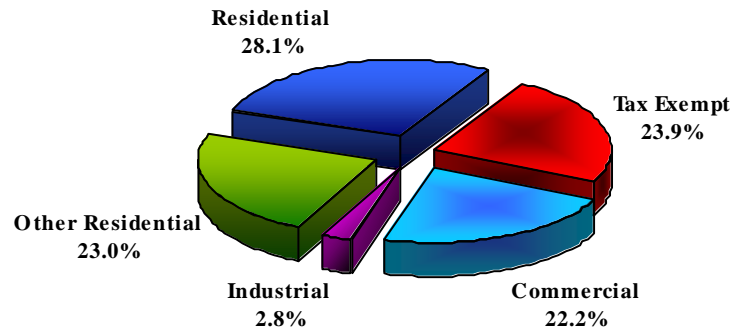
While the graph on the previous page highlights the distribution of the Commission’s customer

The Commission

base by account type, the graph below illustrates the distribution of customers by consumption. The non-residential segment of the customer base (commercial, industrial and tax-exempt), although representing only 12.6% of customer accounts generated 48.9% of retail water sales. These accounts are financially strong entities for which water and sewer charges typically represent a relatively small portion of their operating budget. The high percentage of annual consumption consumed by a relatively small number of accounts has had a positive financial impact on the Commission. These accounts, which include hospitals, universities, commercial and industrial businesses, provide the necessary stability and diversity to the customer base, while providing a steady stream of revenue on a monthly basis. The composition of the Commission’s customer base is highly regarded by credit rating agencies as a major financial strength. Together with the Commission’s proven record of financial management, we have achieved excellent credit ratings. The Commission has received the following ratings from credit agencies:

- “AAA” – S&P Global Ratings
- “Aa1” – Moody’s Investor Services

2021 Distribution of Customers by Consumption



Account Type by Consumption	Sales in Cubic Feet (000)	% of Total Consumption
Residential	670,552	28.1%
Other Residential	549,355	23.0%
Commercial	530,146	22.2%
Tax Exempt	571,881	23.9%
Industrial	66,080	2.8%
Total by Consumption	2,388,014	100.0%

2021 Commission Results

The Commission established 81 tactical and strategic goals and core program functions for 2021, which are highlighted in the “Program Goals and Budgets” section. The Commission has received numerous industry awards for excellence and achievements in the financial, engineering and environmental fields unrelated to any specific 2021 program goal but deserving of recognition. These achievements include:

2021 Distinguished Budget Presentation Award

For more than 25 consecutive years, BWSC has received the Government Finance Officers Associations (“GFOA”) Distinguished Budget Presentation Award. This is the highest form of recognition in governmental budgeting. This award recognized that the Commission’s Current Expense Budget met the GFOA program criteria as a policy document, an operation guide, a financial plan and a communications device.

Executive Division

Commission Budget Summary

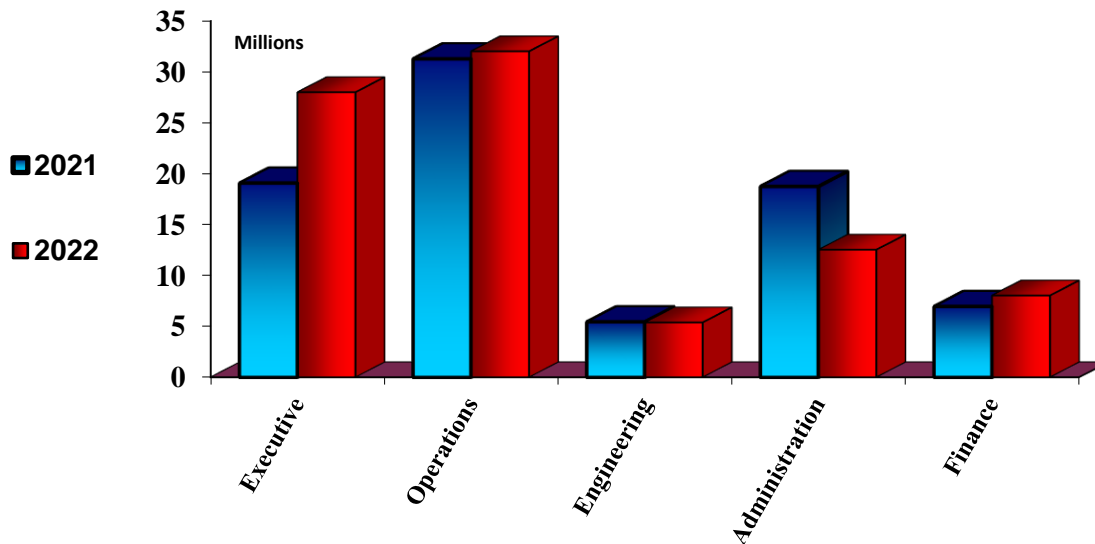
Division	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Executive	\$18,784,614	\$19,073,912	\$27,999,016	\$8,925,104	46.8%
Operations	\$27,884,509	\$31,276,937	\$32,016,221	\$739,284	2.4%
Engineering	\$5,254,353	\$5,446,949	\$5,389,155	(\$57,794)	-1.1%
Administration	\$16,184,303	\$18,748,194	\$12,530,864	(\$6,217,330)	-33.2%
Finance	\$6,215,150	\$6,952,126	\$8,032,316	\$1,080,190	15.5%
Total Direct Expenses	\$74,322,929	\$81,498,118	\$85,967,572	\$4,469,454	5.5%

Explanation of Major Variances

The Commission consists of five divisions: Executive, Operations, Engineering, Administration and Finance.

The Commission's current expense budget for 2022 is \$85,967,572 which is a 5.5% increase from the 2021 budget.

2021 versus 2022 Budget



Executive Division

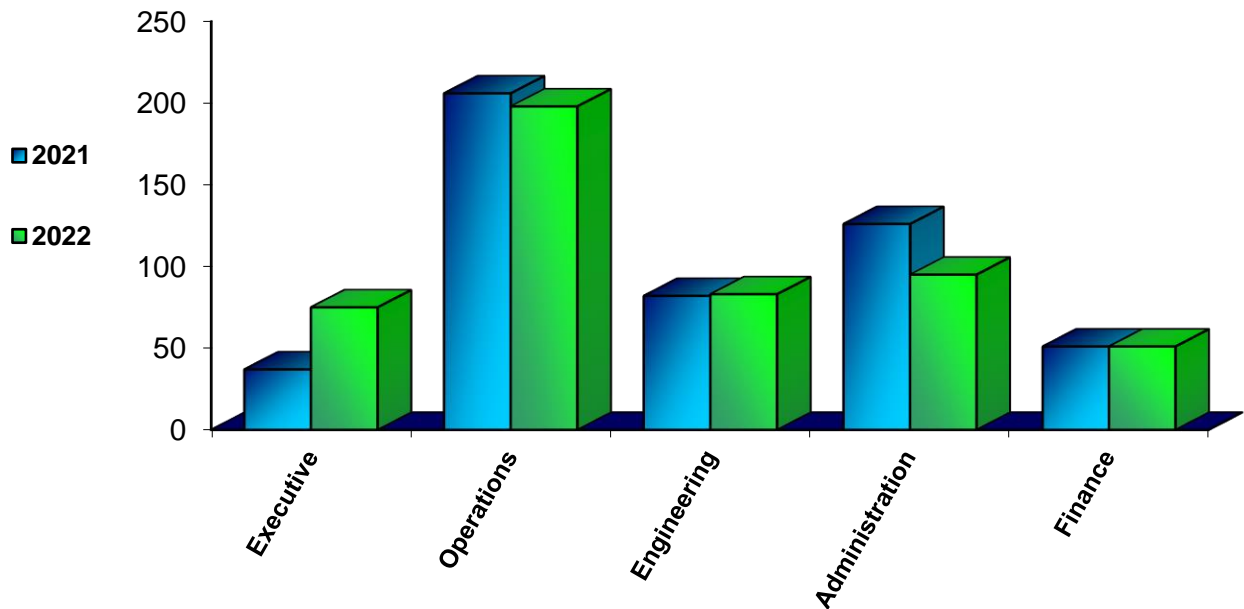
Commission Personnel Summary

Division	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Executive	36.0	37.0	75.0	38.0
Operations	206.0	206.0	198.0	(8.0)
Engineering	83.0	82.0	83.0	1.0
Administration	125.0	126.0	95.0	(31.0)
Finance	52.0	51.0	51.0	0.0
Total Budgeted Positions	502.0	502.0	502.0	0.0

Explanation of Personnel Changes

The Commission's 2022 position count is 502.0 FTE, there was no change from the 2021 approved position count. Other minor personnel changes are explained in the following pages with the breakdowns of each department.

2021 versus 2022 Personnel

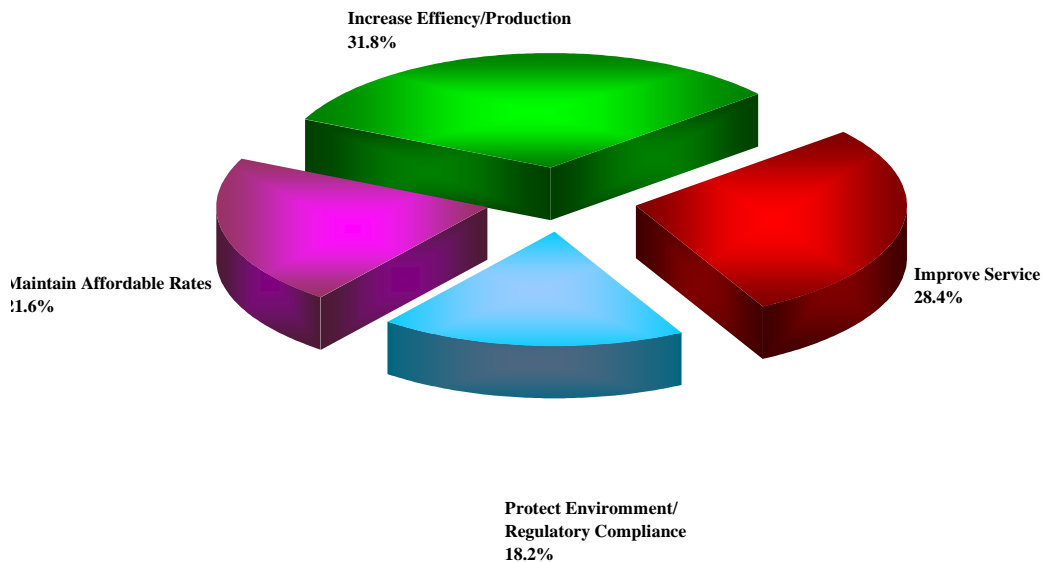


The 2022 Commission Goals

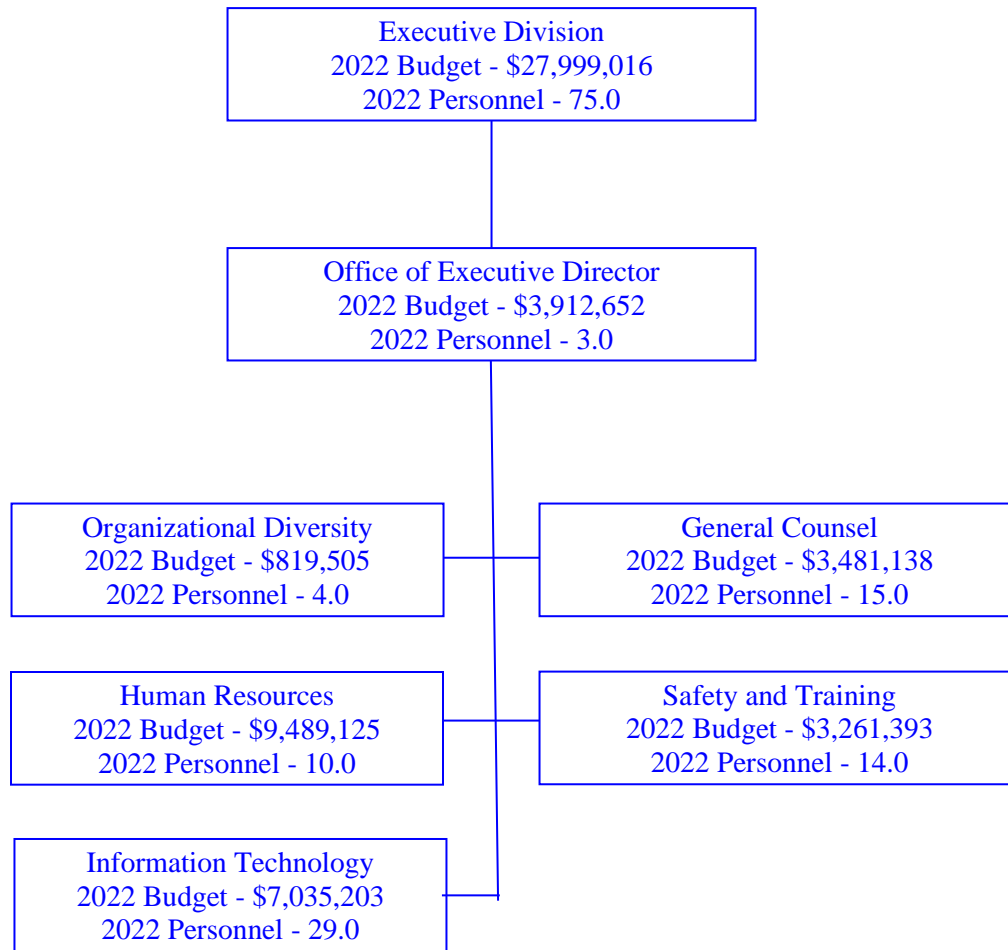
Boston had the first public water supply in the colonies and one of the first water distribution systems providing water to every home. When originally built, Boston’s water distribution and wastewater collections systems were state of the art. In light of evolving technologies and today’s stringent environmental and public health standards, the original systems no longer suffice. The Commission is continually dedicating resources to efforts such as improving operations and services to its ratepayers and controlling pollution to keep Boston’s harbor, beaches and rivers clean. The Commission fights aggressively to maintain equitable and affordable rates.

The Commission has established 83 strategic and tactical goals to accomplish in 2022. Upon successful completion, each goal will continue the Commission’s mission to provide the highest quality services at the lowest possible rates while ensuring the protection of the environment. The chart below depicts the breakdown of the 2022 goals by mission.

2022 Commission Goals by Mission



EXECUTIVE DIVISION



Executive Division

Executive Division Organization

The Executive Division consists of the Office of Executive Director and four other departments:

- **Organizational Diversity**
- **General Counsel**
- **Human Resources**
- **Information Technology**
- **Safety and Training**

Division Mission

The Executive Division provides executive management, including policy formation and strategic planning, to the entire Commission. The Executive Division also represents the Commission in all legislative lobbying efforts pertaining to securing continued federal and state funded rate relief. This Division is also responsible for implementing and monitoring the Commission’s affirmative action plans and ensuring the participation of women and minority owned businesses in obtaining goods, services contracts and safety management to the entire Commission. Additionally, the Executive Division represents the Commission in all litigation. The Human Resources Department is now part of the Executive Division and provides its employees with proactive personnel services. The Information Technology (“IT”) Department is now part of the Executive Division and is responsible for the preservation of the Commission’s technical infrastructure. The Executive Division is also comprised of the Commission’s Safety and Training department which ensures that the Commission staff conduct themselves in a safe manner and receive the education necessary to do so. The Safety and Training department is also responsible for the management and maintenance of the Commission’s automotive fleet for the entire Commission.

Division Budget Summary

Department	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Office of Executive Director	\$3,772,853	\$3,897,527	\$3,912,652	\$15,125	0.4%
Organizational Diversity	\$836,981	\$698,480	\$819,505	\$121,025	17.3%
General Counsel	\$3,617,727	\$3,883,535	\$3,481,138	(\$402,397)	-10.4%
Human Resources	\$8,143,545	\$9,418,463	\$9,489,125	\$70,662	0.8%
Information Technology	\$0	\$0	\$7,035,203	\$7,035,203	N/A
Safety and Training	\$939,772	\$1,175,907	\$3,261,393	\$2,085,486	177.4%
Total Direct Expenses	\$17,310,878	\$19,073,912	\$27,999,016	\$8,925,104	46.8%

Explanation of Major Variances

The 2022 budget for the Executive Division is \$27,999,016, an increase of \$8,925,104 or 46.8% from 2021. The variance is due to Office of Executive Director, Organizational Diversity, Human Resources, Information Technology and Safety and Training Departments line items.

Executive Division

Division Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of Executive Director	4.0	3.0	3.0	0.0
Organizational Diversity	3.0	4.0	4.0	0.0
General Counsel	14.0	15.0	15.0	0.0
Human Resources	8.0	9.0	10.0	1.0
Information Technology	0.0	0.0	29.0	29.0
Safety and Training	7.0	6.0	14.0	8.0
Total Personnel	36.0	37.0	75.0	38.0

Explanation of Personnel Changes

Office of Executive Director

There was no change in position count.

Organizational Diversity

There was no change in position count.

General Counsel

There was no change in position count.

Human Resources

One position transferred from Facilities and Support.

Information Technology

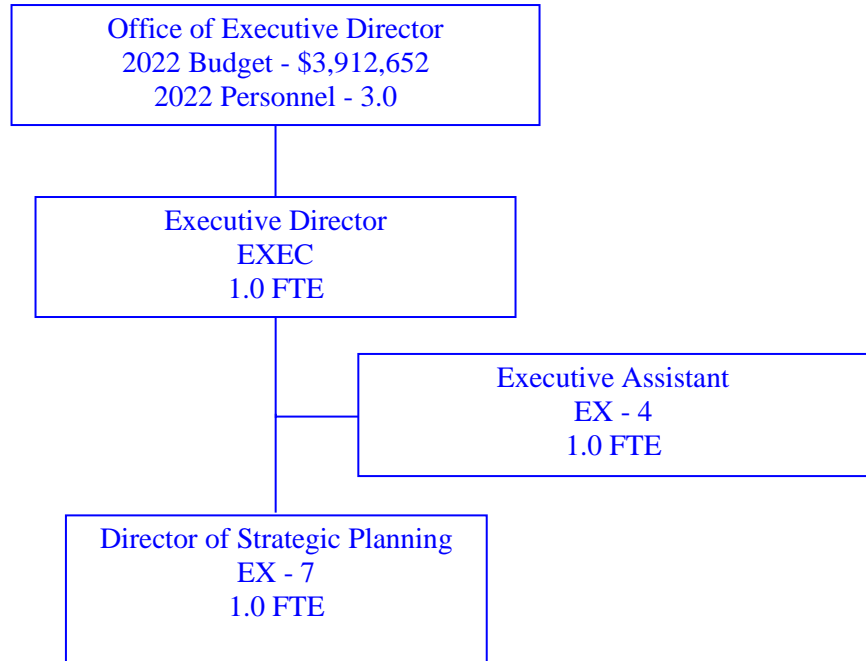
Twenty seven positions transferred from Information Technology from the Administration Division.

Two positions transferred from Account Services.

Safety and Training

Eight positions transferred from Fleet.

Office of the Executive Director



Executive Division

Office of Executive Director

Program Activities

- Provide policy formation and strategic planning
- Represent the Commission in legislative lobbying efforts to secure rate relief funding

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$3,462,961	\$3,460,208	\$3,491,345	\$31,137	0.9%
Labor Related Costs/Benefits	\$22,207	\$54,819	\$36,807	(\$18,012)	-32.9%
Supplies and Materials	\$475	\$4,500	\$4,500	\$0	0.0%
Professional Services	\$164,494	\$225,000	\$225,000	\$0	0.0%
Other Services	\$122,016	\$150,000	\$150,000	\$0	0.0%
Training/Seminar/Travel	\$700	\$3,000	\$5,000	\$2,000	66.7%
Total Direct Expenses	\$3,772,853	\$3,897,527	\$3,912,652	\$15,125	0.4%

Explanation of Major Variances

The 2022 budget for the Office of the Executive Director is \$3,912,652 an increase of \$15,125 or 0.4% from the budgeted amount for 2021. The variance is due to Wages and Salaries and Training/Seminar/Travel line items.

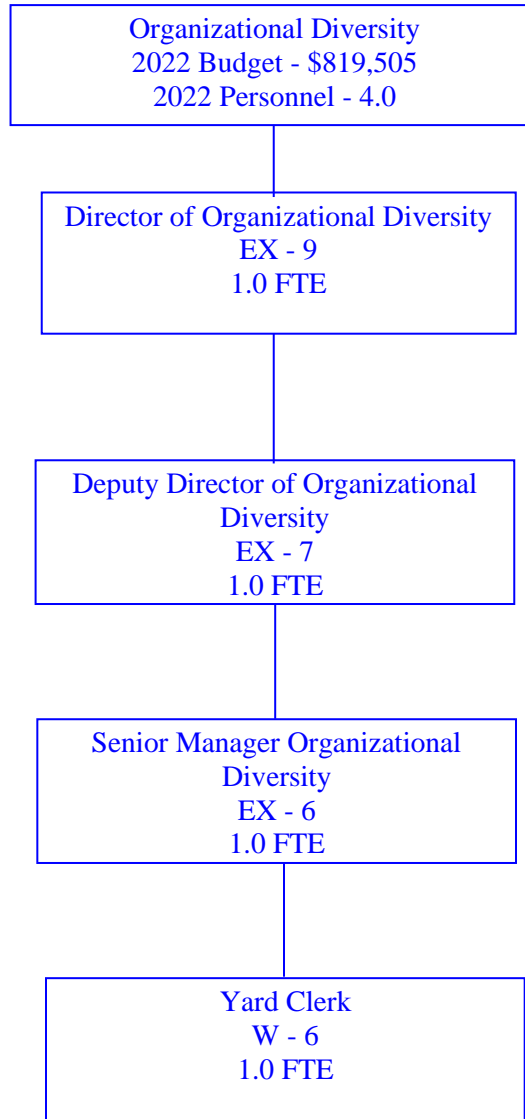
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of the Executive Director	4.0	3.0	3.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

Organizational Diversity



Executive Division

Organizational Diversity

Program Activities

- Assist the Commission in establishing, conducting and maintaining a recruitment program to assure Equal Employment Opportunity for all persons. Assist in the development and implementation of programs to maximize equal employment and promotional opportunity for minorities, woman and Vietnam-era veterans
- The Commission will use its best effort to ensure that Minority and Women Business Enterprise (“MBE/WBE”) participate in construction contracts to the extent that such firms are qualified and represented in the marketplace
- Ensure that the Commission implements all federal, state and local policies and provisions relative to contract compliance regarding construction contracts, professional service, procurement and work force compliance
- Direct the Commissions overall training needs, administers the terms of the Apprentice Program, administers the Tuition Reimbursement Program, administers the License Reimbursement Program and administers other contractual training initiatives

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$512,270	\$502,836	\$533,805	\$30,969	6.2%
Labor Related Costs/Benefits	\$14,455	\$40,644	\$70,700	\$30,056	73.9%
Supplies and Materials	\$0	\$2,500	\$2,500	\$0	0.0%
Professional Services	\$310,256	\$150,000	\$210,000	\$60,000	40.0%
Training/Seminar/Travel	\$0	\$2,500	\$2,500	\$0	0.0%
Total Direct Expenses	\$836,981	\$698,480	\$819,505	\$121,025	17.3%

Explanation of Major Variances

The 2022 budget for Organizational Diversity is \$819,505, an increase of \$121,025, or 17.3% from the budgeted amount for 2021. The variance is due to Wages and Salaries, Labor Related Costs/Benefits and Professional Services line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Organizational Diversity	3.0	4.0	4.0	0.0

Explanation of Personnel Change

There was no change to the position count.

2021 Program Goal Results

The number of regular Commission employees was 428 of which 186 were non-minority males and 50 were non-minority females, thus bringing the non-minority total to 236 or 55%. Minority males numbered 131 while minority females numbered 61, bringing the total minority count to 192 or 45%. The Organizational Diversity Department in conjunction with Legal Department and the Policy Committee worked on revising the current Affirmative Action Policy. This policy was voted on and approved by the Board of Commissioners on April 28, 2021. The Department will be working to implement this policy. 99 employees were trained this quarter. 46% non-minorities and 54% minorities. 13% were women.

2022 Program Goals and Objectives

Goal: Review, implement and administer the Commission's Affirmative Action Program so that equal employment opportunity is provided to all in hiring, training and promotion of minorities, women, disabled persons and Vietnam era veterans. Maintain throughout the City of Boston and its environs contact with appropriate persons and groups to recruit members of protected groups.

Objective: The objective of this goal is to create a work environment that is free from all discrimination and harassment concerning race, sex, religion, national origin and qualified veteran status.

Mission: Comply with Local, State and Federal Regulations

Goal: Consult with the Executive Director and Departmental Heads and craft procurement strategies that will increase the utilization of Minority and Women Owned Businesses for contracts under \$10,000, for contracts between \$10,000 and \$50,000, and for contracts over \$50,000.

Objective: The objective of this goal is to increase the utilization of Minority and Women Owned Businesses (MBE/WBE) in areas of small purchases where the procurement policy allows the use of "sound business practice" and use of written quotes from no fewer than 3 vendors.

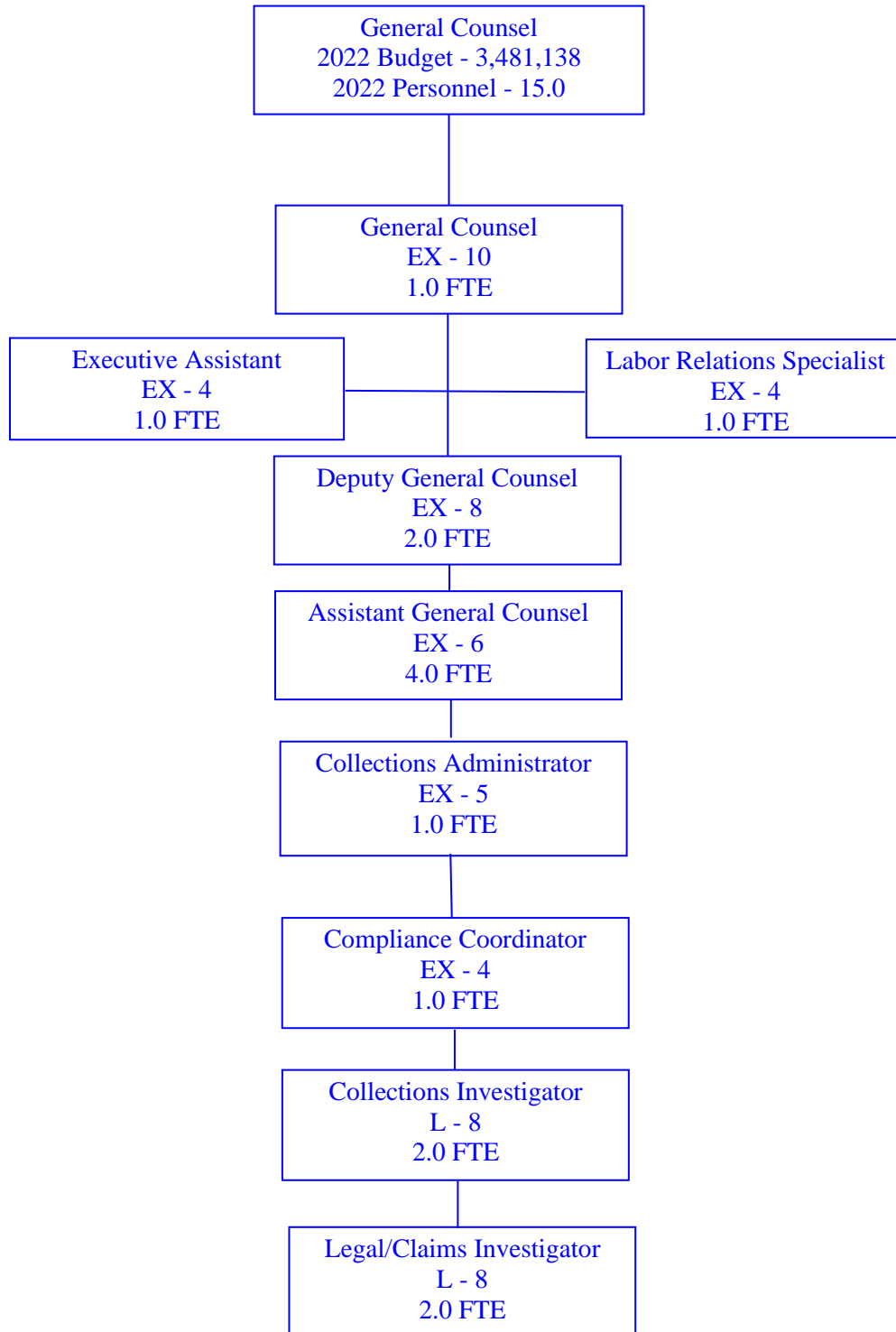
Mission: Comply with Local, State and Federal Regulations.

Goal: Periodically review with the Executive Director the progress of senior managers in furthering the achievement of the Commission's Affirmative Policy (AAP). Assist managers and supervisors who will implement AAP in identifying problem areas, establish goals and develop timelines. Implement action-oriented programs designed to remove any employment barriers, expand employment opportunities, and strive to achieve established workforce staffing goals and objectives.

Objective: Assist senior managers in furthering the achievement of the Commission's Affirmative Action Policy.

Mission: Comply with Local, State and Federal Regulations.

General Counsel



Executive Division

General Counsel

Program Activities

- Represent the Commission in all litigation matters before the courts of the Commonwealth and of the United States and before all administrative bodies
- Defend the Commission against all claims for personal injury and property damage
- Drafting and reviewing contracts, contract amendments and change orders
- Preparing and reviewing easements and licenses
- Drafting, reviewing and enforcing regulations governing the conduct and operation of the Commission adopted by the Board of Commissioners
- Drafting, analyzing, proposing, supporting or opposing legislation affecting the Commission
- Ensuring compliance with environmental regulations applicable to the Commission
- Provide legal analysis of issues before the Commission on a daily basis

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,540,056	\$1,434,146	\$1,797,627	\$363,481	25.3%
Labor Related Costs/Benefits	\$774,723	\$646,755	\$715,511	\$68,756	10.6%
Supplies and Materials	\$0	\$1,000	\$1,000	\$0	0.0%
Professional Services	\$331,471	\$710,000	\$750,000	\$40,000	5.6%
Other Services	\$15,697	\$10,000	\$10,000	\$0	0.0%
Insurance	\$949,730	\$930,634	\$0	(\$930,634)	-100.0%
Training/Seminar/Travel	\$1,890	\$6,000	\$7,000	\$1,000	16.7%
Damage Claims	\$4,160	\$145,000	\$200,000	\$55,000	37.9%
Total Direct Expenses	\$3,617,727	\$3,883,535	\$3,481,138	(\$402,397)	-10.4%

Explanation of Major Variances

The 2022 budget for General Counsel is \$3,481,138, a decrease of \$402,397 or 10.4% from the budgeted amount for 2021. The variance is due to the Insurance line item.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
General Counsel	14.0	15.0	15.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

2021 Program Goal Results

Legal/Risk Management staff reviewed the insurance requirements for all Commission contracts and developed better communication between other Commission Departments and the Legal Department ensuring that contractor's insurance requirements are met, streamlined the insurance certificate process and ensured that automobile accident reports were filled out correctly for insurance purposes. Work with Finance and consultants from Albert Risk implementing increased policy limits for professional Services contacts is ongoing.

2022 Program Goals and Objectives

Goal: For properties that are in delinquency, institute filing small claims against those accounts as necessary, first concentrating on larger landlord accounts as the Commission implements the new Umax billing system. This work will continue and improve on the existing small claims notices and alternative collections activities undertaken by the Legal department to complement collections activities by the Collections Department.

Objective: Increase collection against delinquent accounts and reduce aged receivables and collectible amounts owed to the Commission primarily for water and sewer service charges.

Mission: Increased Production or Efficiency Improvements.

Goal: Review and revise the Water Use Regulations and the Sewer Use Regulations. As the Commission moves forward in its compliance with the terms of the Consent Decree and the implementation of the new billing system, it is imperative that its regulations are updated to reflect the way the Commission performs its functions in operating and maintaining its water and sewer facilities as well as its billing procedures. The changes to the way the Commission operate requires a complete overhaul of its regulations.

Objective: Ensure that the regulations reflect Commission environmental and regulatory compliance in addition to conformity with the new billing system.

Mission: Improve/Develop Policy Procedures

Goal: Complete negotiations with Local Lodge 100, Council 93 and local 6. The contracts for these bargaining units expired on December 31, 2021.

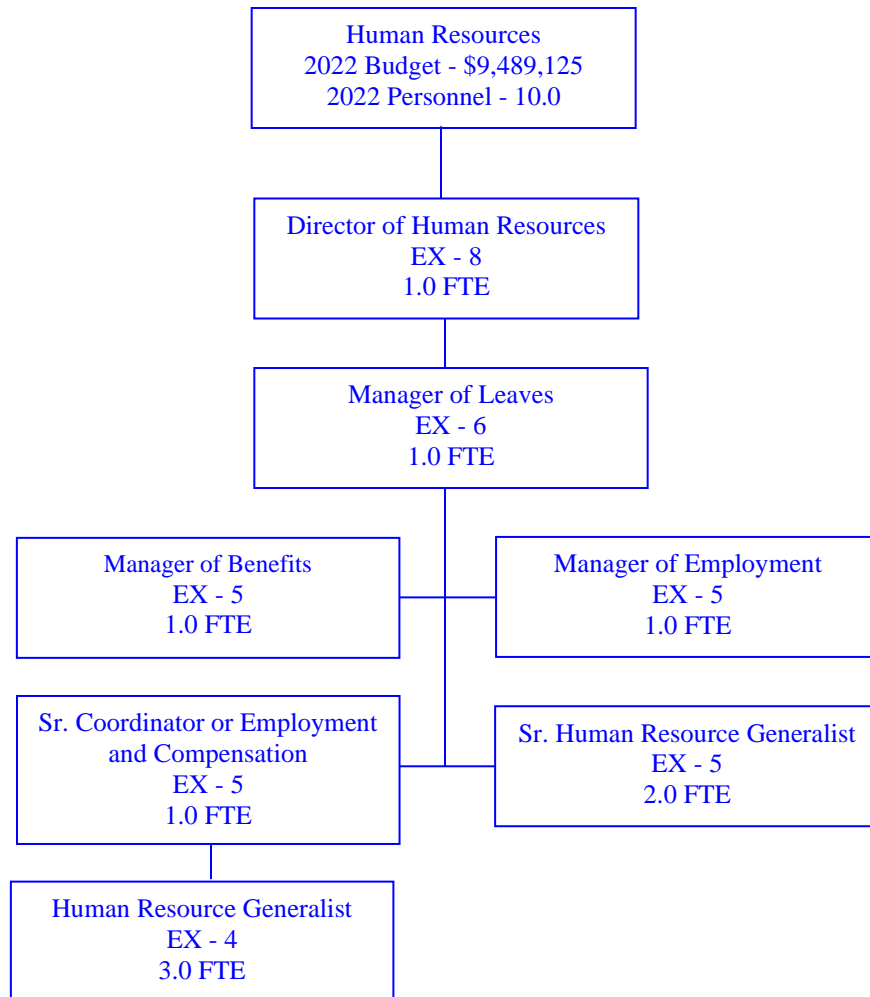
Objective: To engage in thoughtful negotiations with Commission bargaining units and establish agreements that are mutually beneficial to the Commission and to the individual employee.

Mission: Improved Customer/Employee/Investor Relations.

Department Maintenance Goals

Activity	2019 Actual	2020 Actual	2021 Actual	2022 Goal
Small Claims Cases	1,431	273	735	At Least 150/Month
Scheduled Hearings	8	0	0	Settled Before the Hearing Process

Human Resources



Executive Division

Human Resources

Program Activities

- Establish and monitor personnel policies and procedures
- Manage hiring activities
- Maintain staff knowledge on related issues
- Assist in research to develop collective bargaining strategies
- Manage employee benefits
- Oversee the performance appraisal process

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,134,137	\$1,052,705	\$1,357,450	\$304,745	28.9%
Labor Related Costs/Benefits	\$6,959,598	\$8,174,258	\$7,917,675	(\$256,583)	-3.1%
Supplies and Materials	\$1,745	\$3,000	\$4,000	\$1,000	33.3%
Professional Services	\$43,669	\$178,000	\$198,000	\$20,000	11.2%
Other Services	\$4,396	\$10,500	\$12,000	\$1,500	14.3%
Total Direct Expenses	\$8,143,545	\$9,418,463	\$9,489,125	\$70,662	0.8%

Explanation of Major Variances

The 2022 budget for Human Resources is \$9,489,125, an increase of \$70,662 or 0.8% from the budgeted amount for 2021. The variance is due to increases to the Wages and Salaries, Supplies and Materials, Professional Services and Other Services line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Human Resources	8.0	9.0	10.0	1.0

Explanation of Personnel Changes

One position transferred from Facilities and Support Services.

2021 Program Goal Results

Provided the Commission with a plan that will enhance hiring process, address clear career paths, training programs and digital recruitment process. Met with benefit Broker and identified valued plans for additional benefit offerings. Identified external candidates and develop scheduled comprehensive mass interview for hiring purposes of entry level positions with new COVID restrictions and BWSC protocols.

2022 Program Goals and Objectives

Goal: In the fiscal year of 2022 the Human Resources primary objectives are to fill vacant positions and develop a succession plan by collaborating with various departments to identify areas of deficiencies and areas of redundancies for the changing workforce.

Objective: To ensure that BWSC adopts a comprehensive plan that address the challenges it faces to attract and retain professional staff long-term with clear pathways for advancement. Develop clear benchmarks to measure plan success. Establish career paths that are both achievable and equitable with incentives and other flexible benefit programs.

Mission: Increased Production or Efficiency Improvements.

Goal: Collaborate with the Office of Organizational Diversity for fair hiring practices plan and programs for training workforce.

Objective: To ensure the commission adopts a comprehensive plan that addresses the challenges it faces in attracting and retaining long term with pathways for advancement.

Mission: Improved Customer/Employee/Investor Relations

Goal: Redevelop evaluation process.

Objective: To develop and implement a better medium with which to measure and evaluate the workforce with a more equitable methodology where outstanding individuals may be recognized, and results may assist managers and supervisors to increase productivity and produce better efficiencies.

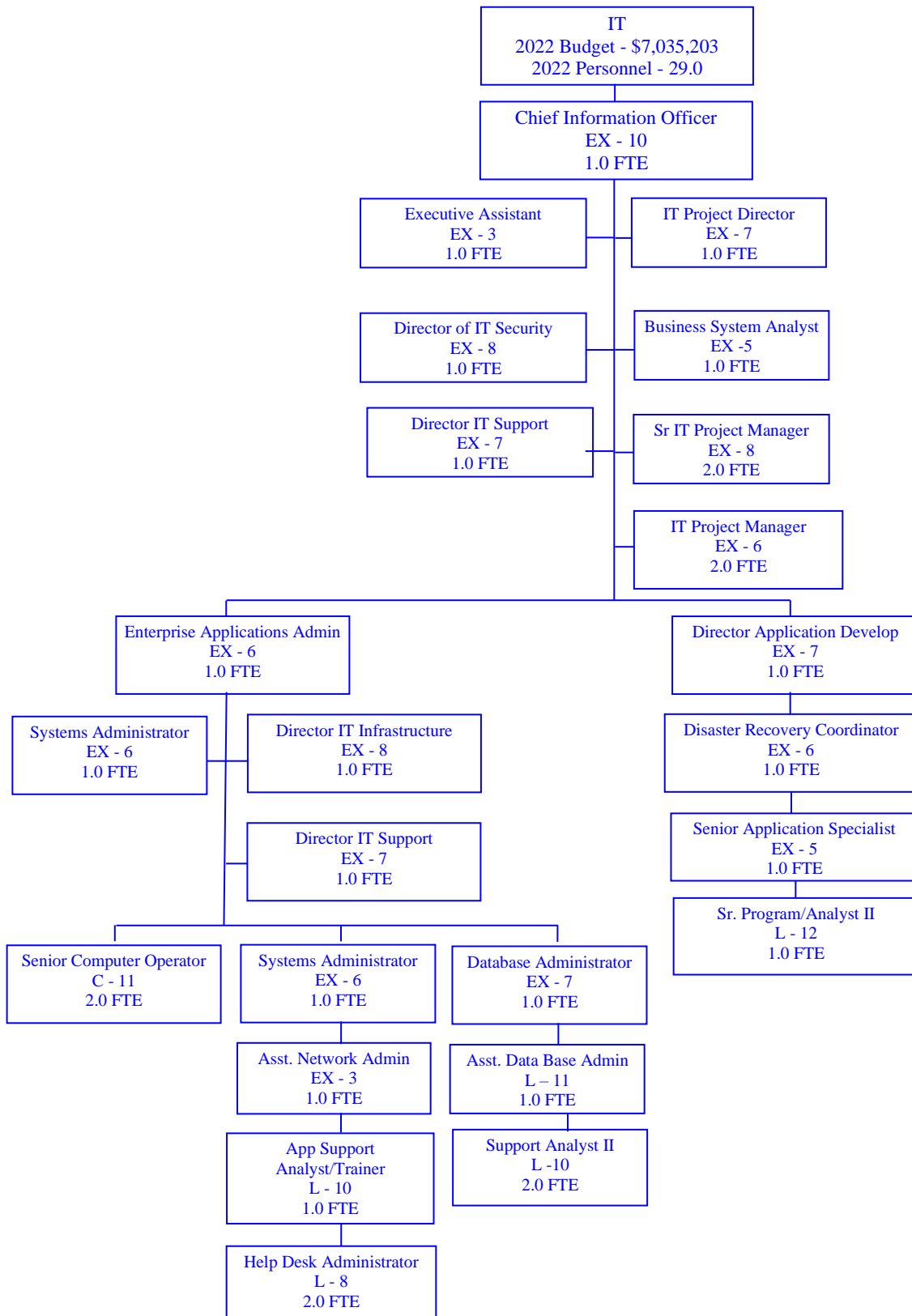
Mission: Improve/Develop Policy/Procedure.

Goal: Continue to offer and implement new benefits programs. Collaborate with IT to update current management system or identify and implement a new Benefit self-service management system/portal.

Objective: Increase benefit offerings to the Commission work force with a self-service component to increase efficiencies.

Mission: Improved Customer/Employee/Investor Relations.

Information Technology (IT)



Executive Division

Information Technology (IT)

Program Activities

The mission of Information Technology (IT) is to provide support to all end users of computing resources throughout the Commission in a manner that maximizes the effectiveness of their duties while minimizing the expense to the Commission. Support is provided for the following activities:

- Billing functions
- Customer Service support
- Financial Management System support
- Human Resources System support
- Geographic Information System support
- Work order processing for Engineering and Operations
- Fleet Management System support
- Word Processing for all departments
- PC training and support
- Applications Development
- Miscellaneous computer support

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$2,961,448	\$2,964,653	\$3,532,029	\$567,376	19.1%
Labor Related Costs/Benefits	\$154,985	\$109,895	\$102,044	(\$7,851)	-7.1%
Supplies and Materials	\$51,395	\$76,500	\$76,500	\$0	0.0%
Repair and Maintenance	\$1,505,502	\$1,729,500	\$2,221,000	\$491,500	28.4%
Utilities	\$457,051	\$506,280	\$564,480	\$58,200	11.5%
Professional Services	\$338,983	\$390,500	\$220,500	(\$170,000)	-43.5%
Space and Equipment Rentals	\$249,430	\$327,400	\$308,400	(\$19,000)	-5.8%
Training/Seminar/Travel	\$0	\$0	\$10,250	\$10,250	N/A
Total Direct Expenses	\$5,718,794	\$6,104,728	\$7,035,203	\$930,475	15.2%

Explanation of Major Variances

The 2022 budget for the IT Department is \$7,035,203, an increase of \$930,475 or 15.2% from 2021. The variance is due to the increases in the Wages and Salaries, Repair and Maintenance, Utilities and Training/Seminar/Travel line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
IT	28.0	27.0	29.0	2.0

Explanation of Personnel Changes

Twenty seven positions transferred from Information Technology from the Administration Division.

Two positions transferred from Account Services.

2021 Program Goal Results

We completed the development phase of the GIS Upgrade. This included the completion of the following: Creating of test plans for upgraded software. (B) Creation of new geodatabase in SQL Server. (C) installation and configuration of new version of City works. The RFP for the management consulting firm was completed, The RFP was advertised in December. Updating of Engineering Applications was completed in quarter three. IT ticketing system upgrade was also completed in quarter three. Cybersecurity enhancements are continuing.

2022 Program Goals and Objectives

Goal: GIS update

Objective: Currently our ArcGIS version is 10.3.1. ESRI is currently offering mature support for this version which means support will end within 1 year. The goal of this project is to upgrade all GIS software to the latest version 10.8.

Mission: Increased Production or Efficiency Improvements

Goal: Configure UMAX and GIS for Stormwater Billing.

Objective: Update GIS schema to enable tracking of Parcel/Account relationship, Discounts, ERU's. Configure UMAX to add new Stormwater service to accounts. Create interface between GIS and UMAX to synchronize stormwater data.

Mission: Increased Fiscal Controls.

Goal: Implement a new Executive Dashboard System to replace our existing Management Portal.

Objective:

- Replace the current Management Portal.
- Create a new Operations Dashboard.
- Create a new Executive Dashboard.

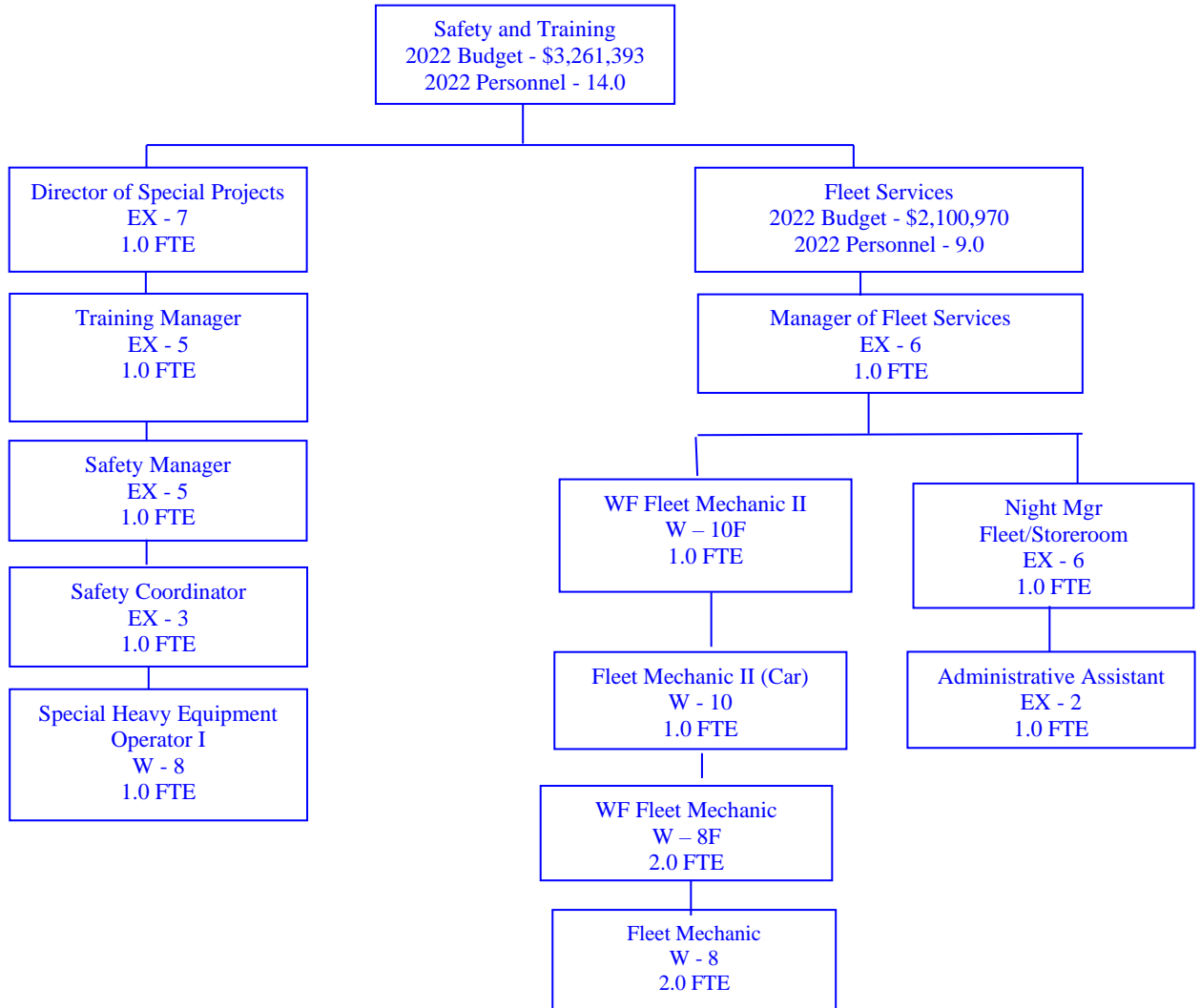
Mission: Increased Production or Efficiency Improvements

Goal: Replace IT Backup Systems.

Objective: Evaluate new backup systems and choose one that can deliver full/incremental/differential backups at a reasonable cost.

Mission: Improve/Develop policy/Procedure

Safety and Training



Executive Division

Safety and Training

Program Activities

- Emergency Response Plan Training
- Participate in the New Employee Orientations
- Prepare Monthly Utilization Report
- Increase the amount of employees OSHA Certified
- Create a hands-on in-house training program
- Review and update all safety and training forms and documentation

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$656,546	\$661,667	\$1,458,610	\$796,943	120.4%
Overtime	\$0	\$0	\$25,000	\$25,000	-
Labor Related Costs/Benefits	\$41,358	\$19,495	\$19,138	(\$357)	-1.8%
Supplies and Materials	\$33,751	\$21,900	\$567,900	\$546,000	2493.2%
Repair and Maintenance	\$44,916	\$60,145	\$747,645	\$687,500	1143.1%
Space and Equipment Rentals	\$0	\$0	\$8,500	\$8,500	-
Other Services	\$0	\$0	\$16,100	\$16,100	-
Professional Services	\$163,201	\$412,700	\$418,500	\$5,800	1.4%
Total Direct Expenses	\$939,772	\$1,175,907	\$3,261,393	\$2,085,486	177.4%

Explanation of Major Variances

The 2022 budget for Safety and Training is \$3,261,393, an increase of \$2,085,486 or 177.4% from the budgeted amount for 2021. The variance is due to an increase in the Wages and Salaries, Overtime, Supplies and Materials, Repair and Maintenance, Space and Equipment Rentals, Other Services and Professional Services line items. This increase is primarily due to the Fleet department moving under Safety and Training.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Safety and Training	7.0	6.0	14.0	8.0

Explanation of Personnel Changes

Eight positions transferred from Fleet department under Operations Division.

2021 Program Goal Results

The Commission Purchased a new excavation vactor that came with a two-day hands-on training for six members of the Commission. Additionally, the Commission began to work on changes to the confined space entry training and through a GAP analysis, we decided to work with NEWWA on a new saw cutting training. The Safety Department received the new gas monitors which have the ability for the attendant up top view on their iPhone or iPad of the gas readings the employee in the confined space is experiencing. A draft on the program which has significantly higher standards than OSHA has been distributed and is awaiting feedback from the managers effected by the changes. The staff began reviewing the Job Hazard Analysis of all the major functions here at the Commission. An Industrial Hygienist was contacted to assist the Commission with collecting the necessary data to prove we are not required to have a written Respiratory Protection Program. We were notified that the Department of Labor agrees with our interpretation and the results of the analysis we conducted. The studies proved that we are undeniably well within the OSHA regulations when it comes to air quality, respiratory protection and hearing protection.

2022 Program Goals and Objectives

Goal: Implement and complete OSHA 30-Hour training for all Construction Inspectors, Field Supervisors and key field staff.

Objective: Since becoming an OSHA state, the Commission has made progress in providing its employees with high quality training to ensure they have the knowledge necessary to identify potential hazards. By providing this training key staff will have the knowledge to create a safer work environment for our field employees and hired contractors.

Mission: Limit Commission Liability/Increase Safety.

Goal: Work on creating and implementing 4 new trainings designed to increase safety and efficiency. The training consists of: Service Tapping; Hands-on Hydrant Repair; Commission GIS Map Reading; Air Borne Exposure and Hazard Analysis; and Proper Gas Saw Cutting and Techniques.

Objective: Through site inspections and conversations during the Training Committee meetings, areas of additional training needs have been identified. Using the data collected during the year we have decided to provide new trainings to better protect Commission staff. The goal is to create a safer and more efficient staff.

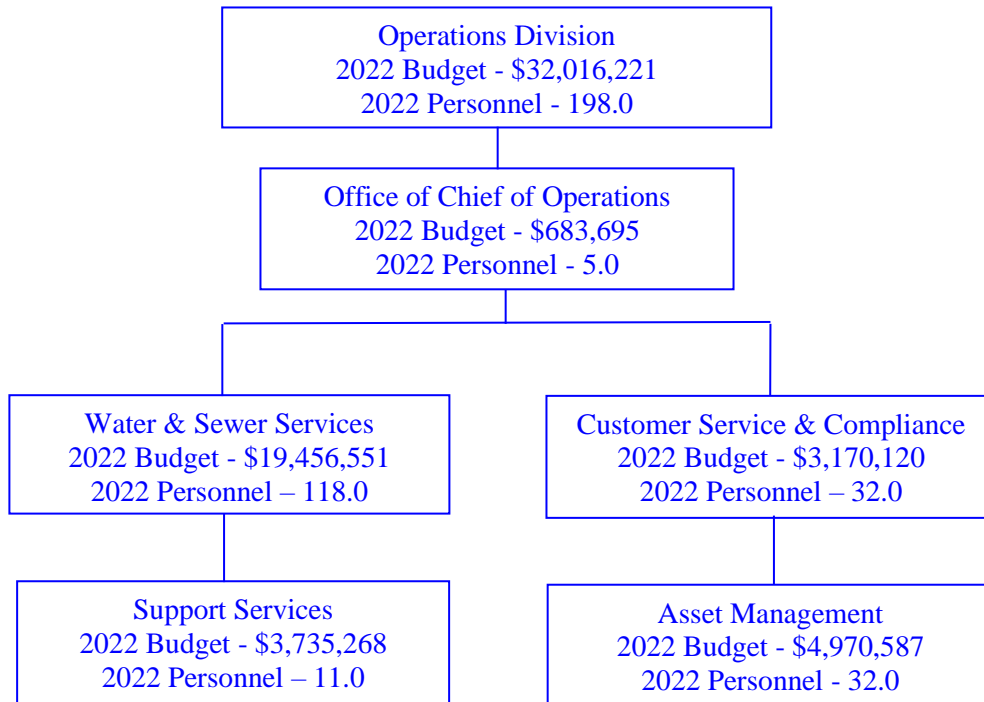
Mission: Provide Staff Training.

Goal: Identify all potential confined space entries and create a job hazard analysis for each location.

Objective: The Safety department has determined the need to better engineer out confined space hazards. By identifying each unique hazard, the Safety department can determine ways to best remove a hazard or determine if administrative tools would be helpful.

Mission: Limit Commission Liability/Increase Safety

OPERATIONS DIVISION



Operations Division

Operations Division Organization

The Operations Division includes the Office of the Chief of Operations Services and four other departments:

- **Water & Sewer Services**
- **Support Services**
- **Customer Service & Compliance**
- **Asset Management**

Division Mission

The Operations Division is primarily responsible for ensuring the ongoing maintenance and operability of the Commission's buildings and water, sewerage and drainage infrastructures

Division Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Office of Chief of Operations	\$535,452	\$538,833	\$683,695	\$144,862	26.9%
Water & Sewer Services	\$16,142,455	\$17,869,155	\$19,456,551	\$1,587,396	8.9%
Support Services	\$4,160,122	\$5,192,898	\$3,735,266	(\$1,457,632)	-28.1%
Customer Service & Compliance	\$2,855,921	\$2,975,679	\$3,170,120	\$194,441	6.5%
Asset Management	\$4,257,315	\$4,700,372	\$4,970,587	\$270,215	5.7%
Total Direct Expenses	\$27,951,265	\$31,276,937	\$32,016,219	\$739,282	2.4%

Explanation of Major Variances

The 2022 budget for the Operations Division is \$32,016,219, an increase of \$739,282 or 2.4% from the budgeted amount for 2021. The variance is attributed to the Office of the Chief of Operations, Water & Sewer Services, Customer Service & Compliance and Asset Management Departments' line items.

Operations Division

Division Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of Chief of Operations Services	4.0	4.0	5.0	1.0
Water & Sewer Services	117.0	120.0	118.0	(2.0)
Support Services	21.0	19.0	11.0	(8.0)
Customer Service & Compliance	32.0	31.0	32.0	1.0
Asset Management	32.0	32.0	32.0	0.0
Total Personnel	206.0	206.0	198.0	(8.0)

Explanation of Personnel Changes

Office of Chief of Operations

One position transferred from Water and Sewer Services.

Water & Sewer Services

One position transferred to Office of Chief of Operations.
One position transferred to Customer Service & Compliance.

Support Services

Eight positions transferred to Fleet department under Safety and Training.

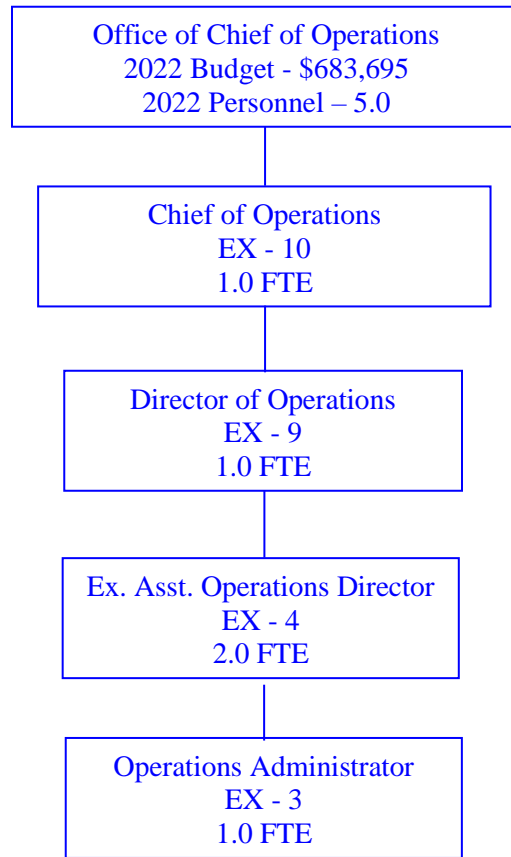
Customer Service & Compliance

One position transferred from Water & Sewer Services.

Asset Management

There was no change to the position account.

Office of Chief of Operations



Operations Division

Office of Chief of Operations

Program Activities

- Oversee all activities engaged in by Water and Sewer Services, Day and Night Operations, Support Services, Customer Service and Compliance and Asset Management/CMOM Departments.

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$510,586	\$508,911	\$643,499	\$134,588	26.4%
Labor Related Costs/Benefits	\$19,429	\$19,922	\$15,196	(\$4,726)	-23.7%
Professional Services	\$0	\$0	\$10,000	\$10,000	#DIV/0!
Training/Seminar/Travel	\$2,437	\$13,000	\$15,000	\$2,000	15.4%
Total Direct Expenses	\$532,452	\$541,833	\$683,695	\$141,862	26.2%

Explanation of Major Variances

The 2022 budget for the Office of Operations Director is \$683,695, an increase of \$141,862 or 26.2% from the budgeted amount for 2021. The variance is due to the Wages and Salaries, Professional Services and Training/Seminar/Travel line items.

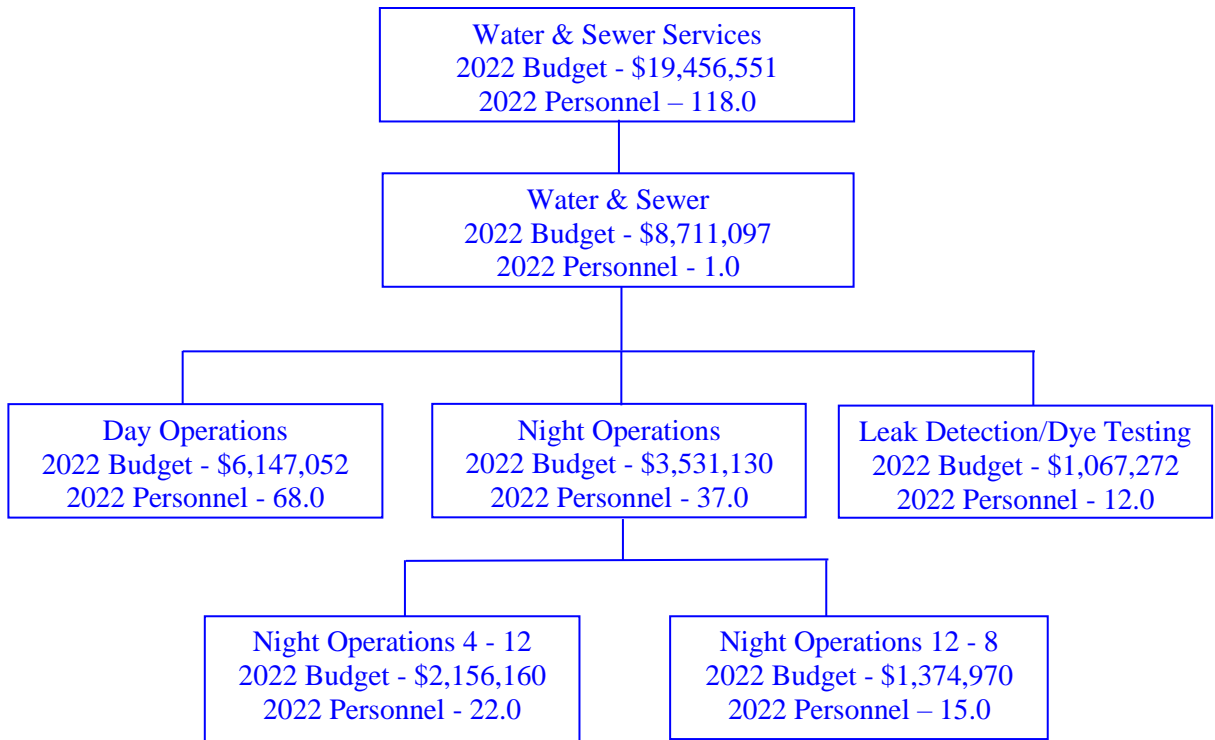
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of Operations Director	4.0	4.0	5.0	1.0

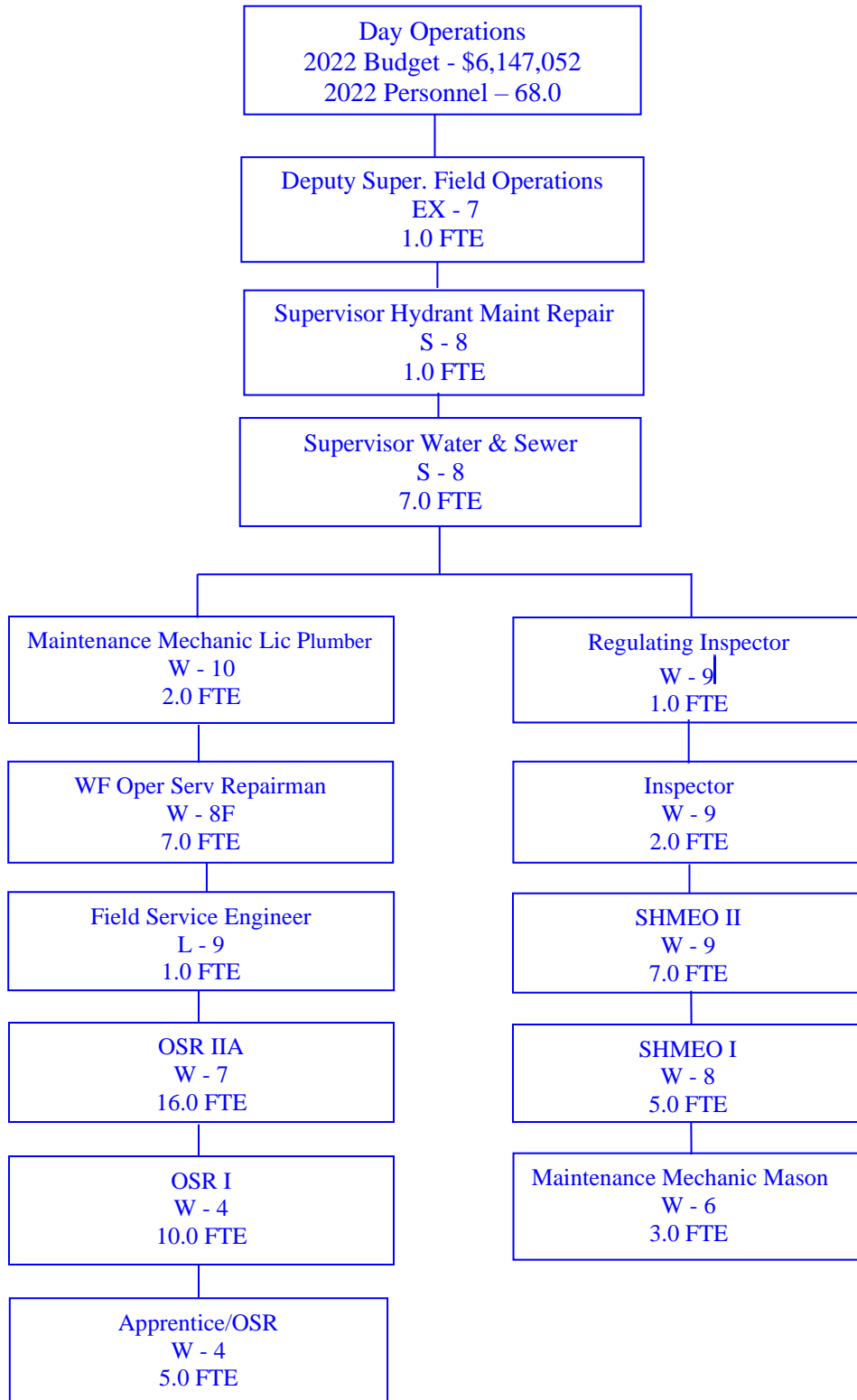
Explanation of Personnel Changes

One position transferred from Water and Sewer Services.

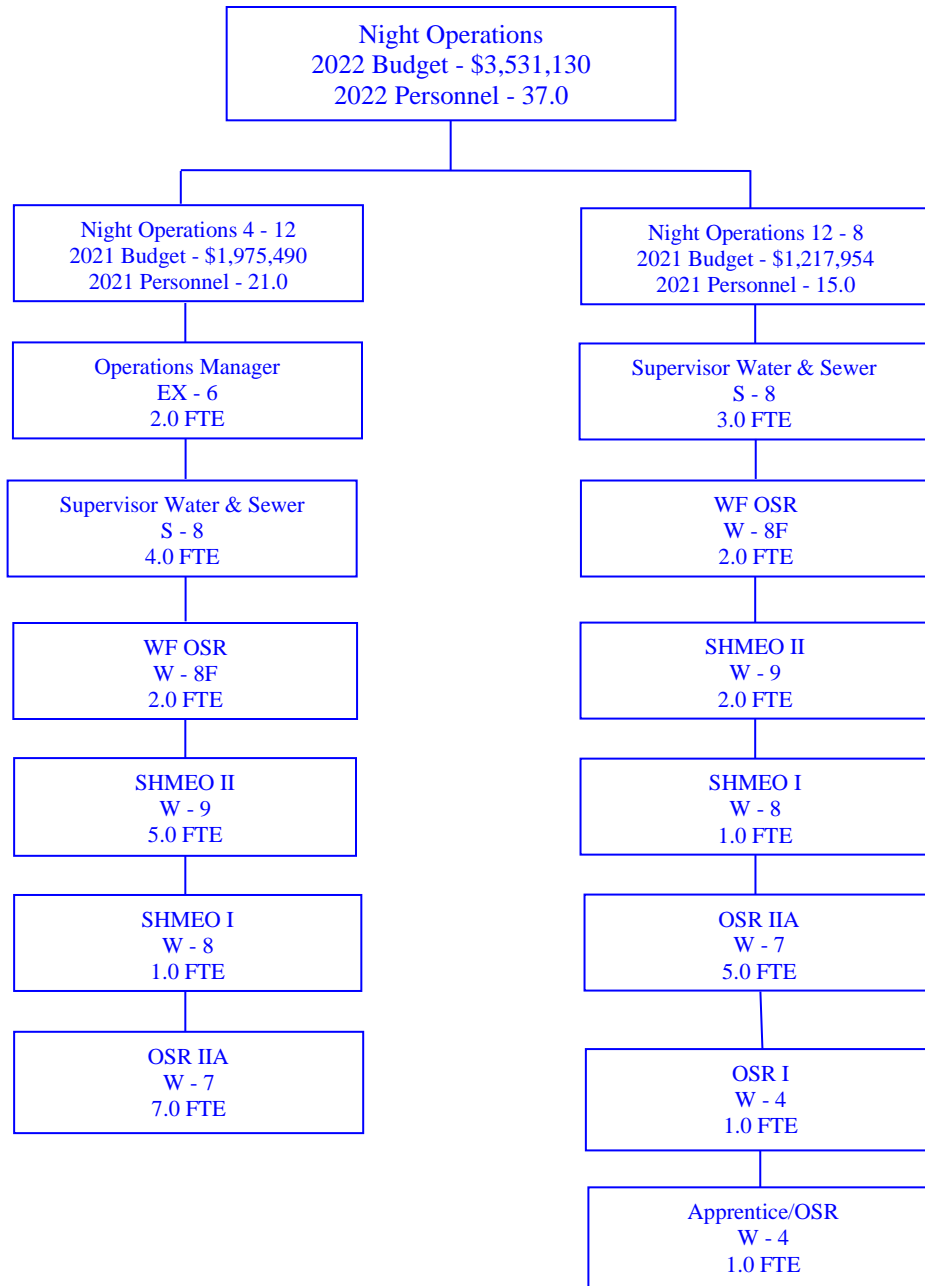
Water & Sewer Services



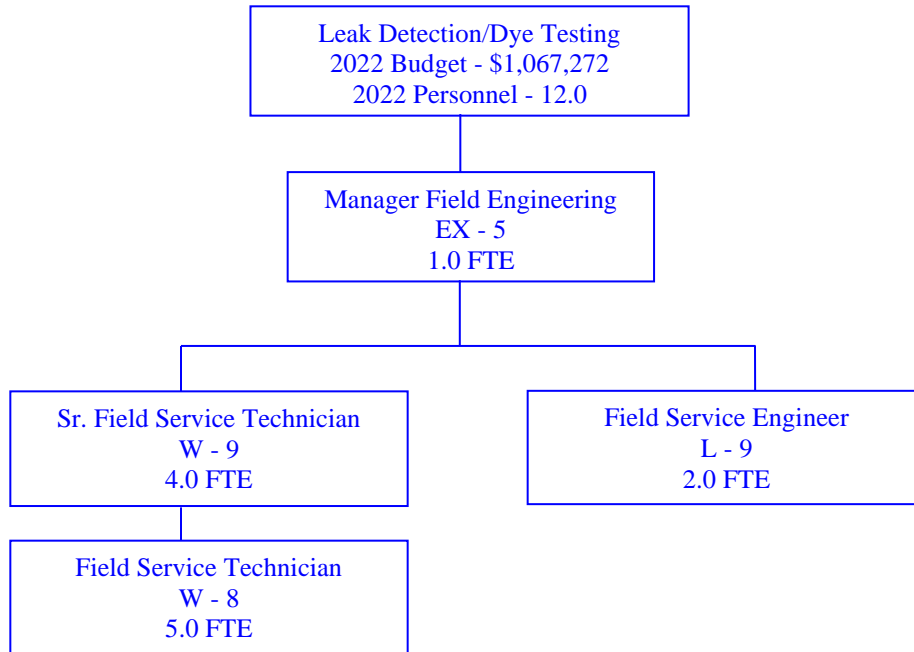
Day Operations



Night Operations



Leak Detection/Dye Testing



Operations Division

Water & Sewer Services

Program Activities

- Water & Sewer Services directs the operation and maintenance of the Commission's water, sewerage and drainage systems. The Department ensures the operability of the water and wastewater systems by efficiently maintaining and performing emergency repairs to water mains, service pipes, hydrants, gates, valves, catch basins, manholes and sewer and storm lines
- Increase water accountability by reducing the amount of water purchased from the MWRA through the continued implementation of the Commission's ongoing leak detection and MWRA Master Meter Monitoring programs
- Perform Fire Flow tests, Loss of Head tests, water pressure analysis and other diagnostic procedures as required
- Identify, through dye testing, improper sanitary connections to storm drains and identify sources of inflow and infiltration entering the sewer system
- Respond to hazardous material spills affecting the sewer system

Division Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$8,822,001	\$9,513,134	\$10,103,343	\$590,209	6.2%
Overtime	\$842,938	\$396,652	\$749,953	\$353,301	89.1%
Labor Related Costs/Benefits	\$169,872	\$81,350	\$65,247	(\$16,103)	-19.8%
Supplies and Materials	\$752,320	\$850,000	\$850,000	\$0	0.0%
Repair and Maintenance	\$5,132,503	\$6,205,000	\$6,855,000	\$650,000	10.5%
Other Services	\$397,288	\$750,000	\$750,000	\$0	0.0%
Inventory	\$5,840	\$23,000	\$23,000	\$0	0.0%
Capital Outlay	\$19,693	\$50,000	\$60,000	\$10,000	20.0%
Total Direct Expenses	\$16,142,455	\$17,869,136	\$19,456,543	\$1,587,407	8.9%

Explanation of Major Variances

The for 2022 budget for the Water & Sewer Services Department is \$19,456,543, an increase of \$1,587,407 or 8.9% from the 2020 budget. The variance is due to Wage and Salaries, Overtime, Repair and Maintenance and Capital Outlayline items.

Operations Division

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Water & Sewer Services	1.0	1.0	1.0	0.0
Day Operations	67.0	70.0	68.0	(2.0)
Night Operations	36.0	36.0	37.0	1.0
Leak Detection/Dye Testing	13.0	13.0	12.0	(1.0)
Total Personnel	117.0	120.0	118.0	(2.0)

Explanation of Personnel Changes

Water & Sewer Services

There was no change to the position count.

Day Operations

One position transferred to Office of Chief of Operations.
One position transferred to Customer Service and Compliance.

Night Operations

One position transferred from Leak Detection/Dye Testing.

Leak Detection/Dye Testing

One position transferred to Night Operations.

2021 Program Goal Results

Operations Staff performed 1,324 scratch tests and 160 lead pipe investigations. 233 lead pipe replacements were performed by Metro Equipment Corp. copper pipes were removed from various properties also. Investigation of SSO's were also performed by Operations Staff. Monthly preventative maintenance jet/vactor lines were also completed to prevent further SSO's.

2022 Program Goals and Objectives

Goal: The Operations Department will continue the effort to identify and remove publicly and privately-owned lead services in the City of Boston. The following methods will be used: Utilizing a vacuum excavation contract to identify unknown service pipe material. BWSC personnel to inspect water service pipe material, researching distance cards, as-builts, site plans, contract drawings and GSA's a material type can be assigned to most unknown water services. Also, Operations crews will remove 125 lead services from the public and private way. be assigned to most unknown water services.

Objectives: The objective is to eliminate any ambiguity of unknown services to ensure existing lead services are removed from the system.

Mission: Comply with Local, State and Federal Regulations

Goal: Establish a training for Commission crews on all three shifts regarding the Commission's Storm Response Protocols and the operation of the Commission's CCTV equipment

Objectives: To enable all shifts to inspect the Commission's key sewerage/drainage infrastructure locations prior, during and following a major weather event. Having all shifts trained on the CCTV equipment will allow a faster response on off-hour emergencies.

Mission: Increased Production or Efficiency Improvements.

Goal: The Operations Department will paint 300 hydrants throughout the City of Boston.

Objectives: To enhance and maintain the hydrants in the City of Boston.

Mission: Enhance Repair and Maintenance of Water and Wastewater System.

Operations Division

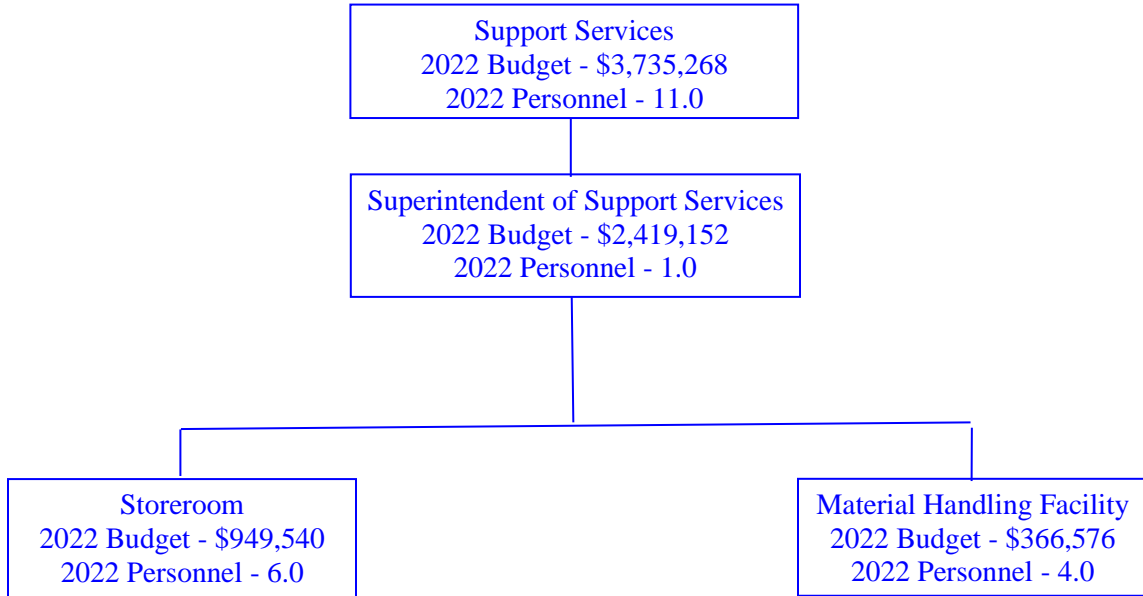
Department Maintenance Goals

Activity	2019 Actual	2020 Actual	2021 Actual	2022 Goal
<u>Investigations:</u>				
Sewer Lateral	332	365	391	391
Hydrant	1,595	1,649	1,749	1,749
Leak	854	629	627	627
Service Pipe	95	88	100	100
Frozen Pipe	38	8	30	30
Water Entering	251	190	260	260
Lead	117	110	399	399
Rusty Water	240	265	214	214
Leak Up To Owner (LUTO)	92	62	80	80
Catch Basin	724	490	580	580
Sewer/Drain	3,850	3,470	3,425	3,425
CSO Regulator	1,129	1,070	979	979
Tide Gate	811	814	765	765
Backflow Device	13,787	18,223	22,103	22,103
Hazardous & Oil Spill	17	9	7	7
Illegal Connection	6	9	6	6
SSO's Reported to DEP	85	68	75	75
Hydrant Illegal Opening	32	7	8	8
<u>Water & Sewer Main Breaks/Repair:</u>				
Water Mains	41	31	29	29
Sewer Mains	63	56	63	63
Hydrant Replacement	42	42	35	35
Hydrant Repair	402	385	339	339
<u>Permits:</u>				
Engineering Permits	430	328	192	192
Operations Permits	485	454	442	442
General Services	1,275	1,133	1,098	1,098
<u>Preventative Maintenance:</u>				
Vactored Meter Box	11	6	7	7
Vactored Gate Box	138	110	85	85
Cement Sidewalks	474	370	460	460
Valve Repack	6	4	6	6
LUTO Repair	90	61	75	75
Plate Handling	167	62	44	44
Waste Sediment Disposed/Recycled (tons)	4,141	3,769	3,817	3,817
Gallons Pumped Union Park (millions)	43	14	71	71

Operations Division

Activity	2019 Actual	2020 Actual	2021 Actual	2022 Goal
<u>Preventive Maintenance:</u>				
Main Pipe Flush (miles)	223	209	234	234
Hydrants Painted	1,053	2,796	3,027	3,027
Frame Reset (Water)	35	46	28	28
Frame Reset (Sewer)	333	384	417	417
Control Located	100	73	71	71
Control Reset	81	69	76	76
Mark Outs of Water and Sewer Infrastructure (Emergencies)	4,001	1,821	1,913	1,913
Excavation	729	653	1,044	1,044
Exercising of System Gates (Survey)	178	170	269	269
Hydrant Flush	298	358	674	674
Sewer Lines Jetted/Vectored (ft.)	433,643	405,145	393,522	393,522
Sewer Lines Rodded (ft.)	279	235	0	0
Bacteria Treatment	1,489	1,345	1,186	1,186
Service Pipe Repair	65	55	66	66
Service Pipe Relay	78	33	85	85

Support Services



Operations Division

Support Services

Program Activities

- Manage the Operations and Maintenance Contract for the Commission's nine pumping stations

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,511,556	\$1,542,196	\$953,285	(\$588,911)	-38.2%
Overtime	\$31,698	\$25,989	\$8,610	(\$17,379)	-66.9%
Labor Related Costs/Benefits	\$25,398	\$15,753	\$8,373	(\$7,380)	-46.8%
Supplies and Materials	\$667,325	\$1,038,370	\$640,000	(\$398,370)	-38.4%
Repair and Maintenance	\$801,810	\$1,251,000	\$825,000	(\$426,000)	-34.1%
Professional Services	\$1,110,639	\$1,300,000	\$1,300,000	\$0	0.0%
Space and Equipment Rental	\$2,114	\$7,500	\$0	(\$7,500)	-100.0%
Other Services	\$9,581	\$12,000	\$0	(\$12,000)	-100.0%
Total Direct Expenses	\$4,160,121	\$5,192,808	\$3,735,268	(\$1,457,540)	-28.1%

Explanation of Major Variances

The 2022 budget for the Support Services Department is \$3,735,268, an increase of \$1,457,540 or 28.1% from 2021. The variance is due to the Fleet Cost Center moving to the Executive Division.

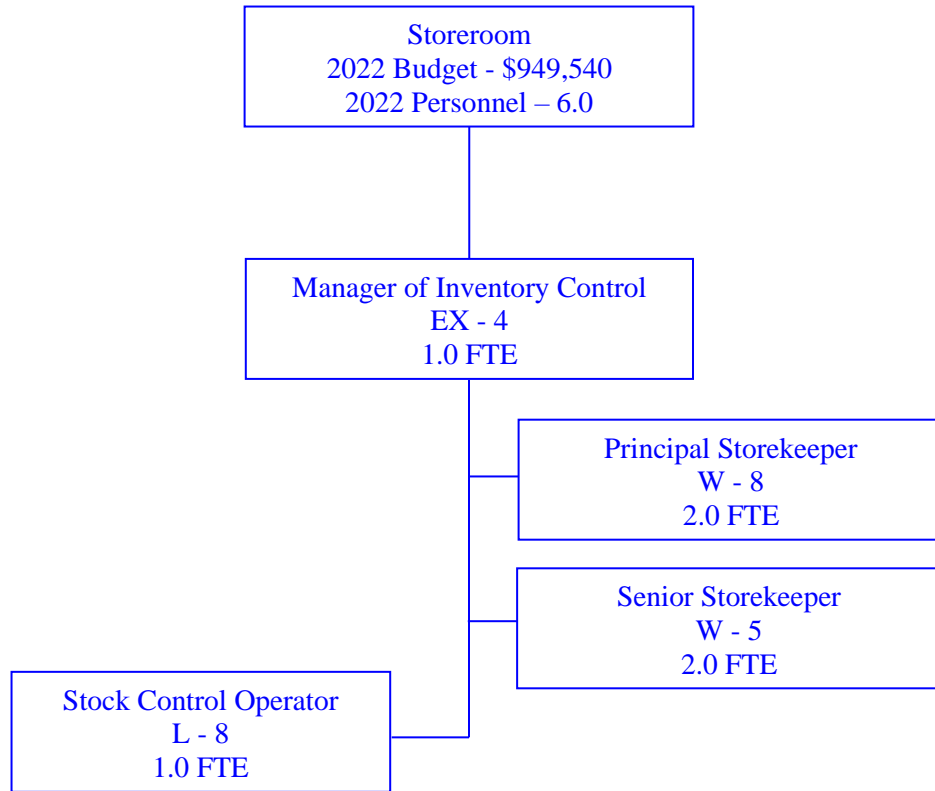
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Support Services	21.0	19.0	11.0	(8.0)

Explanation of Personnel Changes

Eight positions transferred to Fleet under Safety and Training.

Storeroom



Operations Division

Storeroom

Program Activities

- The Storeroom maintains an inventory of materials, supplies, equipment and tools necessary for the ongoing maintenance and repair activities of the Division

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$361,810	\$410,444	\$465,757	\$55,313	13.5%
Overtime	\$2,592	\$3,783	\$3,783	\$0	0.0%
Labor Related Costs/Benefits	\$3,645	\$0	\$0	\$0	#DIV/0!
Supplies and Materials	\$345,181	\$470,000	\$480,000	\$10,000	2.1%
Total Direct Expenses	\$713,228	\$884,227	\$949,540	\$65,313	7.4%

Explanation of Major Variances

The 2022 budget for the Storeroom Department is \$949,540 an increase of \$65,313 or 7.4% from 2021. The variance is due to the Wages and Salaries and Supplies and Materials line items.

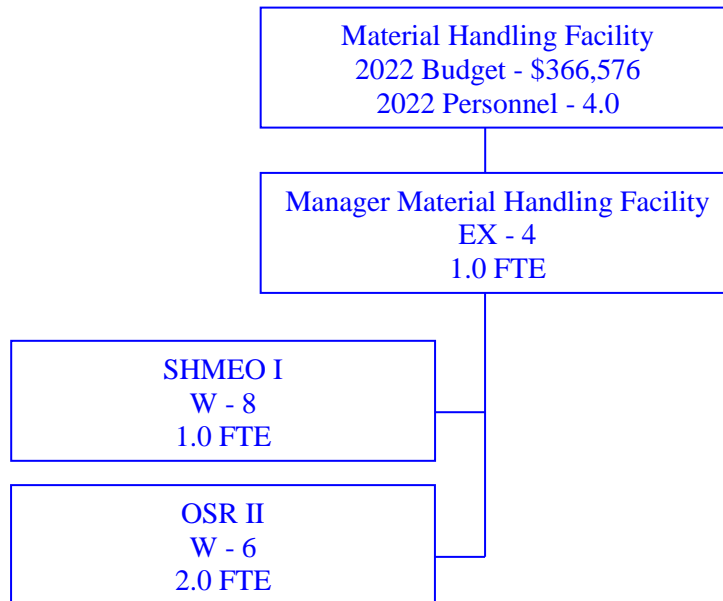
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Storeroom	6.0	6.0	6.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

Material Handling Facility



Operations Division

Material Handling Facility

Program Activities

- Manage the collection and removal of sewer, drain, catch basin and trench waste generated from the BWSC's infrastructure

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$338,277	\$306,113	\$358,390	\$52,277	17.1%
Overtime	\$11,244	\$10,932	\$4,827	(\$6,105)	-55.8%
Labor Related Cost/Benefits	\$12,273	\$3,090	\$3,359	\$269	8.7%
Total Direct Expenses	\$361,794	\$320,135	\$366,576	\$52,277	16.3%

Explanation of Major Variances

The 2022 budget for the Material Handling Department is \$366,576 an increase of \$52,277 or 16.3% from 2021. The variance is due to the Wages and Salaries and Labor Related Costs/Benefits line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Material Handling Facility	5.0	4.0	4.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

Operations Division

2021 Program Goal Results

The design planning phase of replacing the by-pass sluice gates and discharge piping at Port Norfolk Pump Station is ongoing. Automotive fuel pumps and overhead dispensing components were replaced/upgraded.

2022 Program Goals and Objectives

Goal: To Oversee the CIP improvements for the Union Park Pump Station

Objectives: Replace/Upgrade of the two (2) Variable Frequency Drives for Electric Pumps #5 and #6 and any hardware upgrades for cybersecurity.

Mission: Increased Production or Efficiency Improvements.

Goal: Review the feasibility for upgrading the Summer Street Pump Station.

Objectives: To conduct a study of the current condition of Summer Street Pump Station to evaluate if there is a need for a new/upgrades of the pump station due to sea level rise, increased volumes of flow and mechanical life expectancy.

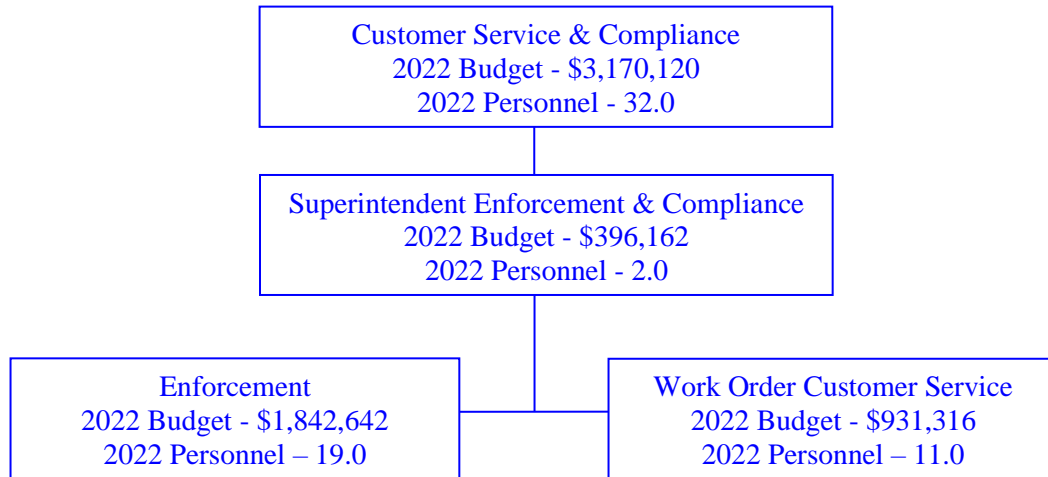
Mission: Increased Production or Efficiency Improvements.

Goal: Design the flood protection barriers at the Alford Street Facility and Trilling Way Pump Station.

Objectives: To protect the Alford Street Material Handling Facility and Trilling Way Pump Station from sea level rise.

Mission: Enhanced Repair and Maintenance of Water or Wastewater System.

Customer Service & Compliance



Operations Division

Customer Service & Compliance

Program Activities

- Customer Service & Compliance maintains the Commission's work order management system (CityWorks) and provides assistance to the Commission's customers with telephone inquiries.

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$2,652,776	\$2,772,011	\$2,990,362	\$218,351	7.9%
Overtime	\$44,101	\$33,106	\$31,418	(\$1,688)	-5.1%
Labor Related Cost/Benefits	\$40,595	\$41,762	\$14,490	(\$27,272)	-65.3%
Supplies and Materials	\$10,390	\$11,000	\$16,000	\$5,000	45.5%
Repair and Maintenance	\$106,949	\$112,800	\$112,850	\$50	0.0%
Professional Services	\$1,110	\$5,000	\$5,000	\$0	0.0%
Total Direct Expenses	\$2,855,921	\$2,975,679	\$3,170,120	\$194,441	6.5%

Explanation of Major Variances

The 2022 budget for the Customer Service & Compliance Department is \$3,170,120, an increase of \$194,441 or 6.5% from 2021. The variance is due to the Wages and Salaries, Supplies and Materials and Repair and Maintenance line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Customer Service & Compliance	32.0	31.0	32.0	1.0

Explanation of Personnel Changes

One position transferred from Water & Sewer Services.

2021 Program Goal Results

Training classes were held in conjunction with teaching staff how to operate equipment on various topics such as Hazards awareness, thawing machine and backflow cross connections.

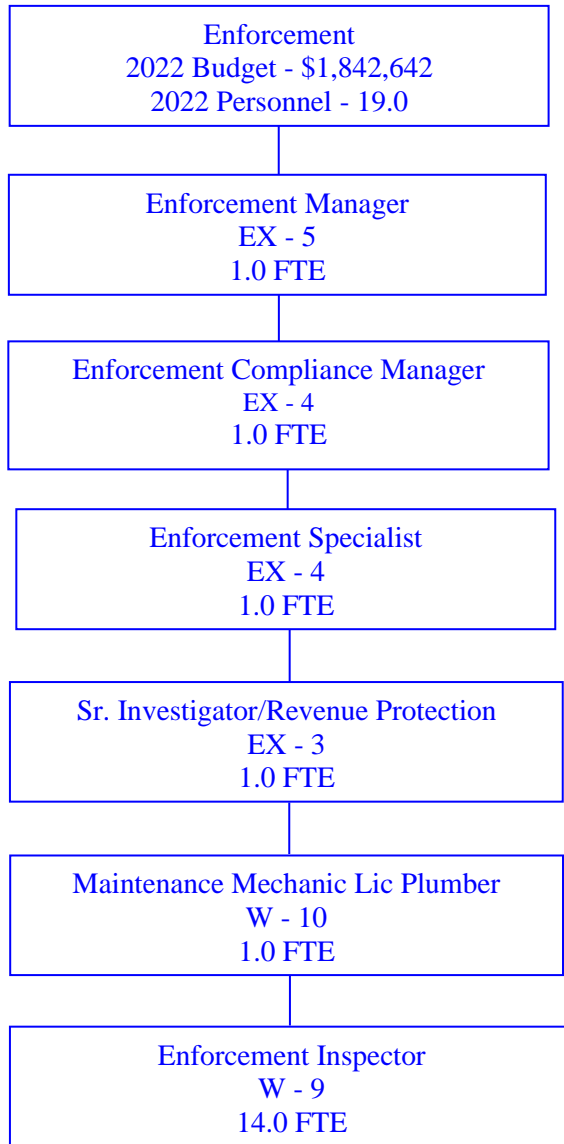
2022 Program Goals and Objectives

Goal: Compile the list of grease (F.O.G.) Violations from 2015 – 2020 and develop a reinspection protocol for these established grease traps.

Objectives: To establish a protocol for the inspection of problematic grease traps to prevent discharge of fats, oil and grease (F.O.G.) into the Commission's Sanitary System. This can help reduce the number of reoccurring SSO's.

Mission: Improve/ Develop Policy/Procedure

Enforcement



Operations Division

Enforcement

Program Activities

- Protect the public water systems distribution and water quality from contamination and/or pollution due to unprotected or improperly protected Cross Connection
- Provide water sampling as required by State and Federal Regulatory Agencies
- Provide weekly chlorine and bacteriological samplings to the MWRA and report results to the Boston Public Health Commission
- Administrate the BWSC Sewer Abatement Program
- Conduct field inspection of authorized Backwater Valve installations

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,648,021	\$1,785,364	\$1,828,547	\$43,183	2.4%
Overtime	\$3,545	\$3,277	\$3,277	\$0	0.0%
Labor Related Costs/Benefits	\$24,504	\$12,613	\$10,818	(\$1,795)	-14.2%
Total Direct Expenses	\$1,676,070	\$1,801,254	\$1,842,642	\$41,388	2.3%

Explanation of Major Variances

The 2022 budget for Enforcement Department is \$1,842,642, an increase of \$41,388 or 2.3% from 2021. The variance is due to Wages and Salaries line item.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Enforcement	20.0	19.0	19.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

2021 Program Goal Results

Enforcement Staff continued to reinvestigate past and outstanding Sanitary Sewer Overflows (SSO's) and train additional inspectors for grease investigation. Enforcement Staff continues to work with IT staff on UMAX reports for fire pipe let ons and cut and caps.

2022 Program Goals and Objectives

Goal: Develop a procedure to follow up on the survey violations to confirm if the violations have been rectified.

Objectives: To establish a protocol that enables Enforcement to confirm that buildings that have been surveyed and found to have violations are in compliance.

Mission: Improve/Develop Policy/Procedure.

Goal: Evaluate the feasibility of utilizing state-of-the-art mapping applications and UMAX software for development of new routing sequences and schedules for monthly cross connection and grease trap inspections to improve services.

Objectives: To schedule monthly cross connection and grease trap inspections that will be more efficient and productive. Currently, Inspectors conduct inspections in buildings that are next to each other in different months or facilities with the same owners. Staff will evaluate the feasibility of utilizing UMAX and GIS Mapping Technologies.

Mission: Increased Production or Efficiency Improvements.

Goal: Develop a procedure to track and report the Cross Connection Department's data for the MassDEP Annual Statistical Report.

Objectives: The objective of the goal is to produce the number, type and Land Code Use description of the devices tested and surveyed by the department on a quarterly basis for data quality control.

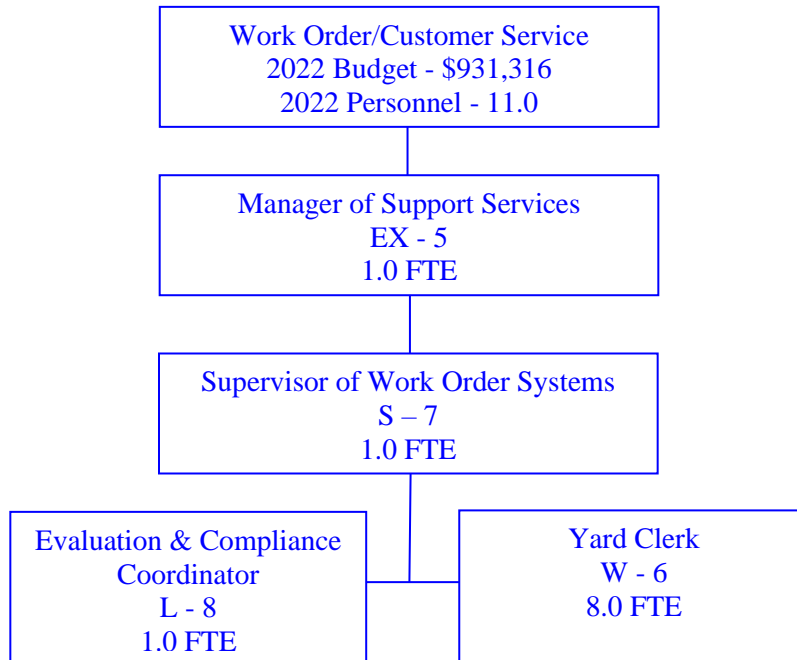
Mission: Enhanced Repair and Maintenance of Water or Wastewater System.

Operations Division

Department Maintenance Goals

Activity	2019 Actual	2020 Actual	2021 Actual	2022 Goal
Sewer Abatements:				
Sewer Requests	38	83	79	50
Sewer Inspections	57	39	100	50
Sewer Approvals	57	70	61	50
Inspections of Backflow Device Installations:				
Semi-annual	13,914	10,982	10,994	10,994
Annual	8,474	6,786	7,731	7,731
Initial Inspections of Backflow Devices	678	572	711	711
Conducting Cross Connection Surveys of Industrial, Institutional and Commercial Properties	909	238	76	76

Work Order/Customer Service



Operations Division

Work Order/Customer Service

Program Activities

- Work Order/Customer Service maintains the Commission's work order management system (CityWorks) and provides assistance to the Commission's customers with telephone inquiries

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$832,445	\$829,341	\$902,527	\$73,186	8.8%
Overtime	\$40,556	\$29,829	\$28,141	(\$1,688)	-5.7%
Labor Related Cost/ Benefits	\$13,062	\$596	\$648	\$52	100.0%
Total Direct Expenses	\$886,063	\$859,766	\$931,316	\$71,550	8.3%

Explanation of Major Variances

The 2022 budget for the Work Order/Customer Service Department is \$931,316, an increase of \$71,550 or 8.3% from 2021. The variance is due to Wages and Salaries and Labor Related Costs/Benefits line items.

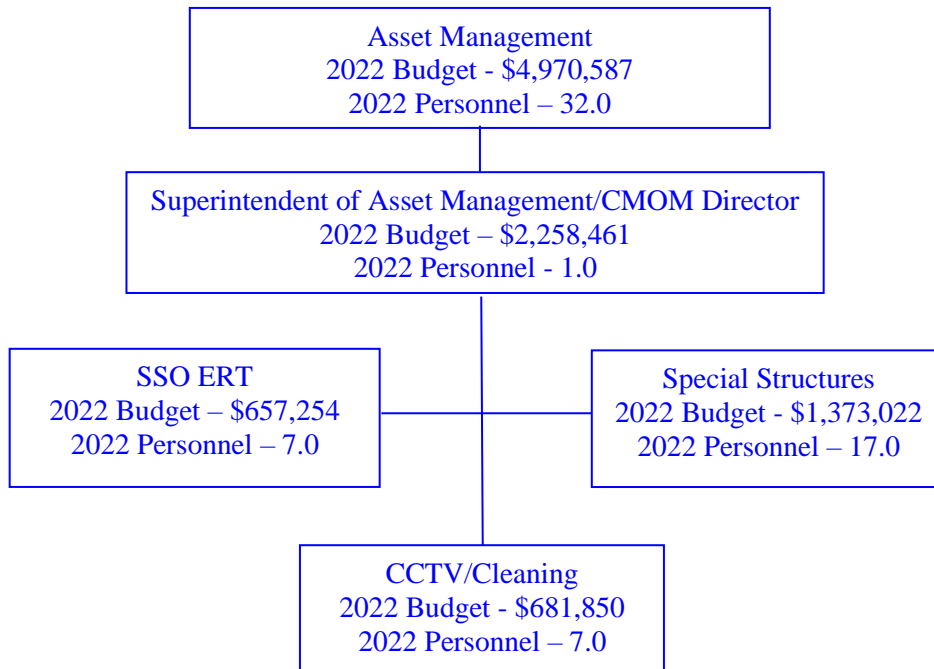
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Work Order/Customer Service	11.0	11.0	11.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

Asset Management/CMOM



Operations Division

Asset Management/CMOM

Program Activities

- Inspect and maintain the combined sewer overflow system in accordance with the Commission's National Pollutant Discharge Elimination System (NPDES) permit
- Inspect sewers and building connections within low groundwater areas to ensure that they are not causing the drawdown
- Inspect and ensure the operability of all large diameter water valves, division gates, and appurtenances.
- Inspect manholes, siphon chambers and tide gates for defects and recommend repair and/or replacement

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$2,634,246	\$2,737,049	\$2,882,357	\$145,308	5.3%
Overtime	\$88,044	\$44,253	\$60,019	\$15,766	35.6%
Labor Related Costs/Benefits	\$24,105	\$19,070	\$12,385	(\$6,685)	-35.1%
Repair and Maintenance	\$1,349,606	\$1,700,000	\$1,800,000	\$100,000	5.9%
Professional Services	\$97,556	\$200,000	\$200,000	\$0	0.0%
Total Direct Expenses	\$4,193,557	\$4,700,372	\$4,954,761	\$254,389	5.4%

Explanation of Major Variances

The 2022 budget for Asset Management/CMOM Department is \$4,954,761, an increase of \$254,389 or 5.4 % from 2021. The variance is due to the Wages and Salaries, Overtime and Repair and Maintenance line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Asset Management/CMOM	1.0	1.0	1.0	0.0
SSO ERT	7.0	7.0	7.0	0.0
Special Structures	17.0	17.0	17.0	0.0
CCTV/Cleaning	7.0	7.0	7.0	0.0
Total	32.0	32.0	32.0	0.0

Explanation of Personnel Changes

Asset Management/CMOM

There was no change to the position count.

SSO ERT

There was no change to the position count.

Special Structures

There was no change to the position count.

CCTV/Cleaning

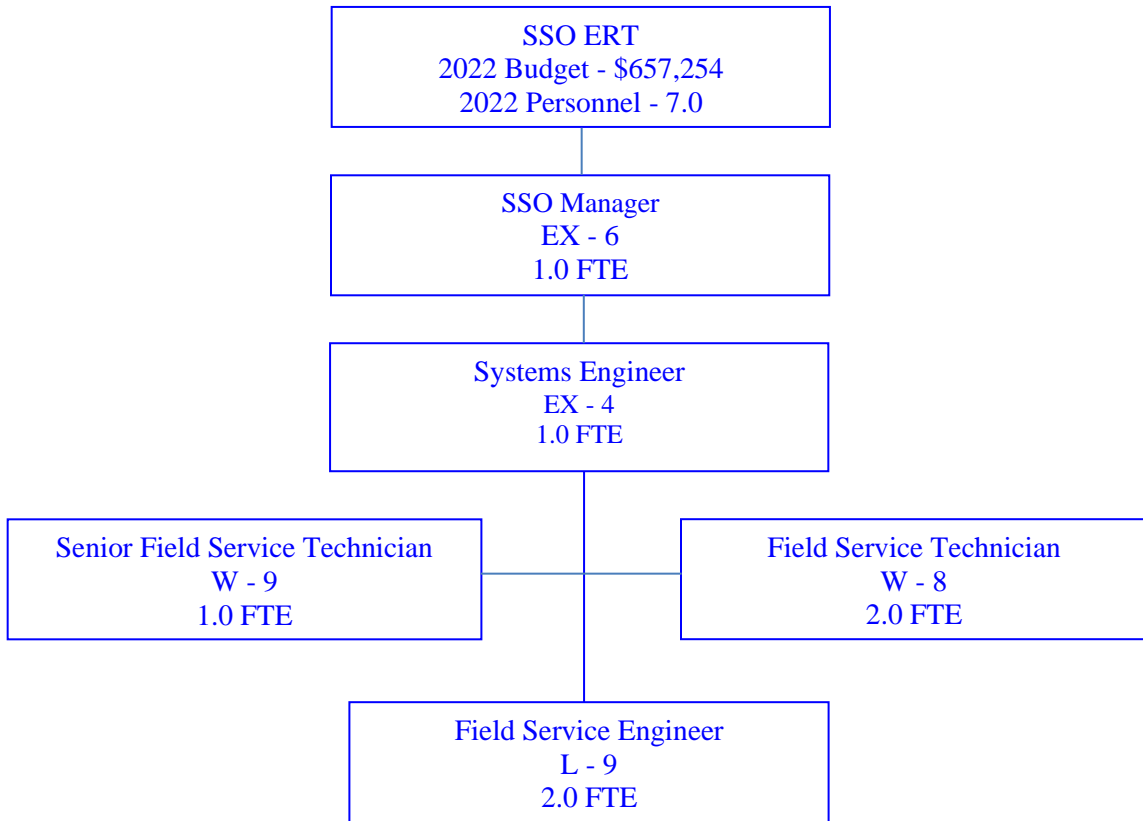
There was no change to the position count.

Operations Division

Department Maintenance Goals

Activity	2020 Actual	2021 Actual	2022 Goal
<u>Capacity, Management, Operations and Maintenance (CMOM):</u>			
Catch Basin Cleaning	20,831	22,790	20,000
Catch Basin Inspections	20,875	23,326	10,000
Clean and Inspect Sewers and Drains	89.24 miles	102.43 miles	90 miles
Manhole Inspections	5,582	3,167	5,000
Siphon Chamber Inspections	82	158	158
Inspect CSO Regulator	990	990	990
Inspect CSO Tide Gate	774	774	774

SSO ERT



Operations Division

SSO ERT

Program Activities

- Ensure timely response, reporting, tracking and mitigation of SSOs in accordance with the Commission’s 2012 Consent Decree with EPA
- Manage the Commission’s SSO Emergency Response Plan. Conduct training in the standard operating procedures for responding to and reporting of SSOs
- Maintain the computerized record keeping system for SSO reporting to assure data validity and consistency
- Analyze SSO events and recommend/implement recommendations for future mitigation or elimination

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$549,432	\$601,102	\$649,377	\$48,275	8.0%
Overtime	\$1,128	\$3,034	\$3,035	\$1	0.0%
Labor Related Costs/Benefits	\$6,610	\$6,120	\$4,842	(\$1,278)	-20.9%
Total Direct Expenses	\$557,170	\$610,256	\$657,254	\$46,998	7.7%

Explanation of Major Variances

The 2022 budget for the SSO ERT Department is \$657,254, an increase of \$49,998 or 7.7% from 2021. The variance is due to Wages and Salaries line items.

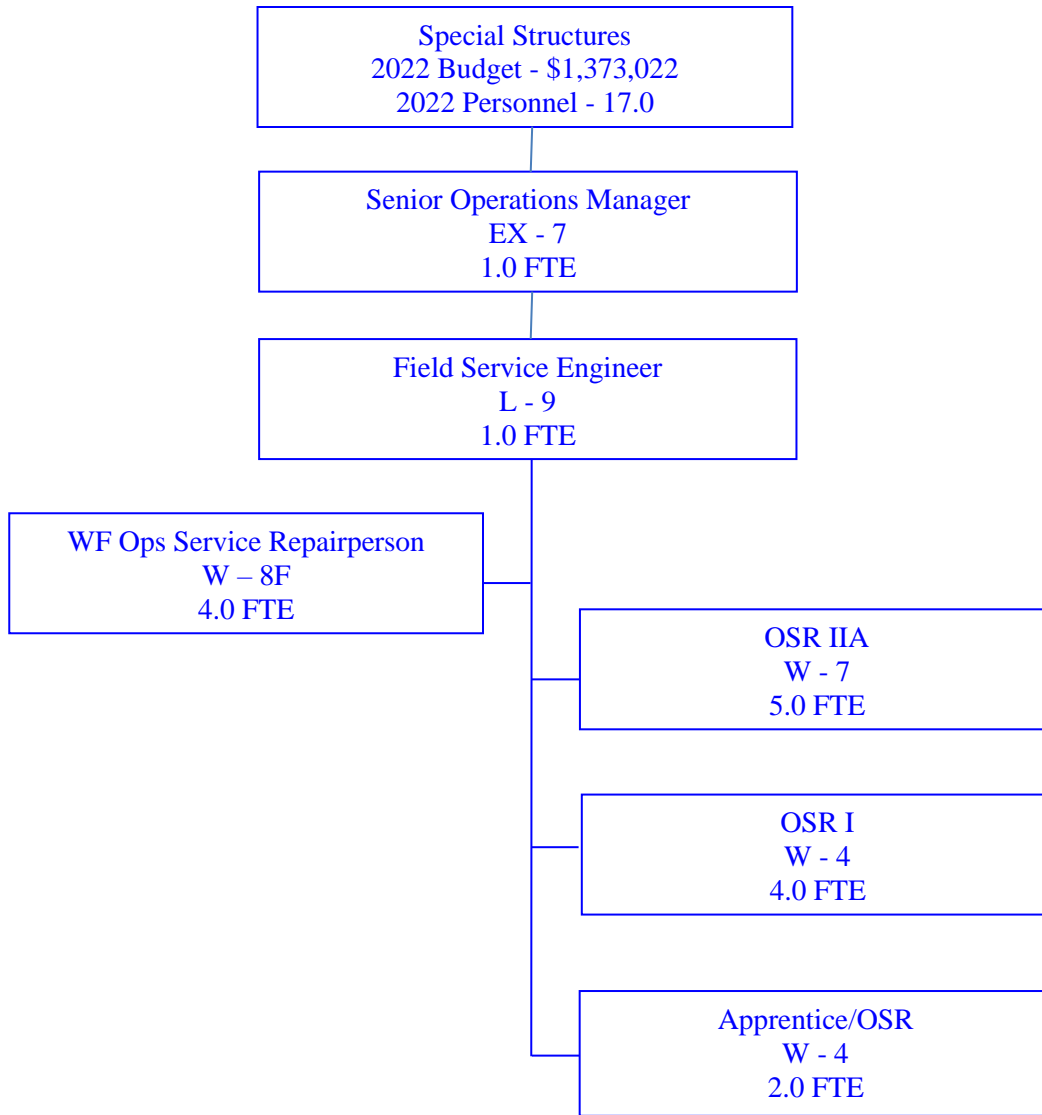
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
SSO ERT	7.0	7.0	7.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

SPECIAL STRUCTURES



Operations Division

Special Structures

Program Activities

- Inspect and maintain the combined sewer overflow system in accordance with the Commission's National Pollutant Discharge Elimination System (NPDES) permit
- Inspect sewers and building connections within low groundwater areas to ensure that they are not causing the drawdown
- Inspect and ensure the operability of all large diameter water valves, division gates, and appurtenances
- Inspect manholes, siphon chambers, and tide gates for defects and recommend repair and/or replacement

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,180,761	\$1,246,347	\$1,308,727	\$62,380	5.0%
Overtime	\$86,916	\$41,219	\$56,984	\$15,765	38.2%
Labor Related Costs/Benefits	\$14,730	\$10,627	\$7,311	(\$3,316)	-31.2%
Total Direct Expenses	\$1,282,407	\$1,298,193	\$1,373,022	\$74,829	5.8%

Explanation of Major Variances

The 2022 budget for Special Structure Department is \$1,373,022, an increase of \$74,829 or 5.8% from the 2021 budget. The variance is due to the Wages and Salaries and Overtime line items.

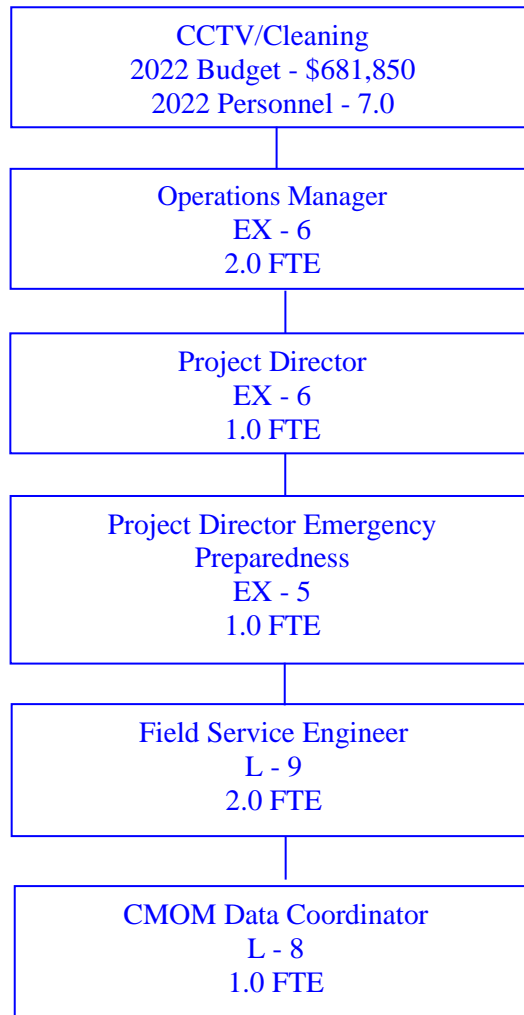
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Special Structures	17.0	17.0	17.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

CCTV/Cleaning



Operations Division

CCTV, Pipe Cleaning and Catch Basins

Program Activities

- Clean and inspect approximately ten percent (10%) of the Commission's sewer system annually using a risk-based approach. Analyze inspection data and make recommendations for repair and improvements
- Centralize all Closed-Circuit Television (CCTV) data for reporting and scoring purposes
- Inspect all of the Commission's catch basins on an annual basis and clean as necessary. The current program is anticipated to clean approximately 20,000 catch basins annually
- Utilize catch basin inspection data to schedule cleaning, other maintenance and repairs of defects found

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$785,223	\$647,197	\$681,850	\$34,653	5.4%
Labor Related Cost/Benefits	\$685	\$0	\$0	\$0	#DIV/0!
Total Direct Expenses	\$785,908	\$647,197	\$681,850	\$34,653	5.4%

Explanation of Major Variances

The 2022 budget for CCTV/CB Cleaning is \$681,850, an increase of \$34,653 or 5.4% from 2021. The variance is due to the Wages and Salaries and Labor Related Costs/Benefits line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
CCTV/CB Cleaning	7.0	7.0	7.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

2021 Program Goal Results

Operation Staff continued investigations, made reservations to the Engineering Department for Capital Improvement as well as addressed issues pertaining to repairing and installing catch basins where deemed necessary.

2022 Program Goals and Objectives

Goal: Perform research and reconnaissance of the Stony Brook Conduit's access points (manholes) located within various parcels of land and properties.

Objectives: To locate, identify, and inspect access points (manholes) along the Stony Brook Conduit not in the public way. To update records and detect any Commission structures requiring repair or replacement.

Mission: Increased Production or Efficiency Improvements.

Goal: The Commission currently utilizes sewer metering throughout the City to monitor its combined sewers for potential overflows and to comply with public notification requirements. This data may be utilized to refine the Operations Department's preventative inspection, cleaning, and maintenance of the combined sewer regulators and tide gates.

Objectives: To analyze available sewer meter data and identify operability and maintenance needs of CSO regulators and tide gates.

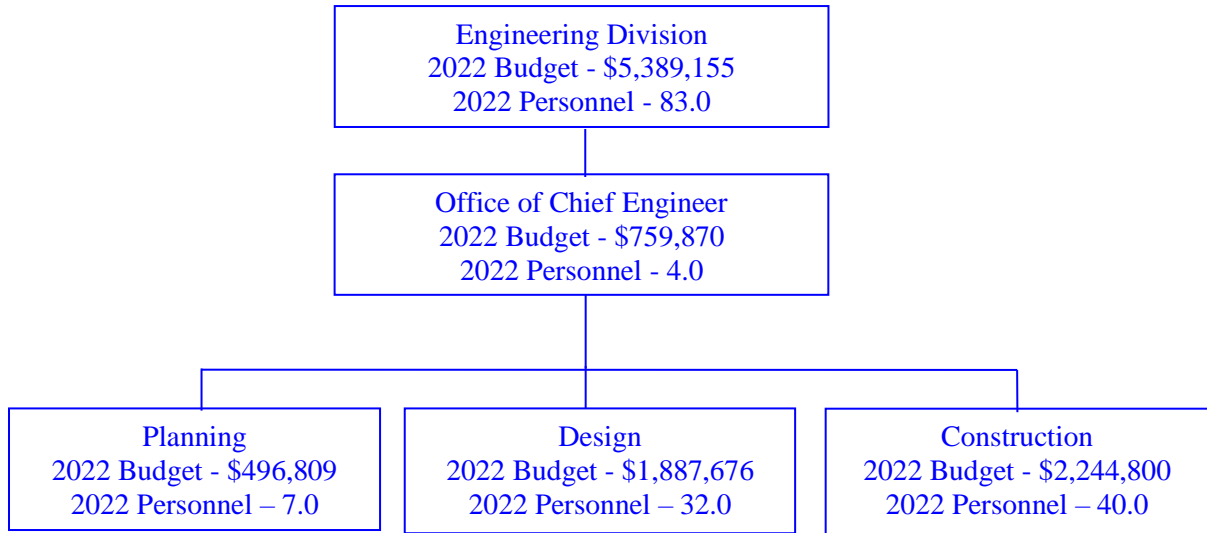
Mission: Increased Production or Efficiency Improvements.

Goal: The Commission has various special structures associated to its collection and distribution systems, including air cocks and sluice gates. The operation and maintenance of these structures requires specialized training and, at times, equipment. The review of standard operating procedures for this work shall be reviewed and updated, as needed. Additionally, any necessary training shall be identified and provided to field personnel performing the work to ensure proper operation and maintenance.

Objectives: Review and update, as needed, standard operating procedures for particularly air cocks and sluice gates within the Commission's collection and distribution systems. As well as train personnel on proper operation and maintenance of these structures.

Mission: Enhanced Repair and Maintenance of Water or wastewater System.

ENGINEERING DIVISION



Engineering Division

Engineering Division Organization

The Engineering Division is comprised of the Office of the Chief Engineer and three other departments:

- **Planning**
- **Design**
- **Construction**

Division Mission

The Engineering Division ensures the provision of high quality, reliable water, sewer and drainage services while protecting the environment. The Engineering Division accomplishes this through pursuing an aggressive Renewal and Replacement program, supporting the Boston Harbor pollution abatement effort and meeting all federal and state water and wastewater laws.

Division Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Office of the Chief Engineer	\$576,102	\$725,772	\$759,870	\$34,098	4.7%
Planning	\$673,856	\$416,783	\$496,809	\$80,026	19.2%
Design	\$2,122,351	\$1,872,118	\$1,887,676	\$15,558	0.8%
Construction	\$1,882,044	\$2,432,276	\$2,244,800	(\$187,476)	-7.7%
Total Direct Expenses	\$5,254,353	\$5,446,949	\$5,389,155	(\$57,794)	-1.1%

Explanation of Major Variances

The 2022 budget for the Engineering Division is \$5,389,155, a decrease of \$57,794, or 1.1% from the 2021 budget. The variance is due to a decrease in the Construction Department line item.

Engineering Division

Department Personnel Summary

Department	2020 Approved	2021 Budget	2022 Budget	2021-2022 Variance
Chief Engineering Officer	4.0	4.0	4.0	0.0
Planning	7.0	7.0	7.0	0.0
Design	31.0	31.0	32.0	1.0
Construction	41.0	40.0	40.0	0.0
Total Personnel	83.0	82.0	83.0	1.0

Explanation of Personnel Changes

Office of the Chief Engineer

There was no change to the position count.

Planning

There was no change to the position count.

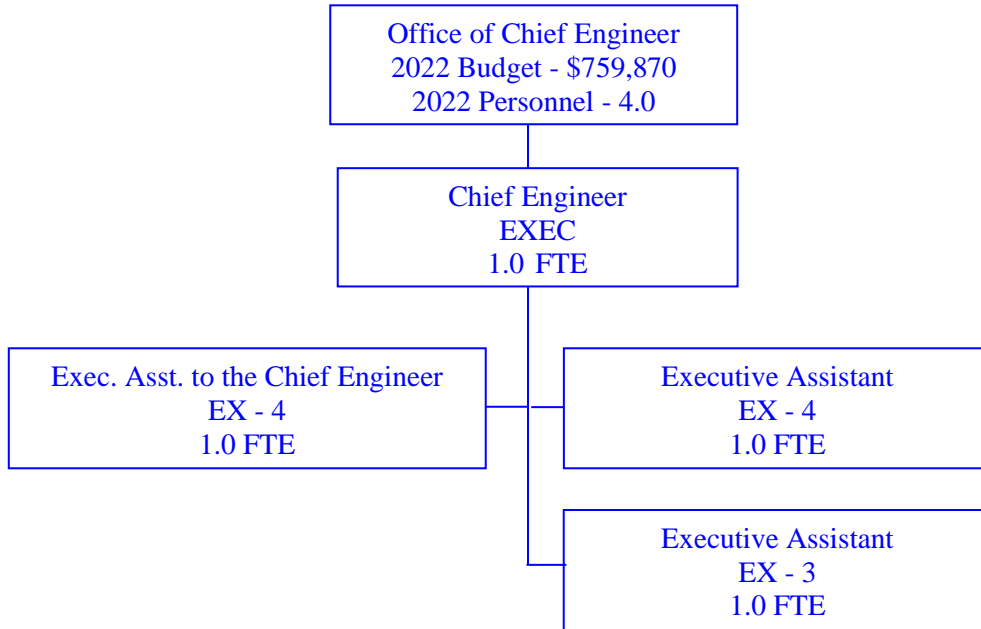
Design

One position transferred from Meter Services.

Construction

There was no change to the position count.

Office of the Chief Engineer



Engineering Division

Office of Chief Engineer

Program Activities

- Provide overall management and coordination of all engineering program development to ensure the provision of high quality, reliable water, sewer and drainage services
- Manage and coordinate all Commission activities with the MWRA
- Manage and coordinate all Commission activities regarding Central Artery/Tunnel Projects

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$504,289	\$502,238	\$536,197	\$33,959	6.8%
Labor Related Costs/Benefits	\$23,663	\$38,534	\$23,673	(\$14,861)	-38.6%
Professional Services	\$40,243	\$175,000	\$175,500	\$500	0.3%
Training/Seminar/Travel	\$7,907	\$10,000	\$24,500	\$14,500	145.0%
Total Direct Expenses	\$576,102	\$725,772	\$759,870	\$34,098	4.7%

Explanation of Major Variances

The 2022 budget for the Office of Chief Engineer is \$759,870, an increase of \$34,098 or 4.7% from 2021. The variance is due to the Labor Related Costs/Benefits line item.

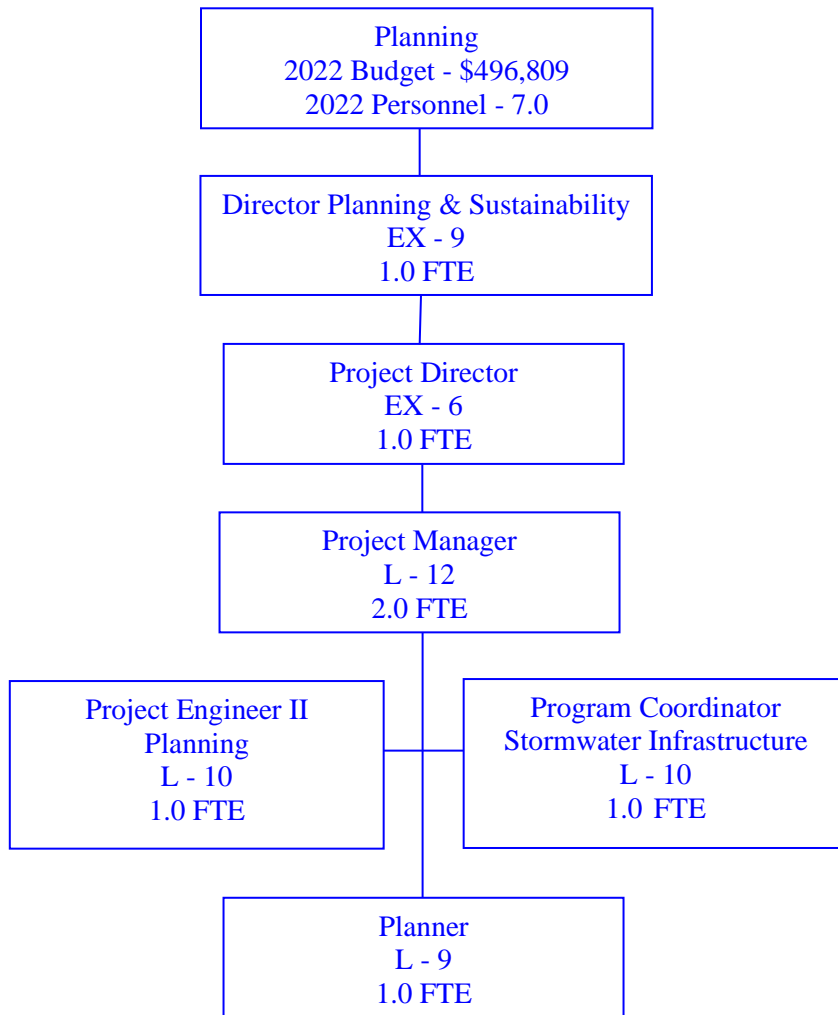
Department Personnel Summary

Department	2020 Approved	2021 Budget	2022 Budget	2021-2022 Variance
Office of Chief Engineer	4.0	4.0	4.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

Planning



Engineering Division

Planning

Program Activities

- Conduct system-wide, area specific investigations and project planning
- Determine planning projects for three-year Capital Improvement Program
- Develop and coordinate Commission regulatory compliance activities
- Analyze and disseminate demographic, engineering and regulatory information
- Devise and manage consultant contracts
- Develop model capabilities
- Evaluate the impacts on Commission facilities of proposed public and private projects
- Participate in the review of MWRA projects and implementation of those assigned to BWSC

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$649,204	\$357,318	\$420,059	\$62,741	17.6%
Labor Related Costs/Benefits	\$17,548	\$36,965	\$24,250	(\$12,715)	-34.4%
Supplies and Materials	\$854	\$2,500	\$2,500	\$0	0.0%
Professional Services	\$6,250	\$20,000	\$50,000	\$30,000	150.0%
Total Direct Expenses	\$673,856	\$416,783	\$496,809	\$80,026	19.2%

Explanation of Major Variances

The 2022 budget for the Planning Department is \$496,809 an increase of \$80,026 or 19.2% from 2021. The variance is due to increases in the Wages and Salaries and Professional Services line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Planning	7.0	7.0	7.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

2021 Program Goal Results

A project overseeing the design of stormwater detention facilities at three locations in Roslindale and Jamaica Plain was started. A tool that was designed to facilitate the incorporation of green infrastructure installed in the city into the Commission's Stormwater Model was developed. It includes a web-based dashboard which shows progress made towards meeting stormwater pollutant reduction goals through the installation of GI. The functionality of the GI tool was also expanded to include the ability to view results from different model scenarios and to view results calculated using BWSC's method vs. the EPA's. The GI management tool function to run the stormwater model was finalized and tested by the Commission's consultant and predicted reductions in total phosphorous from model simulations were updated. The GI tool was also used to assist with validating the accuracy of the Commission's stormwater model.

2022 Program Goals and Objectives

Goal: Prepare a summary of defective sewer and drainpipes identified by the Planning Department as needing capital improvements in order to eliminate the exfiltration of sewage or drainage, and formalize the process for providing the summary to the Engineering Design Department, ensuring the improvements are included in annual CIP Program Plans and tracking progress of implementation.

Objective: Planning Department Staff will compile a summary of capital improvement requests and submit to the Engineering design Department for inclusion in an annual CIP Program Plan. A staff member will be assigned the responsibility for submitting new requests and checking the progress of the repairs on a quarterly basis. them.

Mission: Enhanced Repair and Maintenance of Water or Wastewater System.

Goal: Utilize the Commission's sewer and drain models to develop video depletion of sewer and drain operation storm event for training purposes.

Objective: The primary purpose of this is to produce an animated file that allow Commission staff to educate them on how sewer and drains in select areas function during storm events.

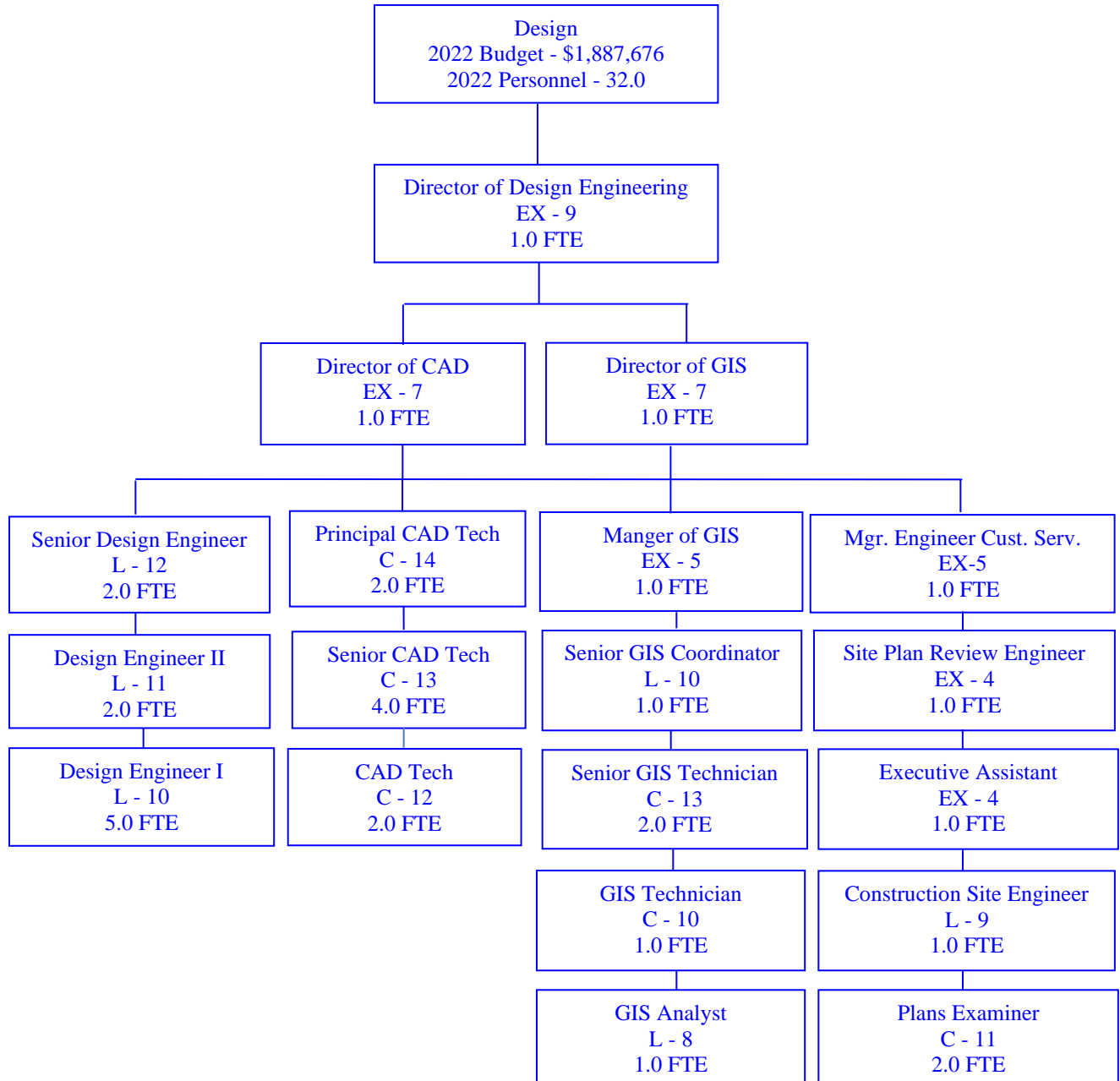
Mission: Provide Staff Training.

Goal: Develop a process to depict the information from the Sewer and Drain Sensor project to the Commission.

Objective: The Commission will be developing and installing a series of sensors in the Commission's Sewer and drainage systems to show how the systems are responding to rain events. This project will work with the contractor and the Commission's IT department to develop a process to show this information to the Commission so staff can learn how the sewer and drain systems are functioning.

Mission: Increased Production or Efficiency Improvements,

Design



Engineering Division

Design

Program Activities

- Provide the Commission with professional engineering services for the design of water and wastewater construction projects
- Provide engineering review of outside projects that affect Commission facilities ensuring that those projects protect or enhance the Commission facilities
- Service BWSC's customers and in-house personnel by providing GIS information, research data, facility prints, water and sewer service location cards, As-Built and other relevant Street Log, Webpage, and Arcview information concerning the Commission's systems
- Schedule new water, sewer, drain installations and repair inspections and provide GIS with as built and inspector's reports for GIS input

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,963,534	\$1,686,059	\$1,724,391	\$38,332	2.3%
Overtime	\$5,705	\$23,407	\$24,916	\$1,509	6.4%
Labor Related Costs/Benefits	\$59,810	\$103,652	\$41,619	(\$62,033)	-59.8%
Supplies and Materials	\$76,535	\$32,400	\$57,300	\$24,900	76.9%
Repair and Maintenance	\$10,424	\$6,400	\$16,900	\$10,500	164.1%
Professional Services	\$4,950	\$15,000	\$15,000	\$0	0.0%
Other Services	\$1,392	\$5,200	\$7,550	\$2,350	45.2%
Total Direct Expenses	\$2,122,350	\$1,872,118	\$1,887,676	\$15,558	0.8%

Explanation of Major Variances

The 2022 budget for the Design Department is \$1,887,676 an increase of \$15,558 or 0.8% from 2021. The variance is due to increases in the Wages and Salaries, Overtime, Supplies and Materials, Repair and Maintenance and Other Services line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Design	31.0	31.0	32.0	1.0

Explanation of Personnel Changes

One position transferred from Meter Services.

2021 Program Goal Results

The Engineering Department made recommendations for upgrading the Commission's AUTOCAD software to the 2020 version which was successful. A procedure for reviewing and sending design plan comments to the Boston Public Works Department and other outside agencies within three weeks was developed successfully. Communication with these agencies is better. BWSC is now included in PWD's weekly design review status update which is received every Friday afternoon.

2022 Program Goals and Objectives

Goal: Make recommendations for upgrading the Finding Utility Plans through Engineering Customer Service (ECS) procedure.

Objective: Verify ECS utility plans and approved PIC plans that are drafted on bidding documents.

Mission: Improve/Develop Policy/Procedure.

Goal: Make recommendations for updating the 2018 standard set of design drawings for a typical water, sewer and drainage replacement and rehabilitation contract.

Objective: Reduce the amount of time for developing design plans for typical water, sewer and drainage replacement and rehabilitation contracts.

Mission: Increased Production or Efficiency Improvements

Goal: Develop a checklist with list of responsibilities in developing design plans for the CAD and Design groups.

Objective: Establish what tasks CAD and Design employees are responsible for when creating design plans.

Mission: Improve/Develop Policy/Procedure.

Goal: Make improvements to the existing design schedule and design review milestones.

Objective: include a breakdown on the design schedule by street and standardize what each percentage point indicates.

Mission: Improve/Develop Policy/Procedure.

Goal: The GIS department will complete the upgrade and deployment of the most recent version of ArcGIS software and conversion from Oracle to SQL.

Objective: A successful upgrade will ensure that BWSC and its third party integrations have access to the latest geoprocessing and analytical tools and will enable the Commission to move forward from a geometric network toward utility network. We will also be in a better position to

Engineering Division

advance our desktop technology toward ArcGIS Pro with ArcMap becoming obsolete in the near future.

Mission: Increased Production or Efficiency Improvements

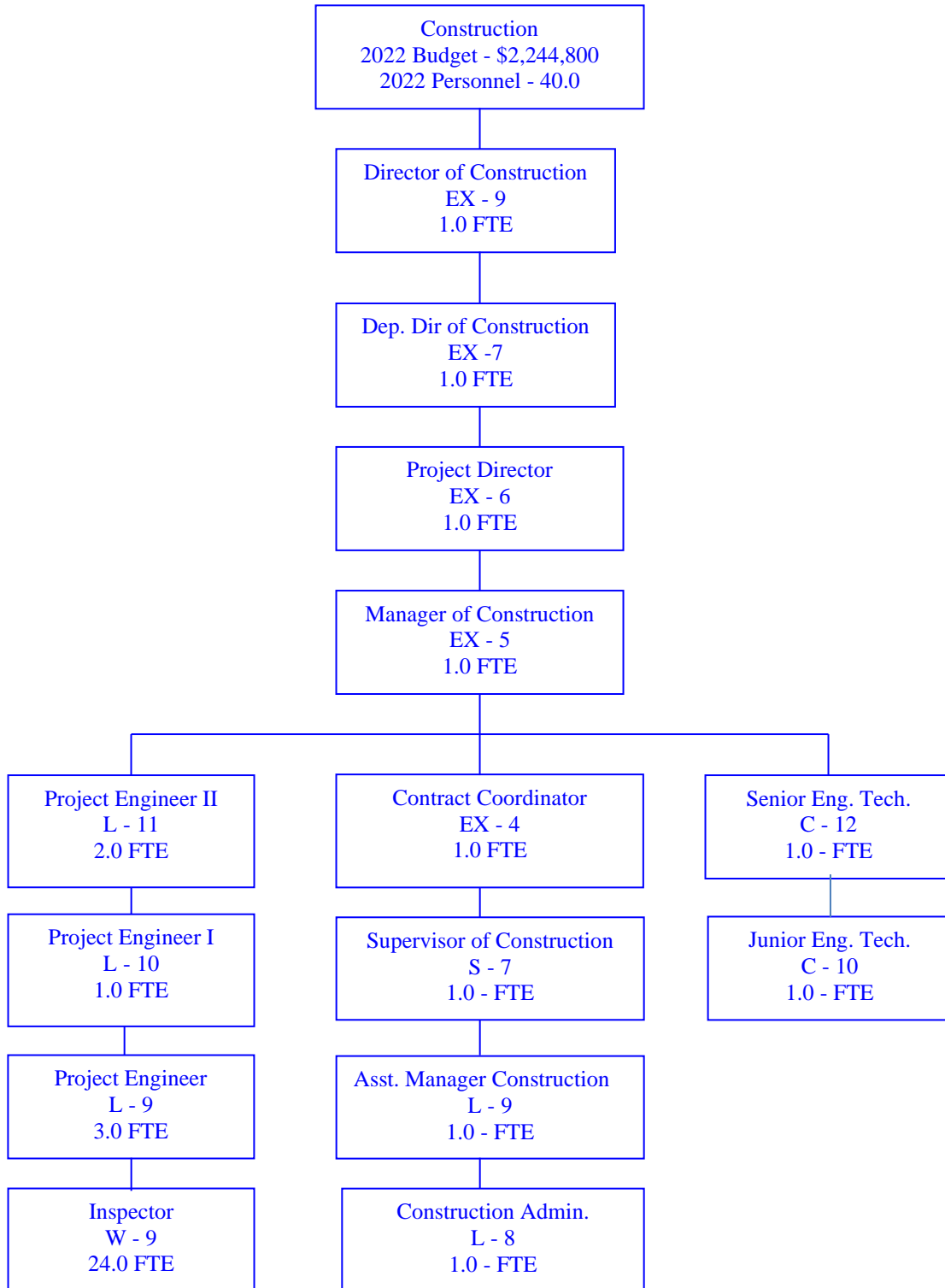
Department Maintenance Goals

Activity	2019 Actual	2020 Actual	2021 Actual	2022 Goal
Design contracts to replace or rehabilitate water mains.	7.0	3.8 miles	3.4 miles	11 miles
Design contracts to replace or rehabilitate sewer pipes.	36,960 feet	39,400 feet	82,180 feet	47,520 feet

Department Maintenance Goals

Activity	2019 Actual	2020 Actual	2021 Actual	2022 Goal
Drain Layers Licenses	425	603	343	343
Water and Sewer Prints	52	110	275	275
Repairs:				
Fire pipe	37	28	38	38
Sanitary	388	347	341	341
Storm Drains	6	8	11	11
Site Plans:				
Submitted	639	547	665	665
Approved	660	565	583	583
Dye Tests	499	489	479	479
Customer Service Visits	6,114	1,503	211	6,000

Construction



Engineering Division

Construction

Program Activities

- Provide construction management services for all the Commission's CIP projects and other major projects, which are undertaken by private developers or other agencies or utilities that impact our infrastructure

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,685,352	\$2,423,976	\$1,975,069	(\$448,907)	-18.5%
Overtime	\$146,959	\$192,994	\$186,008	(\$6,986)	-3.6%
Labor Related Costs/Benefits	\$45,307	\$109,461	\$75,423	(\$34,038)	-31.1%
Supplies and Materials	\$4,425	\$7,950	\$7,950	\$0	0.0%
Repair and Maintenance	\$0	\$350	\$350	\$0	0.0%
Total Direct Expenses	\$1,882,043	\$2,734,731	\$2,244,800	(\$489,931)	-17.9%

Explanation of Major Variances

The 2022 budget for the Construction Department is \$2,244,800, a decrease of \$489,931 or 17.9% from 2021. The variance is due to Wages and Salaries, Overtime and Labor Related Costs/Benefits line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Construction	41.0	40.0	40.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

2021 Program Goal Results

The implementation of a SharePoint site with IT, CMOM and Design in order to eliminate the need for physical delivery of project submittals and speed up receipt and processing of submittals was implemented. All Engineers were given access to the SharePoint site. The Deputy Director of Construction and the Project Engineers worked together to more efficiently track the status of private per diem site plan work. Inspectors are being used to conduct lead investigations.

2022 Program Goals and Objectives

Goal: Review Inspector Daily Reports, procedures and other documents for completeness and accuracy. Monitor and track any deficiencies to identify areas needing improvement to identify potential subjects for additional training. Implement a shadowing program for new inspectors to train with more experienced inspectors for the first few weeks of work. Implement an Inspector training refresher course for all inspectors to be given annually.

Objective: To provide additional training on subjects where needed to reduce the number of mistakes on Inspector Daily Reports and ensure accurate payment in accordance with contract specifications.

Mission: Provide Staff Training.

Goal: Work with the Deputy Director of Construction and the Project Engineers to more efficiently track the status of private per diem or GSA site plan work. Additionally, improve the Inspection documentation workflow process to ensure that sufficient and accurate inspectors reports, data and photos are submitted, reviewed, scanned, filed and archived prior to closing out the GSA.

Objective: To more accurately track progress into the Construction Special Projects Report to include more data in the current report and develop and maintain a project tracking log. Working closely with the Engineering Customer Service Department to coordinate tracking of projects and develop policy control process for reviewing, scanning, filing and archiving the inspection reports, data, and photos in an electronic version within the appropriate network folder. This will help to improve the mapping and as-built information available to all end users.

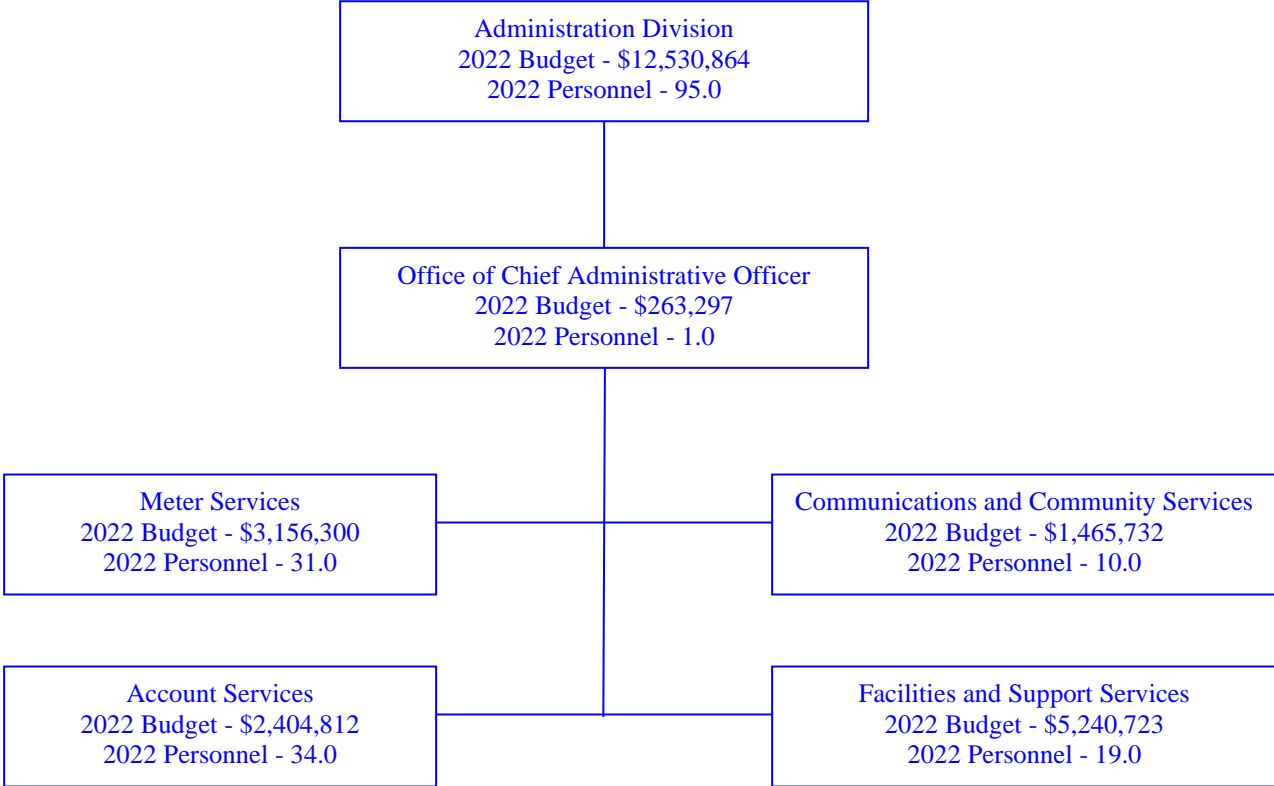
Mission: Increased Production or Efficiency Improvements

Goal: Assist the Planning Division with field investigations of green infrastructure to determine feasibility for future tracking and to determine functionality of the green infrastructure systems once installed.

Objective: To help develop methods for tracking, verifying green infrastructure installations and determine functionality of the systems where feasible.

Mission: Protect Environment.

Administration Division



Administration Division

Administration Division

The Administration Division consists of the Office of Chief Administrative Officer and five other departments:

- **Meter Services**
- **Account Services**
- **Communications and Community Services**
- **Facilities and Support Services**

Division Mission

The Administration Division performs support functions for the Commission by promoting proactive personnel services; providing prompt, efficient and knowledgeable service to our customers; providing timely and accurate reading of meters and installation of new meters; representing the Commission at various public and community meetings and coordinating all aspects of the Commission's buildings and properties including maintenance, repairs, security, mail distribution, office supplies and furniture, records archiving, office equipment leasing and food services.

Division Budget Summary

Department	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Office of Chief Administrator Officer	\$175,169	\$198,772	\$263,297	\$64,525	32.5%
Meter Services	\$2,313,206	\$2,767,160	\$3,156,300	\$389,140	14.1%
Account Services	\$2,143,544	\$2,455,240	\$2,404,812	(\$50,428)	-2.1%
Communications and Community Srvc	\$1,253,786	\$1,496,910	\$1,465,732	(\$31,178)	-2.1%
Facilities and Support Services	\$4,579,804	\$5,725,384	\$5,240,723	(\$484,661)	-8.5%
Information Technology	\$5,718,794	\$6,104,728	N/A	N/A	N/A
Total Direct Expenses	\$16,184,303	\$18,748,194	\$12,530,864	(\$112,602)	-0.9%

Explanation of Major Variances

The 2022 budget for the Administration Division is \$12,530,864, a decrease of \$112,602 or 0.9% from 2021. The variance is due to the Account Services, Communications and Community Services and Facilities and Support Services Departments line items.

Administration Division

Division Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of Chief Administrator Officer	1.0	1.0	1.0	0.0
Meter Services	30.0	32.0	31.0	(1.0)
Account Services	35.0	36.0	34.0	(2.0)
Communications and Community Service	10.0	10.0	10.0	0.0
Facilities and Support Services	21.0	20.0	19.0	(1.0)
Information Technology	28.0	27.0	N/A	N/A
Total	125.0	126.0	95.0	(4.0)

Explanation of Personnel Changes

Office of Chief Administrator Officer

There was no change to the position count.

Meter Services

One position transferred to Design.

Account Services

Two positions transferred to Information Technology.

Communications and Community Services

There was no change to the position count.

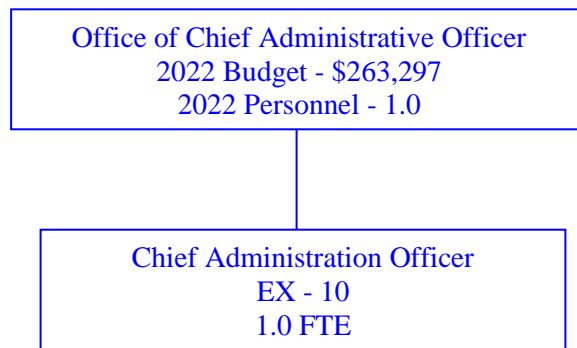
Facilities and Support Services

One position transferred to Human Resources.

Information Technology

Twenty Seven positions transferred to Information Technology under Executive Division.

Office of Chief Administrative Officer



Administration Division

Office of Chief Administrative Officer

Program Activities

- Oversee efforts to provide outstanding service to all Commission employees and customers

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$163,252	\$163,671	\$209,299	\$45,628	27.9%
Labor Related Costs/Benefits	\$11,503	\$21,101	\$13,248	(\$7,853)	-37.2%
Professional Services	\$0	\$0	\$30,000	\$30,000	#DIV/0!
Training/Seminar/Travel	\$414	\$14,000	\$10,750	(\$3,250)	-23.2%
Total Direct Expenses	\$175,169	\$198,772	\$263,297	\$64,525	32.5%

Explanation of Major Variances

The 2022 budget for the Office of the Chief Administrative Officer is set at \$263,297, an increase of \$64,525 or 32.5% from 2021. The variance is due to increases in the Wages and Salaries and Professional Services line items.

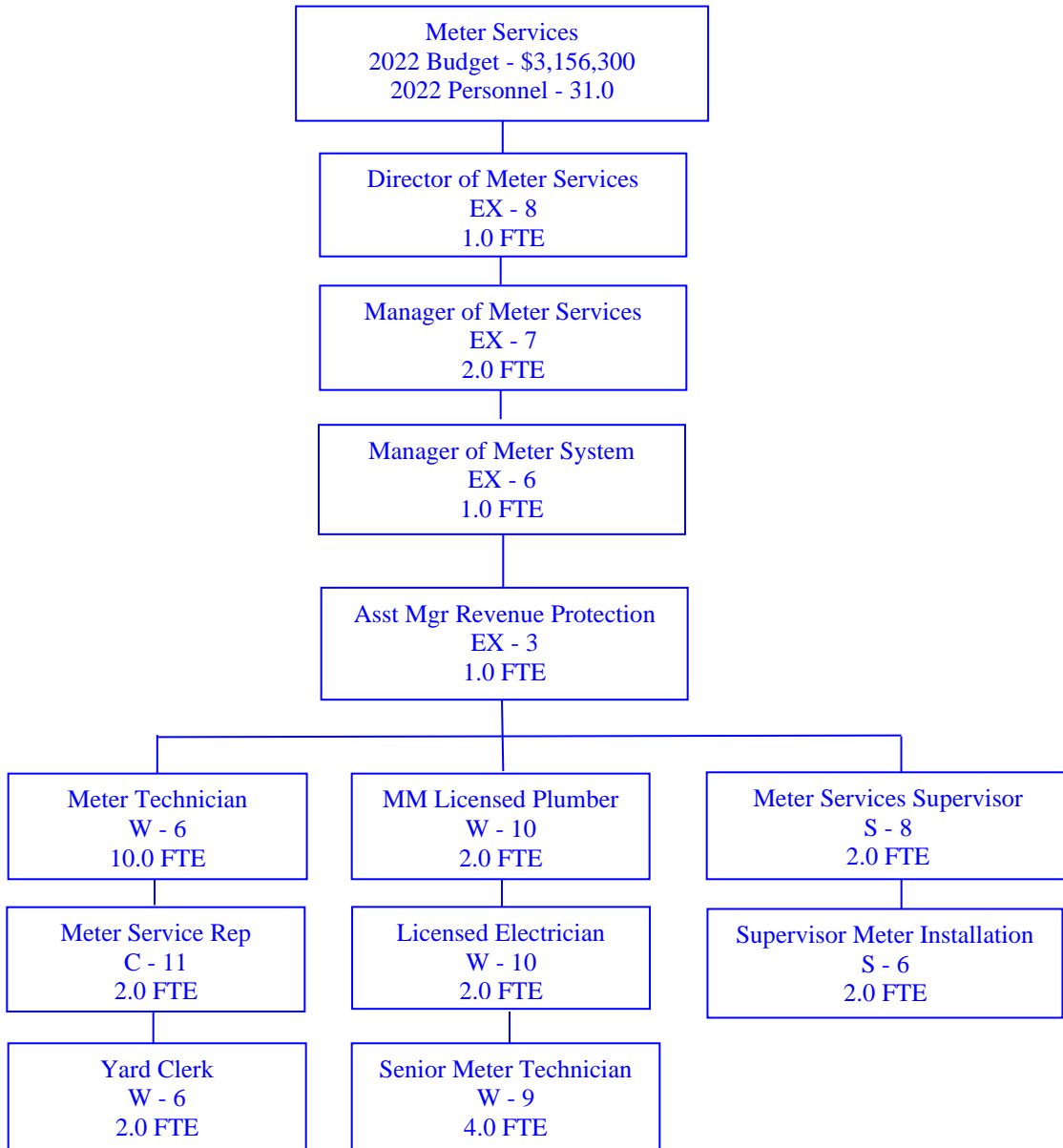
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of Chief Administrative Officer	1.0	1.0	1.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

Meter Services



Administration Division

Meter Services

Program Activities

- Maintain the efficient operation of approximately 90,000 water meters and associated automatic meter reading devices in the system thus assuring accurate registration of consumption, including the tracking and evaluation of accounts with irregularities that may be the result of defective registration and/ or meter tampering
- Provide mechanical and technical support services by way of skilled personnel as requested

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$2,150,409	\$2,510,924	\$2,901,748	\$390,824	15.6%
Overtime	\$46,725	\$80,000	\$80,000	\$0	0.0%
Labor Related Costs/Benefits	\$68,845	\$59,886	\$58,202	(\$1,684)	-2.8%
Supplies and Materials	\$18,119	\$24,500	\$24,500	\$0	0.0%
Repair and Maintenance	\$10,559	\$21,000	\$21,000	\$0	0.0%
Professional Services	\$0	\$50,000	\$50,000	\$0	100.0%
Space and Equipment Rentals	\$18,550	\$18,550	\$18,550	\$0	100.0%
Other Services	\$0	\$2,300	\$2,300	\$0	0.0%
Total Direct Expenses	\$2,313,207	\$2,767,160	\$3,156,300	\$389,140	14.1%

Explanation of Major Variances

The 2022 budget for Meter Services is \$3,156,300, an increase of \$390,824 or 14.1% from 2021. The variance is due to the Wages and Salaries line item.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2020-2021 Variance
Meter Services	30.0	32.0	31.0	(1.0)

Explanation of Personnel Changes

One position transferred to Design.

2021 Program Goal Results

Meter Services Department tested a total of 3,249 meters of which 1,575 were 3” or larger and 1,736 were 2” or smaller. In addition, 107 meters were downsized and 2,396 were installed/replaced. Over the next year staff will continue to test all removed meters on the MARS test bench and field test 3” or larger in accordance with the scheduled test months. Staff continued to investigate and survey abatement meters. Meter Services Staff will continue to work with IT Department and Billing in relation to identifying issues with UMAX and service Link and test updates as necessary.

2022 Program Goals and Objectives

Goal: The American Water Works Association recommends that meters 3” in diameter be tested every three years. 4” meters in diameter every two years and meters 6” and larger every year. In addition to maintain this program 450- 500 meters need to be tested every year..

Objective: To ensure accurate water measurement by testing large meters.

Mission: Increased Fiscal Controls.

Goal: In conjunction with IT Staff upgrade the current Aclara data base to Aclara One Software or Aclara One MDM.

Objective: Upgrade the database to utilize additional functionality of enhanced analytics that are available in Aclara One and Aclara One MDM and provide improved customer service.

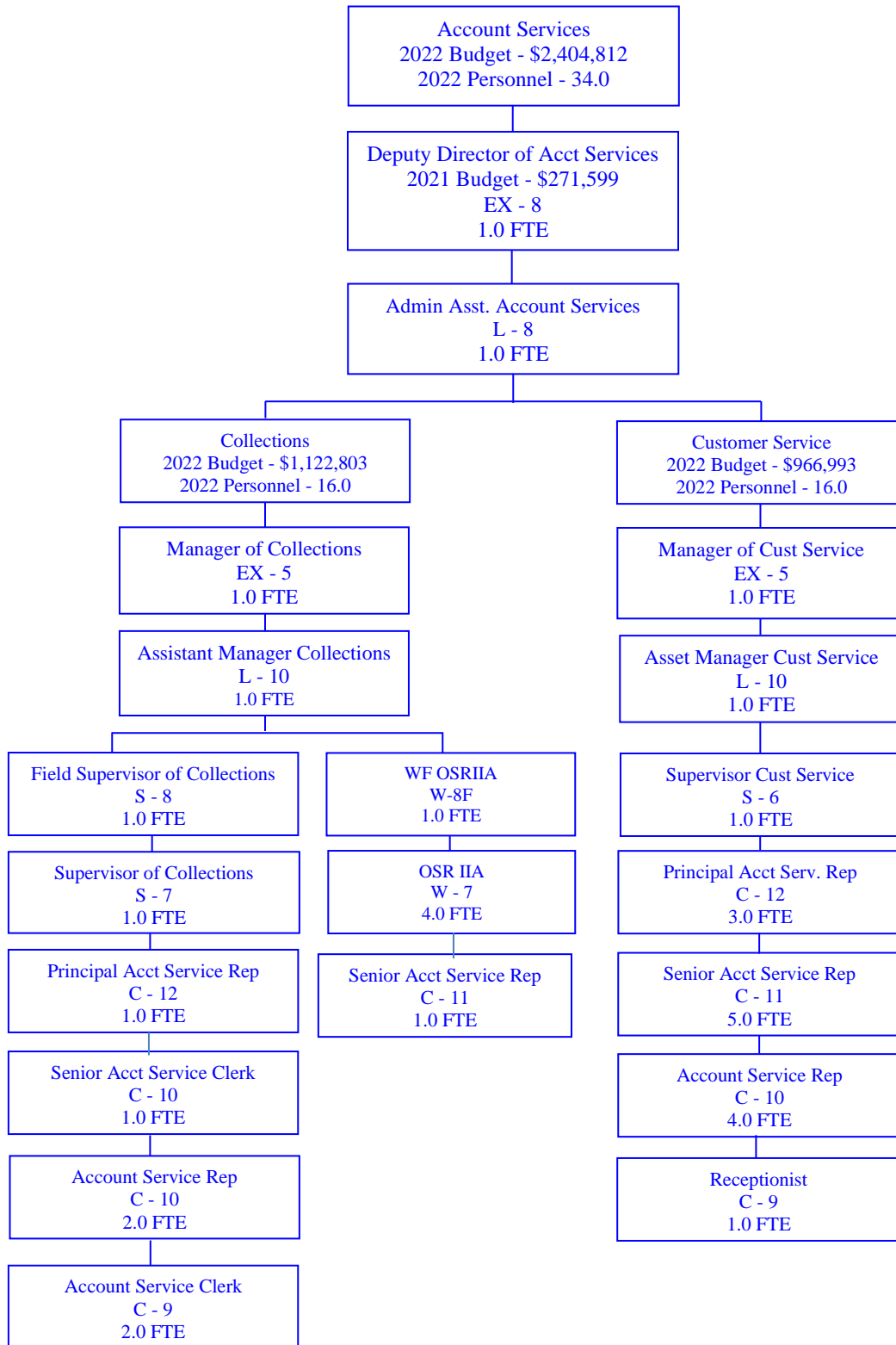
Mission: Increased Production or Efficiency Improvements

Goal: In conjunction with Aclara perform a propagation study of the City of Boston.

Objective: Based on all of the construction/development that has occurred over the last 15 years make sure that the Data Collection infrastructure for radio frequency coverage is adequate.

Mission: Increased Production or Efficiency Improvements

Account Services



Administration Division

Accounts Services

Program Activities

- Respond quickly to customer inquiries and expeditiously resolve all disputes regarding customer account balances
- Reduce outstanding dollars on delinquent accounts
- Manage the automated calling system to increase the number of outgoing and follow-up calls on delinquent accounts
- Manage the Automated Dunning System and the Commission's integrated collection activities

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$2,089,961	\$2,400,008	\$2,345,914	(\$54,094)	-2.3%
Overtime	\$7,295	\$7,879	\$7,879	\$0	0.0%
Labor Related Costs/Benefits	\$39,321	\$35,503	\$38,769	\$3,266	9.2%
Supplies and Materials	\$6,968	\$11,850	\$12,250	\$400	3.4%
Total Direct Expenses	\$2,143,545	\$2,455,240	\$2,404,812	(\$50,428)	-2.1%

Explanation of Major Variances

The 2022 budget for Account Services is \$2,404,812, a decrease of \$50,428, or 2.1% from 2021. The variance is due to the Wages and Salaries line item.

Administration Division

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Account Services	2.0	2.0	2.0	0.0
Collections	17.0	18.0	16.0	(2.0)
Customer Service	16.0	16.0	16.0	0.0
Total	35.0	36.0	34.0	(2.0)

Explanation of Personnel Changes

Account Services

There was no change in the position count.

Collections

Two positions transferred to Information Technology.

Customer Services

There was no change in the position count.

2021 Program Goal Results

Account Service Management outlined the curriculum and training scenarios to ensure new hires are provided with a well-rounded and comprehensive training program. Tremendous progress has been made to establish an interactive training program and overhauling of the training process for new hires. Account Service Representatives were also trained on General Service Applications (GSA) new requirements. This training was successful.

2022 Program Goals and Objectives

Goal: Develop a CSS Portal training and reference manual to assist Representatives responding to CSS Portal related inquiries in a quicker and more efficient manner.

Objectives: Document functions which are accessible to customers via the CSS Portal. Create a troubleshooting guide to provide staff with the ability to address and remedy CSS Portal issues. Expand Account Service Management CSS role profiles to have the capability to update CSS accounts as needed.

Mission: Increased Production or Efficiency improvements.

Goal: In conjunction with the Community relations, create a narrated video depicting Collection field work orders, operating water controls and control problems that can occur in the field. The video will be downloaded for training purposes.

Objective: Capture all Collection work orders in the field and provide an overview on how the work order is completed utilizing the Service Link tablet. Community Relations will assist with the development of scripts and the technical requirements needed to produce the training video.

Mission: Provide Staff Training.

Goal: Create a GSA manual to provide guidance for Account Service Staff when assisting customers with demolition and reactivation requests.

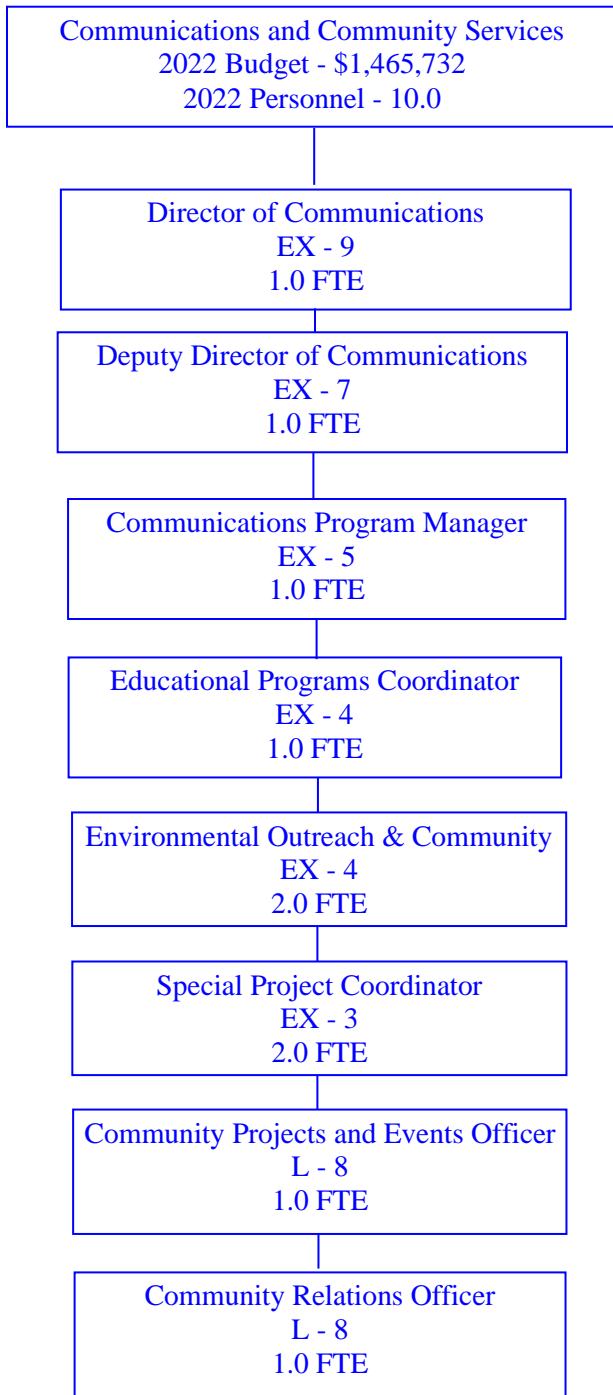
Objective: Document the GSA workflow with focus on Account Service aspects of the business process. Include information and the required documentation for opening the GSA. In depth training sessions will be scheduled for Account Service Staff to provide the detailed training which is necessary for some of the more complex GSA's.

Mission: Provide Staff Training

Department Maintenance Goals

Activity	2019 Actual	2020 Actual	2021 Actual	2022 Goal
Reduce Customer Service & Collections Calls Abandoned	0.99%	3.8%	2.9%	Less than 4.0% per month
Customer Visits	4,068	796	109	5,000
Dunning Letters Mailed	36,397	25,438	105,977	105,977
Payment Received	9,650	17,422	44,922	44,922

Communications and Community Services



Administration Division

Communications and Community Services

Program Activities

- Produce the Commission’s external communications such as informational and educational brochures, customer newsletters and text messages for the Commission’s website
- Represent the Commission at various public and community meetings and at all remote customer service sites located in Boston’s neighborhoods to resolve customer concerns
- Projecting a positive, responsive and proactive public image to the media, customers, businesses, communities and elected officials
- Coordinate and promote a variety of employee participation programs such as the annual Blood Drive, Walk for Hunger and Walk for Breast Cancer
- Assist other Commission departments in developing material, making contacts, and facilitating meetings

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,047,140	\$1,038,873	\$1,021,157	(\$17,716)	-1.7%
Labor Related Costs/Benefits	\$12,387	\$437	\$475	\$38	8.7%
Supplies and Materials	\$24,327	\$55,000	\$50,000	(\$5,000)	-9.1%
Professional Services	\$89,896	\$159,500	\$159,000	(\$500)	-0.3%
Other Services	\$80,036	\$243,100	\$235,100	(\$8,000)	-3.3%
Total Direct Expenses	\$1,253,786	\$1,496,910	\$1,465,732	(\$31,178)	-2.1%

Explanation of Major Variances

The 2022 budget for Communications and Community Services is \$1,496,910, a decrease of \$31,178 or 2.1% from 2021. The variance is due to the Wages and Salaries, Supplies and Materials, Professional Services and Other Services line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Communications and Community Services	10.0	10.0	10.0	0.0

Explanation of Personnel Changes

There was no change to the position count.

2021 Program Goal Results

While school presentations continued to be low particularly with the occurrence of the omicron variant, staff conducted presentations to 130 students in the West Roxbury and Dorchester neighborhoods. This included a collaboration with the Operations Unit providing a great visual for the students. We received increased number of calls to the lead hotline resulting in about 75 inspections in one week. The collaboration with the Engineering Department regarding the South Boston Sewer Separation Project continued with the creation and distribution of flyers inviting residents to a community meeting to highlight the status of the bid process. Cultural recognitions such as Pearl Harbor Day and Italian Heritage month as well as Covid19 updates were shared on the digital signage board.

2022 Program Goals and Objectives

Goal: In conjunction with the Commission's Lead Action Committee, continue to develop informational material whose purpose is to reflect the most current user-friendly data on the dangers of lead as anticipated by regulators and to aggressively market the utilization of the Commission's Lead Replacement Incentive Grant Funding Program. A key element of this goal is to reflect the most current increased numbers of lead service lines transitioned to copper.

Objective: Enhance current public awareness campaign through marketing material targeting property owners with information about the importance of their participation in the Private Lead Replacement Incentive Program. Work in tandem with Operations, Legal, Engineering and Finance to utilize staff and other resources available to increase the number of property owners to take advantage of the program. This may include, but not be limited to new incentive programs geared towards defraying financial obstacles and updating PSA's accordingly.

Mission: Comply with Local, State and Federal Regulations.

Goal: Develop additional materials which utilize new strategies of marketing Commission's programs and service, including private lead service replacement, discounts, utilization of the Customer Self Service Portal to pay bills or monitor consumption and using the website to obtain information about accounts, construction, doing business with the Commission or important environmental matters.

Objective: Provide updated materials for the Executive Director to distribute as appropriate to new administration regarding the mission and programs of the Commission.

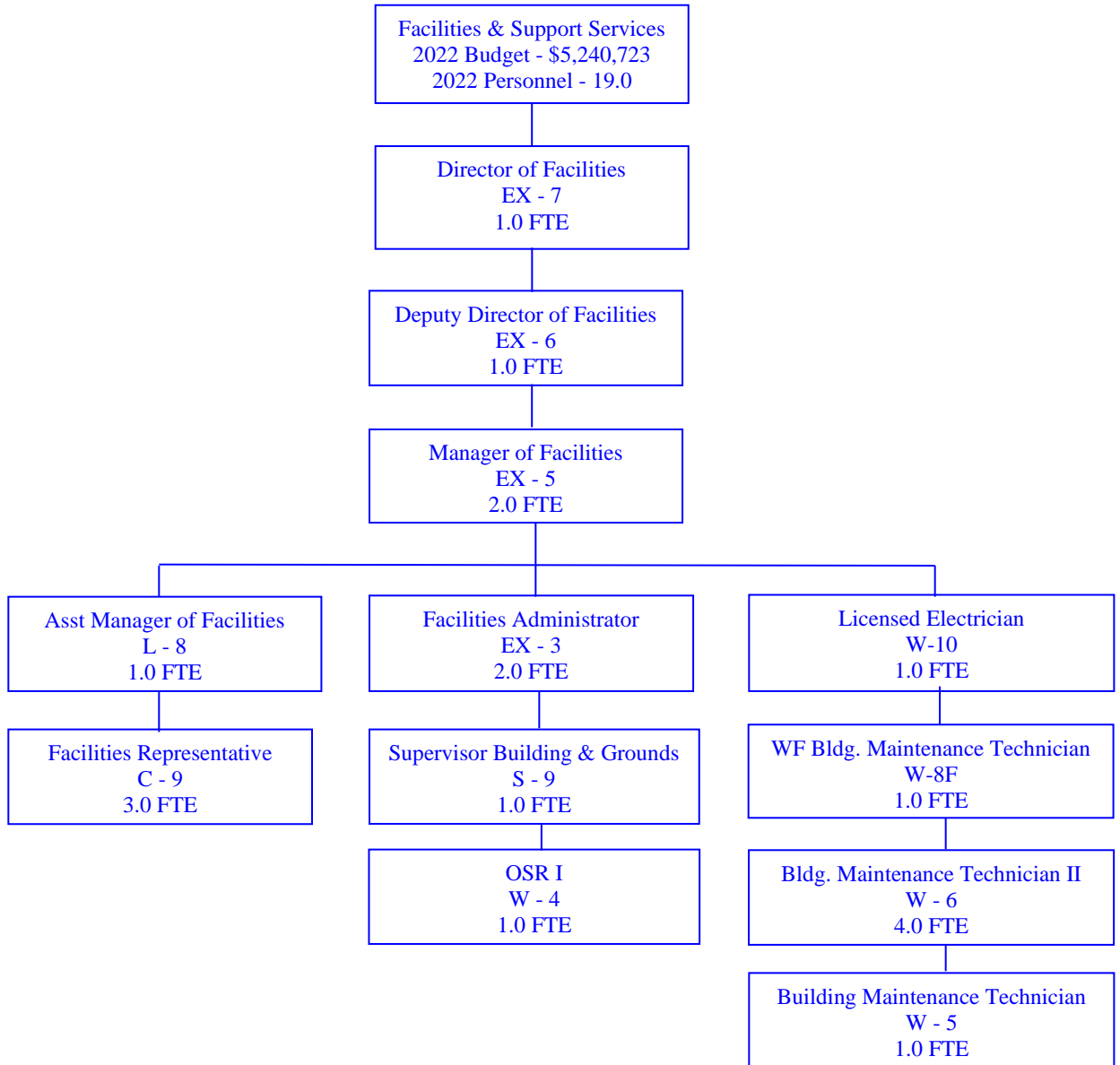
Mission: Improved Customer/Employee/Investor Relations

Goal: Following the latest public health guidelines, develop a post-COVID-19 plan to resume in-person activities including neighborhood meetings of all kinds and public events which promote the Commission and the environmental initiatives.

Objective: Provide regular updates through social media, print, website and community organizations with regard to changes in access to in-person activities.

Mission: Protect Environment.

Facilities & Support Services



Administration Division

Facilities & Support Services

Program Activities

- The Facilities Department is responsible for coordinating all aspects of the Commission's buildings and properties including maintenance, repair, security, mail distribution, office supplies and furniture, records archiving, office equipment leasing and food services
- Facilities is also responsible for directing and monitoring the Commission's Safety Program including accident/injury reporting, safe work practices and alcohol/drug testing

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,444,930	\$1,548,289	\$1,604,257	\$55,968	3.6%
Overtime	\$10,194	\$27,725	\$27,875	\$150	0.5%
Labor Related Costs/Benefits	\$27,490	\$10,670	\$8,191	(\$2,479)	-23.2%
Supplies and Materials	\$126,274	\$373,600	\$381,600	\$8,000	2.1%
Repair and Maintenance	\$1,156,626	\$1,189,000	\$1,079,000	(\$110,000)	-9.3%
Utilities	\$999,705	\$1,417,000	\$1,457,000	\$40,000	2.8%
Professional Services	\$29,856	\$60,000	\$48,000	(\$12,000)	-20.0%
Space and Equipment	\$21,824	\$32,800	\$34,800	\$2,000	6.1%
Other Services	\$736,024	\$1,020,300	\$562,000	(\$458,300)	-44.9%
Capital Outlay	\$26,881	\$46,000	\$38,000	(\$8,000)	-17.4%
Total Direct Expenses	\$4,579,804	\$5,725,384	\$5,240,723	(\$484,661)	-8.5%

Explanation of Major Variances

The 2022 budget for Facilities & Support Services Department is \$5,240,723, an increase of \$484,661 or 8.5% from 2021. The variance is due to decreases in the Labor Related Costs/Benefits, Repair and Maintenance, Professional Services, Other Services and Capital Outlay line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Facilities & Support Services	21.0	20.0	19.0	(1.0)

Explanation of Personnel Changes

One position transferred to Human Resources.

Administration Division

2021 Program Goal Results

The Facilities Department Staff continues to strategize protocols and consult with vendors for sanitizing products that are beneficial to the Commission. A motorized gate was installed at the Harrison Ave entrance which met the approval of the Commission. Staff engaged with DHK Architects for a plan to analyze the integrity of an existing roof. DHK Architects performed physical analysis of roof including the cutting and removal of existing pieces to study for long-term integrity. DHK's findings were reviewed, and it was determined that replacement roof is required with initial phase starting in 2022.

2022 Program Goals and Objectives

Goal: Utilizing the newly contracted security service and the new camera and security system, organize a post-pandemic security regime to further reduce unauthorized access to 980 Harrison Avenue Headquarters campus and the Material Handling Facility..

Objectives: To optimize the safety and security of Commission employees, guests and assets.

Mission: Limit Commission Liability/Increase Safety.

Goal: Direct the Commission's House Doctor and involved subcontractors with the collaborative effort with Operations to develop plans for the provision of flood protection at the Trilling Way and Summer Street Pump Stations as well as 980 Harrison Avenue and 180-220 Alford Street.

Objectives: To reduce the risk of flooding at Commission properties during catastrophic rain events.

Mission: Limit commission Liability/Increase Safety

Goal: Working with the Commission's Owners Project Manager (OPM) develop a plan and initiate near-term activities for the revitalization of the Commission's physical plant..

Objectives: To develop a plan to modernize Headquarters campus building and systems.

Mission: Increased Production or Efficiency Improvements.

Goal: Coordinate activities with the city of Boston and other stakeholders involved in the redevelopment of Melena Cass Boulevard.

Objectives: Provide assistance, as needed to the city of Boston for work to be performed on or abutting Commission property. Protect integrity of Commission's property.

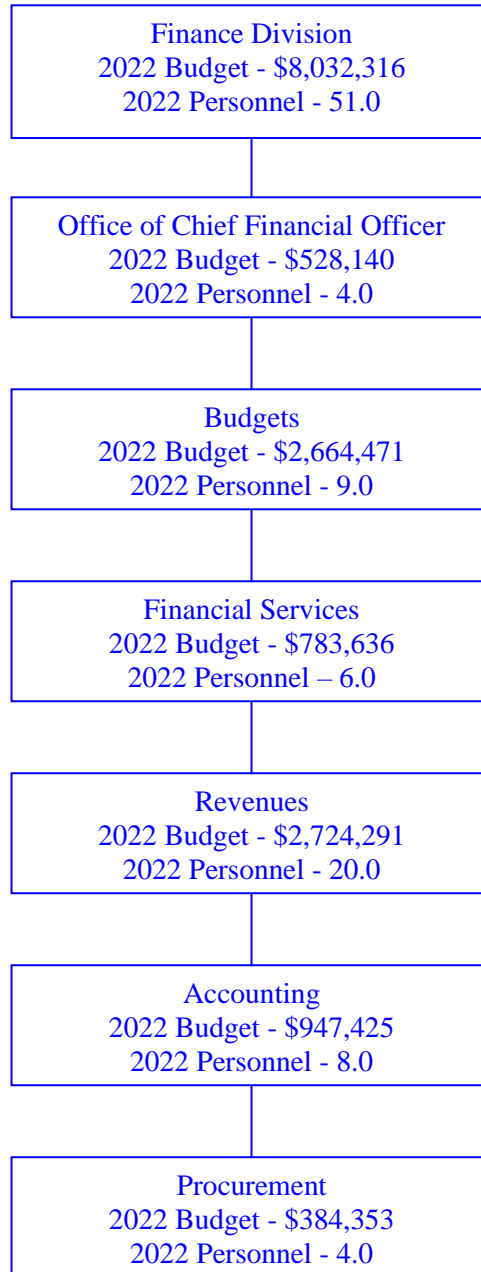
Mission: Protect Environment.

Goal: The evaluation and implementation of measures to optimize the gathering, storage, retrieval and destruction of Commission archive boxes.

Objectives: Streamline the commission's archiving system with the appropriate destruction of outdated archive boxes.

Mission: Increased Fiscal Controls.

Finance Division



Finance Division

Finance Division Organization

Program Activities

The Finance Division is comprised of the Office of Chief Financial Officer and the following five departments:

- **Budgets**
- **Financial Services**
- **Revenues**
- **Accounting**
- **Procurement**

Division Mission

The Finance staff is responsible for the establishment of policies to provide maintenance of a strong financial structure designed to provide the lowest possible cost of water, wastewater and storm drainage services; establish a billing methodology that is fair and equitable to all rate payers; advance security for the Commission's bondholders; design and implement an internal control structure intended to provide reasonable security for the safeguard of Commission assets. The Finance staff carries out its mission through the activities of its five Departments: Budgets, Financial Services, Revenues, Accounting, and Procurement.

Division Budget Summary

Department	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Office of Chief Financial Officer	\$494,374	\$487,724	\$528,140	\$40,416	8.3%
Budgets	\$1,127,297	\$1,214,790	\$2,664,471	\$1,449,681	119.3%
Financial Services	\$1,394,516	\$1,564,530	\$783,636	(\$780,894)	-49.9%
Revenues	\$2,088,683	\$2,452,964	\$2,724,291	\$271,327	11.1%
Accounting	\$821,075	\$895,403	\$947,425	\$52,022	5.8%
Procurement	\$289,205	\$336,715	\$384,353	\$47,638	14.1%
Total Direct Expenses	\$6,215,150	\$6,952,126	\$8,032,316	\$1,080,190	15.5%

Explanation of Major Variances

The 2022 budget for the Finance Division is \$8,032,316, an increase of \$1,080,190, or 15.5% from 2021. The variance is attributed to increases in the Office of Chief Financial Officer, Budgets, Revenues, Accounting and Procurement Departments line items.

Division Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of Chief Financial Officer	3.0	3.0	4.0	1.0
Budgets	8.0	8.0	9.0	1.0
Financial Services	9.0	9.0	6.0	(3.0)
Revenues	20.0	20.0	20.0	0.0
Accounting	8.0	8.0	8.0	0.0
Procurement	4.0	3.0	4.0	1.0
Total	52.0	51.0	51.0	0.0

Explanation of Personnel Changes

Office of Chief Financial Officer

One position transferred from Budgets.

Budgets

One position transferred to Office of Chief Financial Officer.

One position transferred to Procurement.

Three positions transferred from Payroll/Financial Services.

Financial Services

Three positions transferred to Payroll/Budgets.

Revenues

There was no change to the position count.

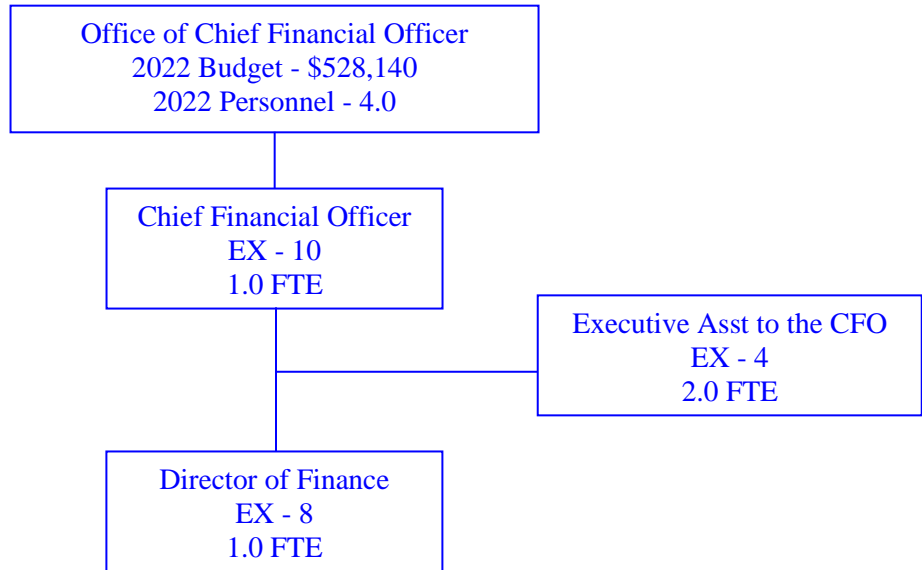
Accounting

There was no change to the position count.

Procurement

One position transferred from Budgets.

Office of Chief Financial Officer



Finance Division

Office of Chief Financial Officer

Program Activities

- Oversee the integration of all financial and analytical activities enabling the Commission to improve overall operational effectiveness and control expenses
- Ensure the adequacy of resources to implement near and long range initiatives

Department Budget Summary

Department	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$467,493	\$466,671	\$509,431	\$42,760	9.2%
Labor Related Costs/Benefits	\$17,538	\$18,553	\$13,709	(\$4,844)	-26.1%
Professional Services	\$4,800	\$0	\$0	\$0	0.0%
Training/Seminar/Travel	\$4,543	\$2,500	\$5,000	\$2,500	100.0%
Total Direct Expenses	\$494,374	\$487,724	\$528,140	\$40,416	8.3%

Explanation of Major Variances

The 2022 budget for the Office of Chief Financial Officer is \$528,140, an increase of \$40,416 or 8.3% from 2021. The variance is due to the Wages and Salaries and Training/Seminar/Travel line items.

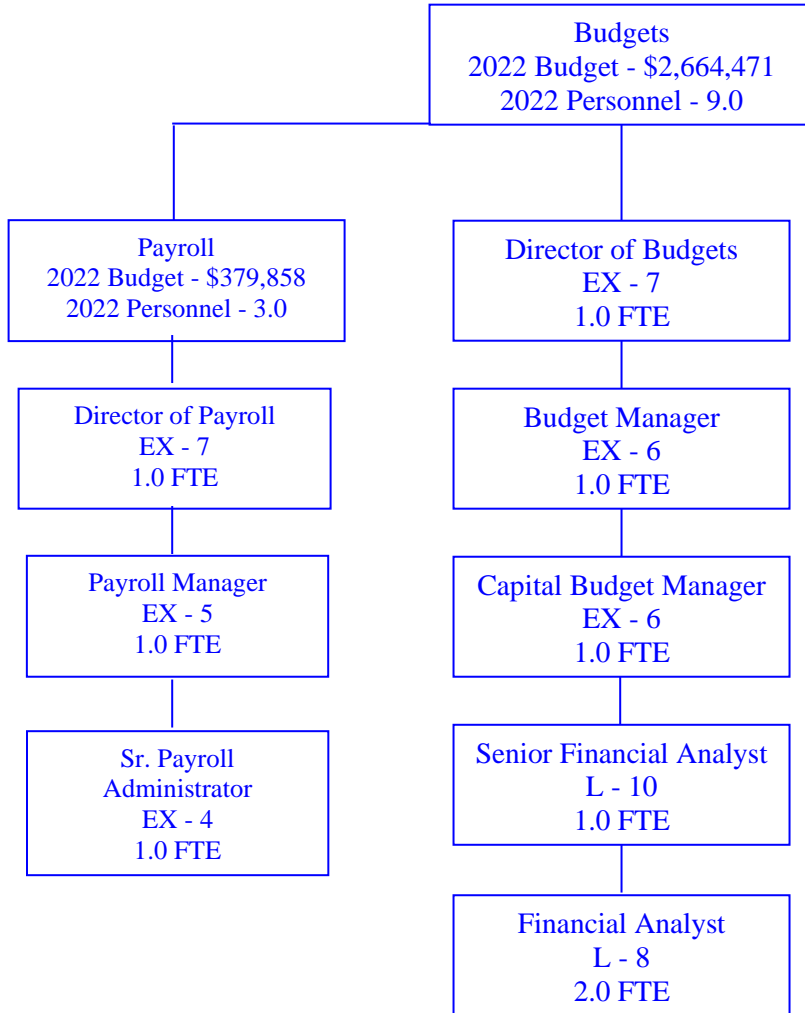
Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Office of Chief Financial Officer	3.0	3.0	4.0	1.0

Explanation of Personnel Changes

One position transferred from Budgets.

Budgets



Finance Division

Budgets

Program Activities

Budgeting and Financial Planning

- Coordinate the development and review of program plans and resource requirements for all Commission operations and activities including capital improvement projects
- Analyze actual expenditures against authorized budgets
- Staff relating to Treasury functions, to monitor, coordinate and enhance the Commission's revenue stream in order to maximize yields and minimize cost
- Payroll is responsible for generating and distributing accurate paychecks to employees on a weekly basis
- Payroll also enforces policies and procedures as stipulated by contracts, policies and state and federal payroll laws

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$643,438	\$680,732	\$992,696	\$311,964	45.8%
Labor Related Costs/Benefits	\$14,422	\$31,908	\$31,238	(\$670)	-2.1%
Supplies and Materials	\$3,631	\$3,950	\$9,950	\$6,000	151.9%
Professional Services	\$465,806	\$498,200	\$546,800	\$48,600	9.8%
Insurance	\$0	\$0	\$1,083,787	\$1,083,787	#DIV/0!
Total Direct Expenses	\$1,127,297	\$1,214,790	\$2,664,471	\$1,449,681	119.3%

Explanation of Major Variances

The 2022 budget for the Budgets Department is \$2,664,471, an increase of \$1,449,681 or 119.3% from 2021. The variance is due to the Wages and Salaries, Supplies and Materials, Professional Services and insurance line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Director of Budgets	1.0	1.0	1.0	0.0
Budget and Financial Planning	7.0	7.0	5.0	(2.0)
Payroll	0.0	0.0	3.0	3.0
Total	8.0	8.0	9.0	1.0

Finance Division

Explanation of Personnel Changes

Director of Budgets

There was no change to the position count.

Budget and Financial Planning

One position transferred to the Offices of the Chief Financial Officer.
One position transferred to Procurement.

Payroll

Three positions transferred from Payroll under Financial Services to Payroll under Budgets.

2021 Program Goal Results

Continued to analyze consumption and revenue data monthly to determine the decrease as a result of COVID-19. Ongoing analysis is being conducted and utilizing various data from UMAX for these processes. The Current Expense Budget document was updated to comply with the new requirements of the Government Finance Officers Association.

2022 Program Goals and Objectives

Goal: The Budget & Financial Planning Department will analyze consumption data to see effects of COVID-19 restrictions being imposed or lifted so that we can better forecast future consumption. This daily/weekly/monthly analysis uses real time data to see changes in the consumption trends.

Objective: The objective of this goal is to be able to analyze and model consumption trends in relation to the imposition or lifting of restrictions due to COVID-19. This will allow us to forecast and model future consumption trends for budgeting purposes.

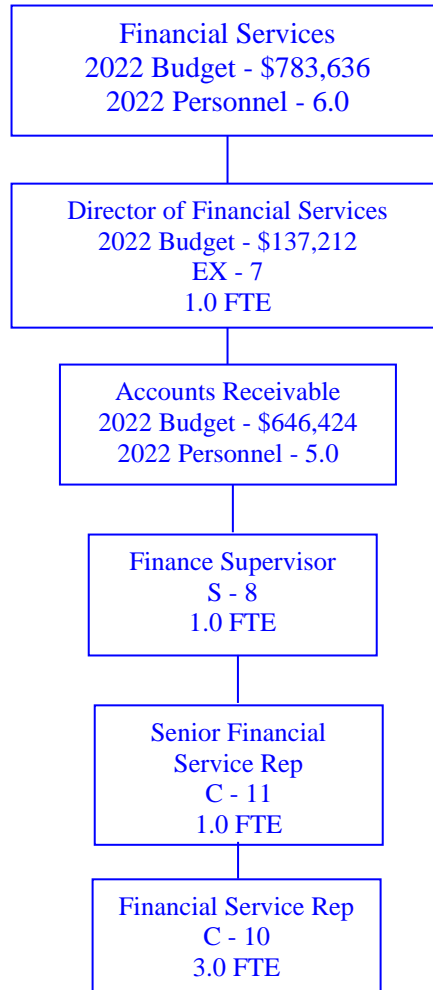
Mission: Improve/Develop Policy Procedure

Goal: Work with Legal on how to address delinquent Miscellaneous accounts.

Objective: The object of this goal is to be able to develop a procedure on how to handle delinquent miscellaneous accounts so that Legal can take over collection efforts in a timely manner.

Mission: Improve/Develop Policy Procedure

Financial Services



Financial Services

Finance Division

Financial Services

- Accounts Receivable staff, receives and posts, in a timely manner, all cash receipts and accurately maintains a record of the Commission's investments, while generating monthly detailed reports of investment activities

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$736,157	\$788,682	\$434,496	(\$354,186)	-44.9%
Overtime	\$2,317	\$0	\$0	\$0	0.0%
Labor Related Costs/Benefits	\$23,112	\$20,485	\$1,320	(\$19,165)	-93.6%
Supplies and Materials	\$6,041	\$16,063	\$8,520	(\$7,543)	-47.0%
Repair and Maintenance	\$626,890	\$738,000	\$338,000	(\$400,000)	-54.2%
Other Services	\$0	\$1,300	\$1,300	\$0	0.0%
Total Direct Expenses	\$1,394,517	\$1,564,530	\$783,636	(\$780,894)	-49.9%

Explanation of Major Variances

The 2022 budget for the Financial Services Department is \$783,636, a decrease of \$780,894 or 49.9% from 2021. The variance is due to the Wages and Salaries, Labor Related Costs/Benefits, Supplies and Materials and Repair and Maintenance line items.

Department Personnel Summary

Finance Division

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Director of Financial Services	1.0	1.0	1.0	0.0
Accounts Receivable	5.0	5.0	5.0	0.0
Total	6.0	6.0	6.0	0.0

Explanation of Personnel Changes

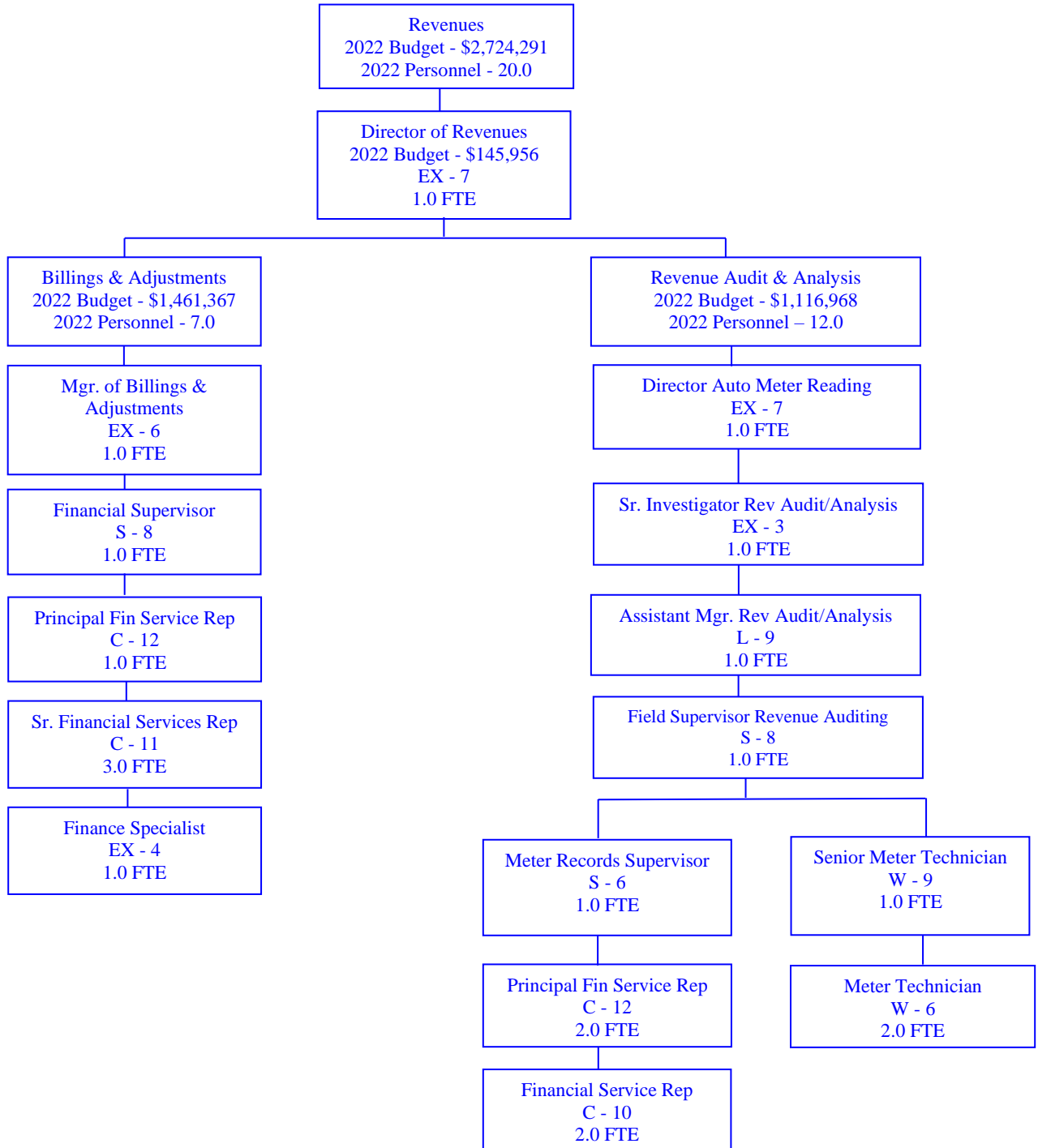
Director of Financial Services

There was no change to the position count.

Accounts Receivable

There was no change to the position count.

Revenues



Finance Division

Revenues

Program Activities

Billings & Adjustments

- Staff provides timely and accurate billings in conjunction with processing adjustments to appropriate customers' accounts

Revenue Audit and Analysis

- Investigate, document and resolve all reports of erratic reads, low usage, no usage, meter tampering and illegal connections, including communicating with BWSC departments and customers during follow-up
- Maintain integrity of Aclara and UMAX records of meters and MTUs by reviewing and verifying information on replacement/repair/reprogram work orders before entering data/closing out, and by running and reviewing numerous queries/reports to identify problems and correct such problems by updating/editing or correcting UMAX and/or Aclara records as needed
- Monitor Aclara and/or UMAX processes such as processing MTU programmer files into UMAX work orders, transfer of readings from Aclara to UMAX, DCU status, report problems and follow-up with appropriate staff to resolve

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$1,621,082	\$1,679,230	\$1,785,746	\$106,516	6.3%
Overtime	\$3,971	\$7,435	\$7,435	\$0	0.0%
Labor Related Costs/Benefits	\$17,841	\$83,879	\$126,818	\$42,939	51.2%
Supplies and Materials	\$407,669	\$617,470	\$609,342	(\$8,128)	-1.3%
Professional Services	\$0	\$0	\$130,000	\$130,000	#DIV/0!
Other Services	\$38,120	\$64,950	\$64,950	\$0	0.0%
Total Direct Expenses	\$2,088,683	\$2,452,964	\$2,724,291	\$271,327	11.1%

Explanation of Major Variances

The 2022 budget for the Revenues Department is set at \$2,724,291, an increase of \$271,327 or 11.1% from 2021. The variance is due to the Wages and Salaries, Labor Related Costs/Benefits and Professional Services line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Director of Revenues	1.0	1.0	1.0	0.0
Billings & Adjustments	8.0	8.0	7.0	(1.0)
Revenue Audit & Analysis	11.0	11.0	12.0	1.0
Total	20.0	20.0	20.0	0.0

Explanation of Personnel Changes

Director of Revenues

There was no change to the position count.

Billings & Adjustments

One position transferred to Revenue Audit & Analysis.

Revenue Audit & Analysis

One position transferred from Billing & Adjustments.

2021 Program Goals Results

Revenue Audit & Analysis staff completed testing prior to any scheduled UMAX and Serve-Link updates and bug fixes, then worked all staff to provide adequate training on updated processes. Manuals covering specific RAA UMAX processes (RAA Violations and RAA Theft Violations) and (Work Order Creation Violations (UMAX), Service Link Dispatch and Service Link Dispatch Supervisor and Manager Tasks) were reviewed.

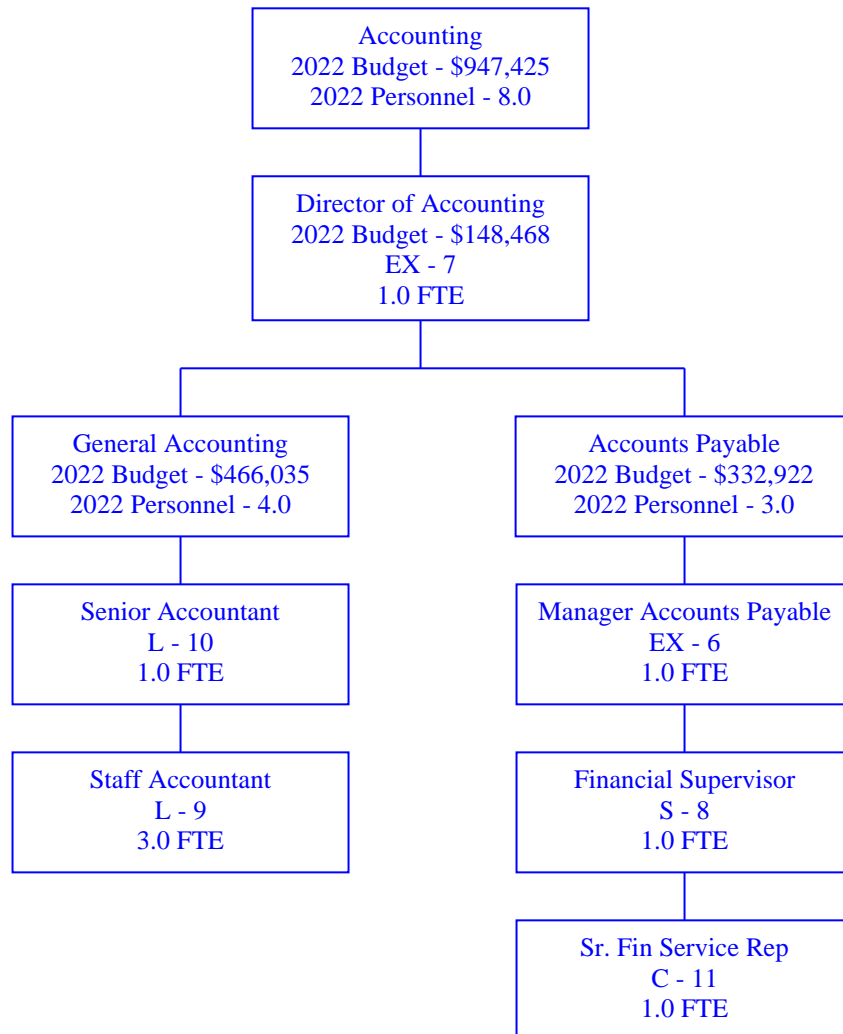
2022 Program Goals and Objectives

Goal: Review and update the BWSC Revenue Audit and Analysis Policy. The current policy was approved and adopted by the Commissioners at a meeting of the Board on September 23,2008. Amended policy approved and adopted by the Commissioners at a meeting of the Board on March 19,2009.

Objective: Review and update the BWSC Revenue Audit and Analysis Policy to reflect current systems, technology, organization etc. Draft the changes and review with BWSC staff from General Counsel's Office, Finance, Administration and other departments as needed. Prepare final draft and send to Board for approval and adoption.

Mission: Improve/Develop Policy/Procedure.

Accounting



Finance Division

Accounting

Program Activities

General Accounting

- Produce monthly financial management reports and annual interim financial statements

Accounts Payable

- Efficiently handles and process all accounts payable functions

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$711,036	\$726,480	\$778,615	\$52,135	7.2%
Labor Related Costs/Benefits	\$21,777	\$33,773	\$53,660	\$19,887	58.9%
Supplies and Materials	\$2,846	\$4,400	\$4,400	\$0	0.0%
Professional Services	\$85,414	\$130,000	\$110,000	(\$20,000)	-15.4%
Other Services	\$0	\$750	\$750	\$0	0.0%
Total Direct Expenses	\$821,073	\$895,403	\$947,425	\$52,022	5.8%

Explanation of Major Variances

The 2022 budget for the Accounting Department is \$947,425, an increase of \$52,022 or 5.8% from 2021. The variance is due to the Wages and Salaries and Labor Related Costs/Benefits line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Director of Accounting	1.0	1.0	1.0	0.0
General Accounting	4.0	4.0	4.0	0.0
Accounts Payable	3.0	3.0	3.0	0.0
Total	8.0	8.0	8.0	0.0

Explanation of Personnel Changes

Director of Accounting

There was no change to the position count.

General Accounting

There was no change to the position count.

Accounts Payable

There was no change to the position count.

2021 Program Goal Results

First time in several years that there were no variances between the GL and AM. There have been no system errors in the Trial Balance Report. The accounting department is aware that there might be potential year end and adjustment entries that might affect the Trial Balance. Periodic checks will continue to be performed in preparation for the upcoming audit.

2022 Program Goals and Objectives

Goal: To utilize the construction contracts closeout query to help reconcile the closed contracts spreadsheet on a monthly basis.

Objective: Ensure the closed spreadsheet is up-to-date and accurate so that quarterly and year-end asset management is correct. This query and process would also help the accounting department close out and start depreciating inactive contracts that did not have official final payments.

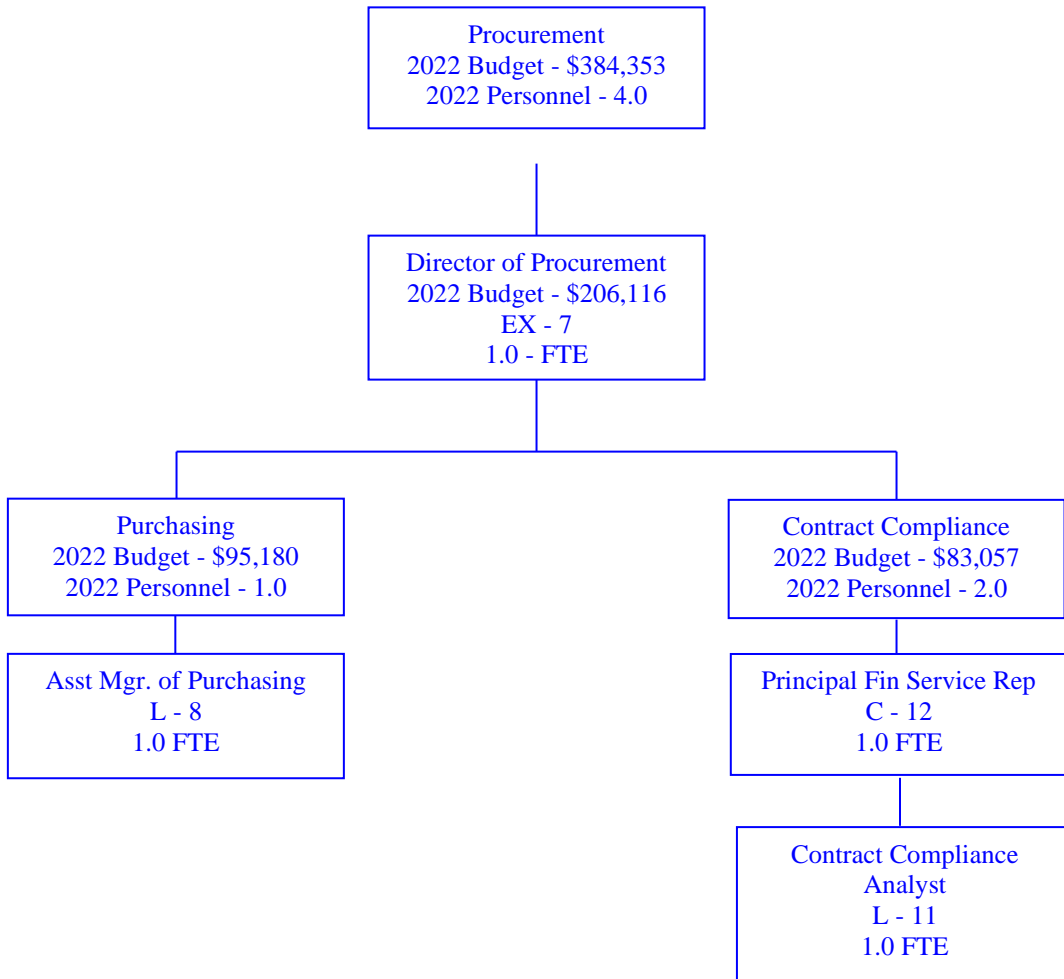
Mission: Increased Production or Efficiency Improvements

Goal: Ensure that the general ledger cash accounts are reconciled to both the bank and to the Peoplesoft ledger on a quarterly basis.

Goal Objective: To introduce preventative measures to avoid large variances between A/P's reconciliations and the Peoplesoft ledger at year-end. Due to the introduction of daily A/R entries with the Umax implementation, variances have become more difficult to track. Quarterly reconciliation checks would help prevent large year-end variances.

Mission: Increased Production or Efficiency Improvements.

Procurement



Finance Division

Procurement

Program Activities

Purchasing

- Provide purchase and contract support services in a cost-effective manner
- Ensure fair and equitable treatment of all persons who offer to provide supplies or services
- Provide safeguards for the maintenance of the procurement system of quality and integrity and to maximize, to the fullest extent practicable, the purchasing value of public funds

Contract Compliance

- The Contract Compliance Officer monitors: minority/residency/women participation goals, payment of prevailing wage rates, MBE/WBE contract goals, OSHA training requirements and responds to all “Freedom of Information” requests relating to construction contractual information

Department Budget Summary

Expense Line Item	2020 Actual	2021 Budget	2022 Budget	Dollar Variance	2021-2022 Variance
Wages and Salaries	\$258,643	\$266,184	\$305,543	\$39,359	14.8%
Labor Related Costs/Benefits	\$5,683	\$1,486	\$1,615	\$129	8.7%
Supplies and Materials	\$845	\$1,745	\$1,745	\$0	0.0%
Other Services	\$24,035	\$67,300	\$75,450	\$8,150	12.1%
Total Direct Expenses	\$289,206	\$336,715	\$384,353	\$47,638	14.1%

Explanation of Major Variances

The 2022 budget for the Procurement Department is \$384,353, an increase of \$47,638 or 14.1% from 2021. The variance is due to the Wages and Salaries, Labor Related Costs/Benefits and Other Services line items.

Department Personnel Summary

Department	2020 Actual	2021 Approved	2022 Budget	2021-2022 Variance
Director of Procurement	1.0	1.0	1.0	0.0
Purchasing	2.0	1.0	1.0	0.0
Contract Compliance	1.0	1.0	2.0	1.0
Total	4.0	3.0	4.0	1.0

Explanation of Personnel Changes

Director of Procurement

There was no change to the position count.

Purchasing

There was no change to the position count.

Contract Compliance

One position transferred from Budgets.

2021 Program Goal Results

A memorandum was prepared for the Engineering Department and Information Technology Department to discuss the possibility of creating an electronic filing system. In conjunction with the Legal Department a standard contract boiler plate for M.G.L. Ch.149 contracts is in place for facility maintenance and repair contracts. In conjunction with the Organizational Diversity Department, a recommendation to the Board of Commissioner's was made to implement changes to the MBE/WBE policy.

2022 Program Goals and Objectives

Goal: Develop a system to track Professional Service Contracts.

Objective: To track all RFP, Professional Service Contracts and notify the department heads as to when their contract will expire.

Mission: Increased Production or Efficiency Improvements

Goal: Peoplesoft Financials Tests and implement new enhancements.

Objective: Test and implement new enhancements, correct software bugs and processes. Test applied to Peoplesoft Patches fixes into the production software application.

Mission: Increased Production or Efficiency Improvements.

Goal: Develop a system to assist in tracking and reporting of MBE/WBE Minority and Women Business Enterprises utilization by the Commission.

Objective: As a result of the City of Boston's Disparity Study, implement recommendations to enhance the Commission's M/WBE Program.

Mission: Improve/Develop Policy/Procedure.

THIS PAGE INTENTIONALLY LEFT BLANK

2022 – 2024 Capital Improvement Program

Boston Water and Sewer Commission (“the Commission” or “BWSC”) is a body politic and corporate a political subdivision of the Commonwealth created by Chapter 436 of the Acts of 1977 (“The Enabling Act”). The Enabling Act abolished the water and sewer divisions within the City of Boston Public Works Department and transferred the ownership, operation and control of the water, sewer and storm drain systems to the Commission. As a public instrumentality, the Commission performs an essential public function in providing water and sewer services to the residents of the City of Boston. The Enabling Act authorizes the Commission to construct and make improvements to the water and sewer systems, establish and collect rates and charges for its services, and finance its operations and improvements through revenue collections and the sale of bonds and notes payable solely from the Commission’s revenues.

The Enabling Act further provides that any revenue surplus realized by the Commission in any fiscal year shall be used to offset future rate increases.

The Enabling Act and the Commission’s General Revenue Bond Resolution, adopted December 6, 1984 (“the Resolution”) require the Commission, on an annual basis, to develop a three-year Capital Improvement Program (“CIP”). Information generated by the Commission’s ongoing monitoring programs for the Systems and from various engineering data files, together with information concerning the development needs of the City, is used to compile a list of pipes, conduits, transmission mains and other System components to be either renewed, replaced, relocated or added to the Systems each year. The CIP outlines the schedule and implementation of the capital projects necessary to maintain and improve the water and sewer systems for the ensuing three-year period.

Complying with the requirements of the Enabling Act and the Resolution, the Commission projected cost of the Commission’s Capital Improvement Program from Fiscal Years 2022 through 2024 totals approximately, \$236.8 million.

DISCUSSION OF MANAGEMENT OBJECTIVES AND ACCOMPLISHMENTS

The Commission was created to maintain and improve the long-term quality and reliability of water and sewer services for all users in the City and to assure adequate funding for operation and maintenance of the systems. For the purposes of this document, “Systems” include the water distribution system (including potable water and fire suppression facilities) and sewer system (including separate sanitary sewers, separate stormwater drains and combined sewers) and the related appurtenances and fixtures. The Commission is committed to four primary goals:

- To maintain and improve the water distribution and wastewater collection systems: The Commission is committed to various improvements to the Water Distribution and Sewer Systems, including following an aggressive renewal and replacement program, reducing unaccounted for water, encouraging conservation, and improving the environment. The Commission is also committed to meeting and exceeding the requirements of all federal and state water and wastewater laws, regulations, and technical standards.

2022 – 2024 Capital Improvement Program

- To establish and administer a billing and collections system that is fair and efficient: The Commission has worked to establish a rate structure that fully and fairly reflects its costs, properly distributes the financial obligation concerning its customer base and encourages water conservation. The metering, billing and collection process is a central focus of the Commission’s full management team and the Commission is committed to maintaining its strong record in that area.
- To maintain a strong financial structure: The Commission has consistently employed conservative financial projections and budgeting assumptions, maintains adequate reserves and struck a reasonable balance between debt funding and rate funding of capital expenses.
- To sustain the effectiveness of investments / compliance of regulations: The Commission is committed to complying with all its regulatory obligations under federal and state laws, including the Safe Drinking Water Act (“SDWA”) and Clean Water Act (“CWA”) with its National Pollutant Discharge Elimination System (“NPDES”) permitting obligations for both its stormwater systems and combined sewer systems. Compliance obligations also extend to meeting and exceeding the goals and requirements of the Boston Harbor Decree and the Consent Decree executed in 2012 with the Environmental Protection Agency (“EPA”) related to stormwater discharges.

In planning its CIP, the Commission balances the recognized need for ongoing renewal and replacement and preservation of its Systems with the desirability of specific improvements to accommodate development or redevelopment plans for the City. Wherever feasible, capital improvements are scheduled in cooperation with the street rebuilding and reconstruction activities of the City’s Department of Public Works, the Boston Planning and Development Agency and the Commonwealth of Massachusetts Highway Department.

On August 23, 2012, the Commission entered in a Consent Decree with the Environmental Protection Agency and Conservation Law Foundation. Under the terms of the Consent Decree the Commission implemented a Capacity, Maintenance, Operations and Management (“CMOM”) self-assessment study in 2012 that analyzed all aspects of the Commission’s sanitary sewer and storm drainage facility operations and maintenance. The Commission finalized a CMOM Corrective Action Plan in July 2013 and developed a CMOM Program Document in May 2014. The CMOM Program synchronizes infrastructure maintenance and operations goals with long-term CIP planning to achieve (“CWA”) compliance with the Commission’s NPDES permit and ultimately improve water quality.

As part of the CMOM Corrective Action Plan filed with the EPA, the Commission increased its inspection and assessment of its sewer and drainage systems. The program represents progressive increases in the quantity of pipes cleaned and televised with an end goal of completing approximately 10% of the system annually.

The overall objectives of the Commission 2022-2024 CIP are to ensure the delivery of high quality potable water for consumption and fire protection, as well as the efficient collection of sewage for transport and delivery to a treatment facility or for approved discharge. In addition, the CIP

2022 – 2024 Capital Improvement Program

includes projects to improve overall efficiency of the Commission and to enhance the Commission's ability to provide services to its customers

The CMOM Department oversees the response and reporting of Sanitary Sewer Overflows (SSO), preventative maintenance, catch basin cleaning program and inspection and maintenance of the combined overflow system, in accordance with the Commission's National Pollutant Discharge Elimination (NPDES) Permit.

The Asset Management/CMOM team reports and conducts a root cause analysis of all SSOs as well as conducts sewer flow metering and dye testing.

Since the implementation of the CMOM program in 2014, the Commission has televised and cleaned annually since the onset of the program, as well as the projected amount of pipe to be televised and cleaned in the 2022-2024 CIP.

✓ 2014	33.16 miles
✓ 2015	75.47 miles
✓ 2016	90.56 miles
✓ 2017	103.88 miles
✓ 2018	102.09 miles
✓ 2019	105.90 miles
✓ 2020	94.24 miles
✓ 2021	102.43 miles

The Citywide Illicit Identification Program seeks to identify, through dye testing, improper sanitary lateral connections to storm drains and sources of inflow and infiltration entering the sewer system. Corrective actions will be taken to eliminate illicit connections and identify the sources of inflow and infiltration. This program also includes the inspection of sewer and building connections within low groundwater areas to ensure that they do not cause drawdown groundwater through infiltration.

The overall objectives of the Commission 2022-2024 CIP are to ensure the delivery of high-quality potable water for consumption and fire protection, as well as the efficient collection of sewage for transport and delivery to a treatment facility or for approved discharge. In addition, the CIP includes projects to improve overall efficiency of the Commission and to enhance the Commission's ability to provide services to its customers.

Funding for the 2022-2024 Capital Improvement Program totals \$236.8 million. The CIP is comprised of Water, Sewer, Support, and Stormwater Programs.

CIP expenditures are divided into four categories: Water Distribution System projects, Sewer System projects, Support projects and Stormwater projects. Water Distribution System projects account for \$92.9 million, or 39.3% of the 2022-2024 CIP. Sewer System projects comprise \$110.9 million, or 46.8%, Support projects total \$24.4 million, or 10.3% of the expenditures

2022 – 2024 Capital Improvement Program

outlined in the program, and Stormwater projects account for \$8.6 million, or 3.6% of the 2022-2024 CIP.

Total capital expenditures of \$107.4 million are outlined for 2022. Water Distribution projects comprise \$38.6 million or 35.9%, Sewer System projects account for \$50.8 million or 47.4%, Support projects account for \$13.4 million, or 12.4% of the 2022 amount. Stormwater projects totaling \$4.6 million consist of the remaining 4.3% of the 2022 amount.

2022-2024 Capital Improvement Program Cash Flows

<i>Program Source*</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>TOTAL</i>
<i>Water</i>	\$38,565,000	\$30,469,000	\$23,905,000	\$92,939,000
<i>Sewer</i>	\$50,847,000	\$36,346,000	\$23,700,000	\$110,893,000
<i>Support</i>	\$13,350,000	\$6,697,000	\$4,364,000	\$24,411,000
<i>Stormwater</i>	\$4,635,000	\$2,480,000	\$1,450,000	\$8,565,000
<i>TOTAL</i>	\$107,397,000	\$75,992,000	\$53,419,000	\$236,808,000

NOTE: Although expenditures decrease from periods 2023 to 2024, it is anticipated that funding for 2024 will be equal to or greater than funding presented in 2023. The decrease in 2024 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

2022-2024 Capital Improvement Program Funding Sources

<i>Funding Source*</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>TOTAL</i>
<i>BWSC Bonds</i>	\$64,935,000	\$40,495,000	\$24,874,000	\$130,304,000
<i>Rate Revenue</i>	\$24,435,000	\$22,163,000	\$16,136,000	\$62,734,000
<i>MWRA Water Assistance</i>	\$9,514,000	\$5,161,000	\$5,197,000	\$19,872,000
<i>MWRA I/I Assistance</i>	\$8,513,000	\$8,173,000	\$7,212,000	\$23,898,000
<i>TOTAL</i>	\$107,397,000	\$75,992,000	\$53,419,000	\$236,808,000

NOTE: Although expenditures decrease from periods 2023 to 2024, it is anticipated that funding for 2024 will be equal or greater than funding presented in 2023. The decrease in 2024 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

PROJECT HIGHLIGHTS

The Commission’s CIP includes projects to improve the overall efficiency of the Commission and to enhance the Commission’s ability to provide services to its customers. The projects included in this CIP are intended to accomplish these objectives in the most efficient and cost-effective manner. The Commission intends to enhance Boston’s water and sewer infrastructure with several targeted projects included in the 2022 – 2024 Capital Improvement Program. Some of the major projects are listed below:

- ✓ Water Main Rehabilitation in Dorchester & South Boston
- ✓ Water Main Replacement in City Proper
- ✓ Water Main Valve Replacement
- ✓ Rehabilitation of the New Boston Main Interceptor (NBMI)
- ✓ Sewer Renewal & Replacement in Fenway
- ✓ Sewer Renewal & Replacement in Roslindale, Hyde Park & Mattapan
- ✓ Installation of Tide-gates Citywide
- ✓ Sewer Separation and System Improvements in South Boston
- ✓ Sewer Separation in Roxbury
- ✓ Sewer Separation in East Boston
- ✓ City-wide Illegal Connections Investigations
- ✓ Dorchester Interceptor – Relief Sewer
- ✓ Upgrades to Union Park Pumping Station & Satellite Stations
- ✓ Projects affiliated with the Consent Decree; includes cleaning and televising 90 miles of sewer and drains
- ✓ Implement Stormwater/Green Infrastructure Program designed to improve water quality, the environment and manage stormwater resources
- ✓ Improvements of Information Technology

2022 – 2024 Capital Improvement Program

Critical elements of these projects include:

- ✓ Assessment of the Commission’s Service Goals and other factors affecting long-term planning including changing regulatory requirements, climate change and financial conditions
- ✓ Systematic use of Risk-based tools to govern prioritization of investments in condition assessments, repairs and replacements
- ✓ Integration of Business Process needed to sustain effective Capacity, Management, Operation and Maintenance (CMOM) Programs for sanitary sewer collections systems and engineering programs
- ✓ Training and Education to embrace the use of new tools and business processes and to sustain knowledge of the system and its operations

In addition to establishing a sustainable framework for planning and management, plan projects include a broad spectrum of data collection, engineering evaluation and tool development activities.

2022 – 2024 Capital Improvement Program

PROJECTS ASSOCIATED WITH THE CONSENT DECREE & WATER QUALITY IMPROVEMENTS

There are several projects that the Commission is currently performing and planning to undertake to fulfill and exceed recommendations of the Environmental Protection Agency (“EPA”) under the Consent Decree. The following projects will support the Commission’s goal of compliance with the Consent Decree and improved water quality discharges and the environment.

Consent Decree	Water Quality Improvements
<i>Sewer R & R</i>	<i>Separation</i>
Cleaning and Inspections of Sewers and Storm Drains (CMOM-Capacity Management Operations and Maintenance)	Separation of Sewer House Laterals (Contract 20-309-015)
<i>Separation</i>	Owner Correction of Illegal Connections
Citywide Illegal Connection Investigation Program Phase V	<i>Stormwater</i>
<i>Sewer Special</i>	Design of Stormwater Detention Facilities PH I
Customization of SCREAM & CMOM	Design of Stormwater Detention Facilities PH II
<i>Stormwater</i>	Construction of Stormwater Detention Facilities PH I
Construct BMPs & Green Infrastructure at City Hall Plaza	CCTV of Sewers and Storm Drains (Contamination Investigation) IDDE
	Constructed Wetland in Stormwater Tributary Area
	Sampling & Metering for Storm Drain Model Validation

2022 – 2024 Capital Improvement Program

Projects associated with the Plan in the Sewer System CIP include the rehabilitation or replacement of approximately 36.0 miles of deteriorated or collapsed sanitary sewers and storm drains and the television inspection of approximately 80 miles of sewer pipe. Also included are drainage improvements and the replacement of faulty tide-gates.

The CIP continues funding for the separation of combined sewers and for the reduction of infiltration and inflow into the sanitary system. Infiltration and inflow (I/I) are extraneous quantities of water, which enters the sanitary sewers and reduces the capacity of the system to transport sanitary sewage. Reduction of I/I also decrease the quantity of water transported to the Massachusetts Water Resource Authority (“MWRA”) wastewater treatment facilities, thereby reducing overall transportation costs, treatment costs and BWSC’s sewer assessments.

BACKGROUND

The Commission was established pursuant to the Boston Water and Sewer Reorganization Act of 1977, Chapter 436 of the Acts of 1977 (“the Enabling Act”) and is governed by a three-member Board of Commissioners. Since the Commission’s inception in 1977, the Commission has set forth its Capital Improvement Plan to provide for long-term sustained capital improvements to its water distribution and sewer collection system, governed by a core commitment to prudent fiscal management. Comprehensive and well-planned water distribution system maintenance and planning has sustained superior water service for our customers and resulted in a low incidence of failure. The Commission has also led the industry in implementing effective water conservation measures, including dedication to deploying the most efficient technologies and practices enabling the Commission to maximize cost savings.

The Commission utilizes effective conservation measures through continued efforts to eliminate leaks across the system through advanced leak detection technology and proactive maintenance of the system’s water mains.

Major sewer system improvements have resulted in increased system capacity and the virtual elimination of dry weather overflows from combined sewers into Boston Harbor and the Neponset, Charles and Mystic Rivers. These improvements have also increased water quality and improved accessibility to the waterways.

In addition, the Commission completed construction of a new Materials Handling Facility in 2010 to effectively dispose of catch basin debris and sewer cleaning materials. This facility will also reduce the Commission’s costs for transportation and disposal of catch basin debris by dewatering the materials.

In 2011, the Commission completed a comprehensive water distribution study that reviewed all aspects of the Commission’s distribution system, including a prioritization of every water pipe in the system. The Commission utilizes the study’s results to prioritize capital improvements & invest in most cost-effective maintenance projects. An update to the models was completed in 2016.

Water distribution system improvements made since 1978 include the replacement of 369.0 miles of older water mains, the cleaning and lining of 274.8 miles of water mains, hydrant replacements and valve upgrades and replacements.

2022 – 2024 Capital Improvement Program

The Commission completed its Wastewater and Storm Drainage System Facilities Plan in 2015. The major objective of the plan was to develop facility plans for the operation of the Commission’s sewer and storm drains that are aligned with the Commission’s primary service goals and supported by effective operations, maintenance, and engineering practices. This plan has reviewed all aspects of the Commission Sewer System, including the Commission’s design standards, assets, mapping and operational practices and future impacts of climate change on the Commission’s facilities. The final plan has provided a detailed and efficient sewer program for the next twenty-five years.

WATER DISTRIBUTION SYSTEM EXPENDITURES

Over the three-years of the CIP, the Commission will expend \$92.9 million on improvements to the Water Distribution System. The majority of these expenditures will occur in the replacement of water mains.

The projects scheduled for initiation in 2022 will result in the replacement of 8.6 miles of water mains.

The table below presents a summary of the 2022-2024 capital expenditures for the Water Distribution System.

Water Distribution System Expenditures by Program Category

<i>Program Source</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>TOTAL</i>
<i>Water Replacement</i>	\$30,803,000	\$24,597,000	\$18,435,000	\$73,835,000
<i>Water Special</i>	\$7,762,000	\$5,872,000	\$5,470,000	\$19,104,000
TOTAL	\$38,565,000	\$30,469,000	\$23,905,000	\$92,939,000

NOTE: Although expenditures decrease for 2023 to 2024, it is anticipated that funding for 2024 will be equal or greater than funding presented in 2023. The decrease in 2024 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

SEWER SYSTEM EXPENDITURES

The CIP for the Sewer System includes a total of \$110.9 million for various types of system improvements. These include in-kind replacement and rehabilitation of sewer pipes, installation or replacement of sewers and storm drains that increase the overall capacity of the system, separation of combined sewers, identification and reduction of infiltration and inflow and compliance with permit requirements in the areas of combined sewer overflows and stormwater discharges.

Major sewer system improvements have resulted in increased system capacity and the virtual elimination of dry weather overflows from combined sewers into Boston Harbor and the Neponset,

2022 – 2024 Capital Improvement Program

Charles and Mystic Rivers. These improvements have also increased water quality and improved accessibility to all waterways.

Projects associated with the Plan in the Sewer System CIP include the rehabilitation or replacement of approximately 36.0 miles of deteriorated or collapsed sanitary sewers and storm drains and the television inspection of approximately 80 miles of sewer pipe. Also included are drainage improvements and the replacement of faulty tide-gates.

The CIP continues funding for the separation of combined sewers and for the reduction of infiltration and inflow into the sanitary system. Infiltration and inflow (I/I) is extraneous quantities of water, which enters the sanitary sewers and reduces the capacity of the system to transport sanitary sewage. Reduction of I/I also decrease's the quantity of water transported to the Massachusetts Water Resource Authority ("MWRA") wastewater treatment facilities, thereby reducing overall transportation costs, treatment costs and BWSC's sewer assessments.

The table below presents a summary of the 2022-2024 capital expenditures for the Sewer System.

Sewer System Expenditures by Program Category

<i>Program Source</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>TOTAL</i>
<i>Sewer R&R</i>	<i>\$39,098,000</i>	<i>\$23,520,000</i>	<i>\$13,975,000</i>	<i>\$76,593,000</i>
<i>Increased Capacity</i>	<i>\$480,000</i>	<i>\$420,000</i>	<i>\$1,300,000</i>	<i>\$2,200,000</i>
<i>Separation</i>	<i>\$7,163,000</i>	<i>\$7,331,000</i>	<i>\$5,625,000</i>	<i>\$20,119,000</i>
<i>Sewer Special</i>	<i>\$4,106,000</i>	<i>\$5,075,000</i>	<i>\$2,800,000</i>	<i>\$11,981,000</i>
<i>TOTAL</i>	<i>\$50,847,000</i>	<i>\$36,346,000</i>	<i>\$23,700,000</i>	<i>\$110,893,000</i>

NOTE: Although expenditures decrease for 2023 to 2024, it is anticipated that funding for 2024 will be equal or greater than funding presented in 2023. The decrease in 2024 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

2022 – 2024 Capital Improvement Program

SUPPORT PROJECT EXPENDITURES

The capital projects included in the Support category contribute to the overall efficient operation of the Commission and improve the Commission’s ability to manage/administer projects and collect revenues. Funding allocated for Support projects in the 2022-2024 CIP total \$20.4 million.

Funding budgeted in this section of the CIP are expenditures for Advanced Meter Infrastructure, Information Technology, and various Administrative Equipment.

Support Expenditures by Project Category

<i>Program Source</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>TOTAL</i>
<i>Metering</i>	\$1,015,000	\$1,615,000	\$815,000	\$3,445,000
<i>IT</i>	\$3,370,000	\$2,550,000	\$1,700,000	\$7,620,000
<i>Admin. Equipment</i>	\$8,965,000	\$2,532,000	\$1,849,000	\$13,346,000
<i>TOTAL</i>	\$13,350,000	\$6,697,000	\$4,364,000	\$24,411,000

Stormwater Project Expenditures

The primary purpose of the Stormwater Program is to encourage participation in the Boston Harbor pollution abatement projects and implement green infrastructure to improve the water quality of discharges to the local receiving waters. The goal is also to study existing conditions and make recommendations for placement of new best management practices designed to promote improved water quality, ensure compliance with state and federal regulations, minimize flooding and manage stormwater throughout the City of Boston. Funding allocated for Stormwater projects in the 2022-2024 CIP total \$8.6 million.

<i>Program Source</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>TOTAL</i>
<i>Stormwater</i>	\$4,635,000	\$2,480,000	\$1,450,000	\$8,565,000
<i>Total</i>	\$4,635,000	\$2,480,000	\$1,450,000	\$8,565,000

MASSACHUSETTS WATER RESOURCES AUTHORITY (MWRA)

The Commission obtains its water supply and wastewater treatment services from MWRA. MWRA provides water services to 52 cities, towns and special purpose entities (“Local Bodies”) including the Commission and wastewater treatment to nearly half of the State’s population in 43 cities, towns and special purpose entities located throughout central and eastern Massachusetts.

MWRA Background

On December 19, 1984, MWRA was created by Chapter 372 of the Acts of 1984 (“the Act”). In accordance with the provisions of the Act effective July 1, 1985 the ownership, possession and control of all personal property comprising the Metropolitan District Commission (“MDC”) water and sewer systems were transferred to MWRA. The Act authorizes MWRA to repair, replace, rehabilitate, modernize and extend the water delivery system and the sewage collection, disposal and treatment systems on a self-sustaining basis. The Act also allows for the issuance of bonds and notes to finance any of its corporate activities.

On January 31, 1985, a suit commonly referred to as the Boston Harbor case, was brought against the MDC, the Commonwealth, MWRA (as a successor to the MDC) and the Commission alleging water pollution of and alleged illegal discharges into Boston Harbor in violation of the Clean Water Act. As the successor to the MDC, MWRA assumed responsibility for taking the Court-ordered actions to achieve and maintain compliance with the Clean Water Act. Such large-scale projects are financed through the issuance of revenue bonds, proceeds of federal and state grants and operating revenues.

MWRA Rates and Charges

Under the Act, MWRA was empowered to establish charges for its services and commodities. One of the basic goals achieved by the MWRA Act was the substitution of assessments, or user fees, to the member communities for the prior tax-based system of charges.

The Commission is the largest single customer for MWRA. For MWRA fiscal year 2022, the Commission will be assessed 33.9% of the water system charges and 28.9% of the sewer system charges. On a combined basis, the Commission will pay 30.7% of the total MWRA assessments.

Assessments for water services are calculated by MWRA based on the metered water use in the calendar year immediately preceding the MWRA fiscal year. The Commission’s water charges for the MWRA fiscal year of 2022 total \$93.9 million based on the Commission’s calendar year 2020 metered water use.

As of fiscal year 1995, sewer assessments were calculated by a formula using, among other things, population and population equivalents. In accordance with legislation enacted in 1993, the MWRA developed a new sewer rate methodology for calculating assessments beginning in fiscal year 1996. The new methodology allocates operating and maintenance costs based on total metered annual flow and total annual average strength, septage contributions and high strength flow loads. Septage contributions are allocated based on volume, total suspended solids (“TSS”) and biochemical oxygen demand (“BOD”) loadings. High-strength flow loads are generated by

2022 – 2024 Capital Improvement Program

those permitted entities whose flows exceed 25,000 gallons per day and whose TSS and/or BOD concentrations exceed 400 milligrams per liter.

Capital or debt service costs are allocated as follows: two-eighths based on maximum month metered flow and total annual average strength, septage and high strength flow loads; three-eighths based upon contributing (sewer) population; and three-eighths based population. Metered wastewater flow from the immediately preceding calendar year is used in calculating assessments. The Commission’s sewer assessment for the MWRA fiscal year 2022 based on calendar year 2020 data, totals \$148.9 million. Total assessments for water and sewer charges for MWRA fiscal year 2022 are \$242.8 million.

As the largest of MWRA’s customers, BWSC represents 33.8 percent of the current demand on the MWRA water supply. BWSC’s water comes from the Quabbin Reservoir and the Wachusett Reservoir, located about 65 miles and 35 miles west of Boston. The two reservoirs combined supplied an average of 183.5 mgd (millions of gallons per day) to consumers in 2020. The safe yield of the reservoir system is 300 mgd.

Water distributed to the Boston metropolitan area is conveyed from the reservoirs through the Cosgrove or Wachusett Aqueducts and treated at the MWRA's John J. Carroll Water Treatment Plant at Walnut Hill in Marlborough. Treatment includes ozone disinfection, pH adjustment with sodium bicarbonate and the addition of chloramines and fluoride. Water leaves the plant through the Metrowest Water Supply Tunnel and is stored in covered storage tanks, such as Norumbega Reservoir and the Loring Road Tanks, where it is held for delivery to BWSC’s service networks. MWRA mains distribute water to the BWSC system at 29 metered delivery points.

Today, Boston is one of 54 customers that purchases water wholesale from MWRA. BWSC's water distribution system currently provides service to approximately 90,000 active accounts throughout the City. Boston's resident population of nearly 675,000 almost doubles each day by commuting workers and students, shoppers, tourists, conventioners, hospital patients and visitors.

MWRA has completed construction of major transmission and treatment facilities to service the Greater Boston area including the Metro West Tunnel. These improvements will ensure that Boston receives a reliable source of clean water.

FUNDING SOURCES AND FINANCIAL IMPACT

Funding for the Commission’s CIP is provided through four sources: Commission general revenue bonds, rate revenues and two grant/loan programs provided by MWRA.

The primary funding source for the three-year capital program is the sale of Commission general revenue bonds. Over the three-year plan, general revenue bonds will comprise \$130.3 million, or 55.0% of the total funding requirement. In 2022, bonds will make up approximately \$64.9 million, or 60.5% of the funding required for that year.

As in past CIP’s, the 2022-2024 program funds renewal and replacement (“R&R”) work from current rate revenues. Renewal and replacement projects include water main relining, water main replacement (only replacement with the same size pipe), sewer pipe rehabilitation. The 2022-2024 CIP outlines R&R expenditures of \$62.7 million, or 26.5% of total expenditures over the three

2022 – 2024 Capital Improvement Program

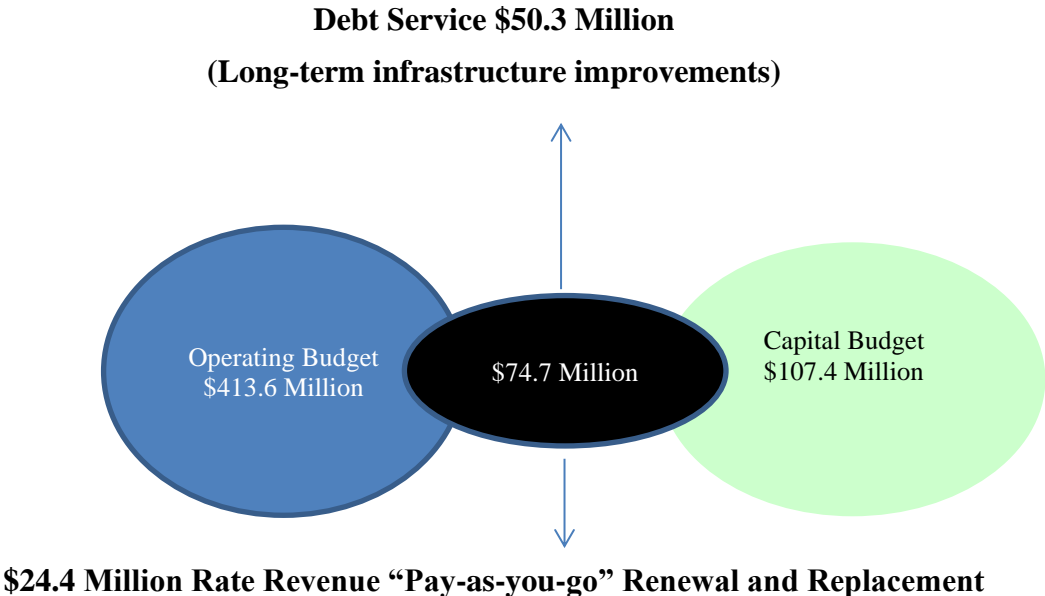
years of the program. In 2022, approximately \$24.4 million, or 22.7% will be expended out of current rate revenues for CIP projects.

Each year the Commission participates in the MWRA’s I/I program for Infiltration/Inflow and Separation projects. Since 1993, the Commission has received \$97.1 million in MWRA funding for various Infiltration/Inflow and Separation projects. The Commission plans to continue to take advantage of MWRA funding over the 2022-2024 period. \$23.9 million in funding is anticipated to be used for projects that are ongoing along with new projects for the three years from 2022-2024.

In 2010, the MWRA Board voted to authorize the development of an interest free loan program to assist its member communities in the performance of water system improvement projects. The program is the MWRA Local Water System Assistance Program (LWSAP). The program offers interest-free loans payable over a ten-year period and is designed to improve water quality in local distribution systems. The amount of funds available in the program is \$34.3 million dollars per year with Boston receiving a share of approximately \$5.3 million dollars per year. The loans will be repaid to the MWRA over a ten-year period. Loan funds are approved for distribution from fiscal year 2011 through fiscal year 2023. The Commission has applied for loan funding for certain water main replacement projects awarded through the remainder of this program. Project costs incurred since January 1, 2010 have been considered for eligibility in applications under the LWSAP. From 2010-2021 the Commission has received \$52.6 million in LWSAP funding.

It is anticipated that in the 2022-2024 Capital Improvement Program, \$19.9 million will be funded using the LWSAP Program.

Impact of CIP on Current Expense Budget 2022



2022 – 2024 Capital Improvement Program

WATER DISTRIBUTION SYSTEM

The system serves approximately 90,000 accounts through five major service networks: Southern Low Service, which serves City Proper, South Boston and parts of Roxbury; Northern Low Service which serves Allston/Brighton, Charlestown and East Boston; Southern High Service, which serves City Proper, Allston/Brighton, Dorchester, Hyde Park, Roslindale, and parts of Jamaica Plain, Roxbury and West Roxbury; and Southern Extra-High Service which serves portions of Jamaica Plain, West Roxbury and Hyde Park. In addition, a relatively small area in the Orient Heights section of East Boston is served by a single connection to the MWRA Northern High Service System.

Approximately 90% of the water consumed in the city is delivered through the Southern Low Service and Southern High Service, with most of the remainder delivered through the Northern Low Service. These service networks are supplied with potable water purchased from MWRA at 29 metered delivery points. This water is drawn from the Quabbin and Wachusett Reservoirs located in western and central Massachusetts. Supply is conveyed via aqueducts from these reservoirs to the Loring Road Tanks and Norumbega Reservoirs, where it is held for delivery to the Commission’s service networks.

The Commission’s current water distribution system consists of the following:

APPURTENANCES		WATER MAIN CITY WIDE		PRESSURE ZONE	
Hydrants	12,750	Total Linear Feet	5,355,890	High Pressure Fire System	15 Miles
		Total Linear Miles	1,014	Northern High	4 Miles
Gate Valves*	17,699	Pumping Stations	1	Northern Low	89 Miles
				Southern Extra High	80 Miles
				Southern High	561 Miles
				Southern Low	265 Miles

*Includes only facilities owned by BWSC

OBJECTIVES

The primary objectives of the 2022-2024 Water Distribution System CIP are:

- ✓ To ensure a continued adequate supply of high quality, potable water at adequate pressure, for consumption by the Commission's customers and for fire protection
- ✓ To reduce the amount of non-revenue producing water and to reduce the long-term maintenance costs of the system
- ✓ To improve the operability of valves and appurtenances so as to advance the efficient operation of the water system
- ✓ To reduce public inconvenience by coordinating the scheduling of system improvements with related projects of other public agencies

To ensure the above stated objectives are attained, the Commission has implemented projects of the rehabilitation and replacement water mains, the replacement of valves and hydrants and the installation or replacement of water mains associated with bridge reconstruction projects.

2022 – 2024 Capital Improvement Program

Over the last ten years, the Commission has completed a total of \$260.2 million in water distribution improvements. These improvements have resulted in the replacement of 102.6 miles of water mains, and cement lining of 4.3 miles of water mains.

2022-2024 WATER DISTRIBUTION SYSTEM CAPITAL PROGRAM

The Commission's 2022-2024 CIP for the Water Distribution System continues the investments necessary to maintain and improve the water distribution infrastructure. Projects are planned in the following areas: the rehabilitation or replacement of water mains, including the replacement of water pipes and the upgrade of valves and hydrants. Also included are water mains that are replaced as part of the Commission's sewer separation work. Together, these planned program activities will result in significant improvements to the water distribution system.

Three-year expenditures are projected to be \$92.9 million, of which \$38.6 million is anticipated to occur in 2022. The three-year amounts are distributed in the Water Program as follows: Replacement \$73.8 million or 79.4%, and Special \$19.1 million or 20.6%.

WATER MAIN REPLACEMENT PROGRAM

DESCRIPTION AND JUSTIFICATION

Funding is provided in the 2022-2024 CIP for the continuation of the Commission's Water Main Rehabilitation Program. The program consists of the replacement of unlined cast-iron water mains and water mains that have reached the end of their useful life.

The primary purpose of the Water Main Replacement Program is to ensure the quality and quantity of water provided by the Commission to its customers. Over long periods of time the internal and external surfaces of water mains are subject to corrosion and deterioration. Internal corrosion of water mains can affect water quality, particularly taste, odor and color as well as reduce the hydraulic capacity of the pipe. Internal and external corrosion can also reduce the structural integrity of pipe, causing potential leakage and main breaks.

The largest component of the Water Distribution System CIP is the program to replace water mains. The replacement program replaces aged, undersized or structurally deteriorated pipe. The program also includes rehabilitation of pipe by structural lining.

The 2022-2024 CIP for the Water Distribution System continues programs for the replacement of water mains, the replacement of older or defective hydrants as necessary on all replacement projects, the replacement of water mains on new or reconstructed bridges and various design services, permits and paving fees associated with the capital funded projects.

2022 – 2024 Capital Improvement Program

The Water Main Replacement Program accomplishes the following:

- ✓ Reduces the occurrence of main breaks, public inconvenience, loss of water and associated costs
- ✓ Decreases water leakage
- ✓ Increases the capacity of water mains
- ✓ Reduces discolored water conditions associated with water main tuberculation
- ✓ Reduces long-term maintenance costs
- ✓ Contributes to the control of bio-film in complying with the requirements of the Safe Drinking Water Act

In 2011, the Commission completed a Water Distribution Study, which analyzed the effectiveness and stability of the water system. Incorporating a progressive approach to understanding system needs, the new study outlines a detailed maintenance and improvement plan.

This study provided a multi-faceted methodology for strategic investments over the next twenty years. As part of the Water Distribution Study all pipes in the BWSC system were placed in a ranking system through specialized software utilizing several factors including pipe age, material, soil conditions, break history and consequence of failure. The study recommended replacing 11 miles of pipe per year. This ranking system was updated in 2016 resulting in a recommendation to replace and rehabilitate 8 miles of pipe per year.

This system is used in the selection of pipes for replacement under the Capital Improvement Program. Pipes with the higher ranking are considered for replacement. Pipes are also selected within proximity to other selected pipe to create geographic based contracts. All streets are coordinated with City and State Paving Programs.

Using the latest technology solutions, we are identifying new areas where BWSC can make sustainable improvement to the quality of our environment and services.

WATER MAIN REPLACEMENT PROGRAM 2022 SUMMARY

The projects scheduled for initiation in 2022 will result in the replacement of approximately 8.7 miles of water mains.

Prior to construction the Commission inspects sewer and drain pipes in streets where water pipes are scheduled to be replaced. All sewer and drain replacement and rehabilitation work is then performed along with the water pipe replacement. This avoids disruption of the streets and saves projects costs. Funding for the sewer and drain work is included in the sewer section of the CIP.

METHODOLOGY FOR SELECTING WATER MAINS FOR REHABILITATION

The Commission conducts an annual evaluation of its water distribution system to determine and prioritize water main rehabilitation needs. Based on this annual evaluation staff prepares a priority list of pipes to be replaced.

2022 – 2024 Capital Improvement Program

Candidates are based on information and recommendations from the 2016 update of the pipe ranking system as well as water main breaks, customer complaints concerning water quality or pressure deficiency; BWSC maintenance records; pressure and fire-flow tests; and construction work planned by other agencies.

To the highest extent possible, The Commission coordinates the replacement and lining of water mains with roadway and highway construction, urban development, housing development and mass transit work planned by state or local government entities.

For example, if the City of Boston PWD is planning to resurface a roadway within the next few years, the Commission would make every effort to replace the older water main in that street before it is resurfaced.

The coordination of the Commission's capital programs with other infrastructure improvements minimizes temporary construction related impacts to Boston's residential neighborhoods and commercial centers.

WATER SYSTEM

WATER REPLACEMENT

The following pages contain brief summaries of each on-going and new water replacement project included in the 2022-2024 CIP.

NEW PROJECTS

Water Main Replacement associated with East Boston Separation Phase 4 – Contract No. 23-309-002: This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in East Boston. Construction is projected to commence in April 2024 and be completed by April 2026. The total three-year budget for this project is \$250,000.

Water Pipe Replacement associated with South Boston Separation – Contract No. 23-309-012 (Contract 4): Construction Contract No. 4 is one of five planned contracts which include the upgrade of water main systems within the project limits to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction is projected to commence in April 2024 and be completed in April 2026. The three-year budget is \$100,000.

Water Main Replacement in City Proper – Contract No. 22-308-001: This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in City Proper. Construction is projected to commence in January 2024 and be completed by December 2025. The total three-year budget for this project is \$50,000.

2022 – 2024 Capital Improvement Program

Water Main Replacement Citywide – Contract No. 22-308-002: This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks Citywide. Construction is projected to commence in January 2024 and be completed by December 2025. The total three-year budget for this project is \$50,000.

Water Main Replacement in Georgetowne Neighborhood – Contract No. 22-308-003: This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in the Georgetowne Neighborhood. Construction is projected to commence in January 2024 and be completed by December 2025. The total three-year budget for this project is \$50,000.

Water Main Replacement in Roslindale & West Roxbury – Contract No. 22-309-001: This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in Roslindale and West Roxbury. Construction is projected to commence in January 2024 and be completed by June 2025. The total three-year budget for this project is \$50,000.

Water Main Replacement Citywide – Contract No. 22-309-002: This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks Citywide. Construction is projected to commence in January 2024 and be completed by December 2024. The total three-year budget for this project is \$50,000.

Water Main Replacement in Upper Roxbury – Contract No. 22-309-003: This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in Upper Roxbury. Construction is projected to commence in January 2024 and be completed by December 2025. The total three-year budget for this project is \$50,000.

Water Main Replacement associated with South Boston Separation – Contract No. 22-309-012 (Contract 3): Construction Contract No. 3 is one of five planned contracts which include the upgrade of water main systems within the project limits to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction is projected to commence in April 2023 and completed in April 2025. The three-year budget is \$1,500,000.

ONGOING PROJECTS

Water Main Replacement in Readville – Contract No. 21-309-001: The project includes the replacement of pipes within project limits that have reached the end of their lifespan. Construction is projected to commence April 2023 and be completed by October 2025. The total three-year budget for this project is \$533,000.

2022 – 2024 Capital Improvement Program

Water Main Replacement associated with East Boston Separation Phase 4 – Contract No. 21-309-002: The project includes the replacement of pipes within project limits that have reached the end of their lifespan in East Boston. Construction is projected to commence September 2023 and be completed by September 2025. The total three-year budget for this project is \$500,000.

Water Main Replacement associated with South Boston Separation – Contract No. 21-309-012 (Contract 2): Construction Contract No. 2 is one of five planned contracts which include the upgrade of water main systems within the project limits to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction is projected to commence in April 2022 and completed in April 2024. The three-year budget is \$5,129,000

Water Main Replacement in Dorchester and South Boston – Contract No. 21-308-001: The project includes the replacement of 17,065 Feet of water mains in South Boston and Dorchester. Construction is projected to commence May 2022 and be completed by December 2024. The total three-year budget for this project is \$4,361,000.

Excavation for Identification of Water Services – Contract No. 21-308-002: The project includes excavating, locating, identifying and possible relaying the water services of approximately 600 existing water services currently listed in the Commission's GIS system as being lead or unknown. Construction commenced in June 2021 and is projected to be completed by May 2022. The total three-year budget for this project is \$500,000.

Water Main Replacement in City Proper – Contract No. 21-308-003: This project includes the replacement of older cast iron water mains that have reached the end of their useful lives and the rehabilitation and replacement of sewer and drain pipes that are in disrepair in City Proper. Construction is projected to commence April 2022 and be completed by August 2023. The total three-year budget for this project is \$7,237,000.

Replacement of Lead Services on Public and Private Property – Contract No. 21-308-004: The project includes the replacement of replacement of lead water services in the Public and on Private property, Citywide. Construction commenced in June 2021 and is projected to be completed by May 2022. The total three-year budget for this project is \$750,000.

Water Main Replacement associated with South Boston Separation – Contract No. 20-309-012 (Contract 1): Contract No. 1 is one of five planned contracts which includes upgrades to the water main systems within the project limits. Construction commenced in July 2021 and is projected to be completed by November 2023. The three-year budget is \$3,128,000.

Final Paving - South Boston Sewer Separation Contract No. 20-309-011P Contract 1: This project is one of two (2) planned contracts to install final pavement where new storm drains have been constructed in Phase 1 and 2 to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. New paving will also be installed where upgrades of the water main systems impact the roadway surface. Construction is scheduled to commence in March 2022 and is projected to be completed by January 2025. The three-year budget is \$1,225,000

2022 – 2024 Capital Improvement Program

Water Main Replacement in Harrison Ave, South End Phase II – Contract No. 20-308-001:

This project includes the replacement of older cast iron water mains that have reached their useful life in Harrison Ave, South End. Construction is projected to commence April 2023 and be completed by December 2024. The total three-year budget for this project is \$2,000,000.

Water Main Replacement in Shawmut Ave, South End Phase III– Contract No. 20-308-002:

This project includes the replacement of older cast iron water mains that have reached their useful life in Shawmut Ave, South End. Construction is projected to commence April 2023 and be completed by December 2024. The total three-year budget for this project is \$1,000,000.

Water Main Replacement in Charlestown – Contract No. 20-308-003: This project includes the replacement of older cast iron water mains that have reached the end of their useful life and have a history of main breaks in the Charlestown neighborhood. Construction is projected to commence November 2022 and be completed by May 2024. The total three-year budget for this project is \$4,700,000.

Water Main Replacement in Charlestown and Back Bay – Contract No. 20-308-004: This project includes the replacement of older cast iron water mains that have reached their useful life in Charlestown and Back Bay. Construction is projected to commence July 2022 and be completed by July 2024. The total three-year budget for this project is \$1,777,000.

Water Main Replacement in City Proper and Mission Hill – Contract No. 20-308-005: This project includes the replacement of older cast iron water mains that have reached their useful life in City Proper and Mission Hill. Construction is projected to commence April 2022 and be completed by November 2024. The total three-year budget for this project is \$3,254,000.

Water Main Replacement in South End Phase I – Contract No. 19-308-001: This project includes the replacement of 6,650 feet of 12-inch and 16-inch water mains on East Berkeley Street and Washington Street in the South End. Construction is projected to commence in April 2022 and be completed by November 2022. The total three-year budget for this project is \$2,600,000.

Water Main Replacement in Charlestown – Contract No. 19-308-002: This project will replace 8,800 feet of 8- and 12-inch water mains on Bunker Hill Street, Chelsea Street, School Street, Vine Street, and Bartlett Street in Charlestown. This contract is being programmed as a response to a request by the Operations Division for Water Relay on Chelsea Street, in conjunction with break history (School Street), and pipe age/risk scoring on 1880's cast iron mains in Bunker Hill and Vine Streets. Construction is projected to commence in April 2023 and completed by November 2025. The three-year budget is \$2,000,000.

Water Main Replacement in South Boston, Back Bay, South End and Dorchester – Contract No. 19-308-003: This project includes water relay for 5,520 feet of 8, 12 and 16-inch water mains on Tide Street, Dry Dock Avenue, Edgerly Rd, Playstead Rd, and Savin Hill Ave. Construction is projected to commence in April 2022 and completed December 2024. The three-year budget is \$4,250,000.

2022 – 2024 Capital Improvement Program

Water Main Replacement in City Proper – Contract No. 19-308-004: This project includes water relay on various streets in Beacon Hill, including Boston Common and Cambridge Street adjoining Massachusetts General Hospital. Water mains in this Contract are old and have a history of breaks and leaks. Construction is projected to commence in April 2023 and completed November 2025. The three-year budget is \$2,500,000.

Water Main Replacement associated with East Boston Sewer Separation Phase III – Contract No. 19-309-002: This is the third phase in a multi-year plan which includes water main upgrades within the project limits. Construction commenced in September 2021 and is projected to be completed by September 2023. The total three-year budget is \$3,400,000.

Water Main Replacement and Rehabilitation in Allston/Brighton – Contract No. 19-309-004: This project includes the replacement of water mains that have reached the end of their useful life. Construction is projected to commence in May 2022 and to be completed in December 2023. The total three-year budget is \$2,429,000

Water Main Replacement in Back Bay/Fenway – Contract No. 18-308-001: This project includes the replacement of older cast iron water mains that have reached their useful life in City Proper. Construction is projected to commence October 2021 and completed by November 2022. The total three-year budget for this project is \$5,116,000.

Water Main Replacement in Dorchester – Contract No. 18-308-003: This project includes the rehabilitation and replacement of older cast iron water mains that have reached their useful life in Dorchester. Construction commenced in July 2021 and is projected to be completed by completed by April 2022. The total three-year budget for this project is \$165,000.

Water Main Replacement in Fenway – Contract No. 18-309-001: This project includes the replacement and rehabilitation of water mains in the Fenway area. Construction is projected to commence May 2022 and completed by November 2023. The total three-year budget for this project is \$5,519,000.

Water Main Replacement in Roslindale, Hyde Park and Mattapan – Contract No. 18-309-003: This project includes replacement of water mains associated with sewerage works in Roslindale, Hyde Park & Mattapan. Construction is projected to commence in September 2022 and completed by June 2024. The total three-year budget for this project is \$2,800,000.

Water Main Replacement in Dorchester, Fenway/Kenmore, Mattapan & Roxbury – Contract No. 17-308-002: This project includes the replacement of older cast iron water mains that have reached the end of their useful life in Dorchester, Fenway/Kenmore (Longwood Medical Area), Mattapan & Roxbury. This contract also includes increasing capacity of some water mains serving the hospitals and energy plant in the Longwood Medical Area. Construction commenced July 2020 and will be completed by March 2022. The total three-year budget for this project is \$300,000.

Water Main Replacement in Back Bay/Beacon Hill and City Proper – Contract No. 17-308-006: This project includes the rehabilitation and replacement of water mains within the project limits. Construction commenced in July 2019 and is projected to be completed by September 2022. The total three-year budget for this project is \$836,000.

2022 – 2024 Capital Improvement Program

Water Main Replacement in City Proper – Contract No. 17-308-007: This project includes the replacement of older cast iron water mains that have reached their useful life in City proper. Construction commenced in March 2021 and is projected to be completed by March 2022. The total three-year budget for this project is \$1,600,000.

Water Main Replacement in Dorchester, Hyde Park, South Boston & West Roxbury – Contract No. 17-309-001: This project includes the replacement of water mains associated with sewerage works. Construction commenced in August 2021 and is expected to be completed by February 2023. The total three-year budget for this project is \$1,576,000.

Water Main Replacement Associated with Sewer Separation in Upper Roxbury Phase III – Contract No. 17-309-011: Phase 3 in this project includes the replacement of older cast iron water mains that have reached their useful life in Upper Roxbury associated with sewer separation work. Construction is projected to commence April 2022 and is expected to be completed by November 2024. The total three-year budget for this project is \$500,000.

WATER DISTRIBUTION SYSTEM SPECIAL PROJECTS

DESCRIPTION AND JUSTIFICATION

Special Projects includes funding for a variety of system planning and other studies, professional services associated with the rehabilitation and operation of the water system, and for the engineering design and construction of the installation or replacement of water mains associated with bridge improvement projects undertaken by other agencies. Also included are the associated design and engineering services required for the implementation of capital projects and the permanent paving fees for ongoing and future capital improvements.

Overall, the objectives of the Water Distribution System Special Projects are to extend the useful life of water mains, reduce long-term maintenance and repair costs, reduce the occurrence of main breaks and the resulting impacts, conserve drinking water and coordinate improvements with other agencies to minimize disruptions.

NEW PROJECTS

Water Main Valve Replacement Contract No. 20-308-006: This project consists of the replacement of water main valves in critical condition citywide. These improvements are based on the findings of the Special Structures group, which identified faulty valves when surveyed and exercised. Work is projected to commence in December 2021 and will be completed in July 2022. The total three-year budget is \$1,688,000.

ONGOING PROJECTS

Traffic Management Services Contract No 19-206-006: In support of the capital plan, on occasion it is necessary to develop traffic management plans for construction phasing of water,

2022 – 2024 Capital Improvement Program

sewer, and drain replacement projects. This project allows the Commission to utilize transportation engineers to develop these plans in accordance with BTD regulations. If the construction will occur on state agency roadways, the traffic plans can be produced to meet state agency requirements. Work commenced in August 2019 and is projected to be completed August 2022. The three-year budget is \$231,000.

Water Pipe Testing Services Contract No. 19-206-004: This professional services contract provides metallurgical testing of pipes. The information provided by the testing is to be used in conjunction with water main breaks to forecast future CIP work. The services began in October 2019 and are expected to be completed October 2022. The three-year budget is \$280,000.

Water Main Flushing Program Contract No. 19-203-001: This project involves the maintenance of a water main flushing program for the Commission's water distribution system by a qualified engineering firm. Since 1997, the Commission has maintained a system-wide water main flushing program to ensure water quality throughout its entire water distribution system. The flushing program was initiated as part of the Commission's Biofilm Corrective Action Plan developed in response to a 1996 violation of the Total Coliform Rule, a national primary drinking water regulation. Since implementation of the water main flushing program, the Commission has had no Coliform bacteria violations.

The Commission's unidirectional water main flushing program is designed to flush all pitometer sections individually and includes water main pipes less than 16-inches in diameter. Unidirectional water main flushing is achieved by closing valves to isolate water mains from the actual pipe being flushed. After isolating the desired pipe and creating one intake main, hydrant(s) are flowed downstream from a dead-end valve. Water main flushing is intended to bring stronger chlorine residuals into areas where it is low and scour pipe walls of biofilm and tuberculation. Annually, the Commission flushes approximately 200 miles of water main with the intended goal of flushing 800 miles of water main over a four year cycle. The flushing program is conducted during the construction season (March-November) in the late evening/early morning hours to minimize disturbance to customers.

The Commission has engaged the services of a professional engineering consulting firm (Weston & Sampson) to implement and maintain the system-wide water main flushing program. Weston & Sampson has reviewed the Commission's current water main flushing program and made recommendations for improvements including updating the flushing database utilizing the Commission's recently restructured water distribution system model; developing methodologies to achieve greater flushing velocities for low flow areas; and evaluating the overall program effectiveness by way of a water quality sampling program. Weston & Sampson's current contract for conducting water main flushing commenced in 2019 and will continue through 2022. The Commission will be required to re-bid a new water main flushing services contract for 2023 and beyond. This project commenced in April 2019 with services continuing to December 2022. The total three-year budget for this project is \$750,000.

Subsurface Investigation Services Contract No. 19-206-005: This project includes locations where the information of conditions below the surface is inadequate. This on-call service contract is for using vacuum excavation and electronic tracing systems to locate utilities and other buried

2022 – 2024 Capital Improvement Program

object to aid design. The services commenced in October 2019 and are to be completed by October 2022. The three-year budget is \$271,000.

Hydrant Replacement: Replacement of defective and inoperative hydrants is essential to maintain public safety and reduce unaccounted-for-water resulting from hydrant leaks. Older fire hydrants, many of which are impossible to repair due to unavailability of replacement parts, must be replaced to ensure Public Safety. Standardization of hydrants also reduces the number and styles of hydrant repair parts needed to be stored in inventory. Large quantity purchases significantly reduce unit costs and assure cost over a three-year period. Construction is projected to commence in January 2022 with a completion date of December 2023. New Hydrants will be installed through the Annual Area Emergency Contracts, Construction Projects and by Operations personnel. Custodian-equipped hydrants discourage illegally opened hydrants and reduce unaccounted-for-water loss by preventing water theft. The total three-year budget for this project is \$776,000.

City of Boston Street Opening Permit Fees: The Boston Water & Sewer Commission is required by the City of Boston’s regulations to obtain street opening permits for any construction activity that will require the removal of existing street and/or sidewalk material in the public way. This project involves obtaining street opening permits from the City of Boston for excavation activities performed by the Commission's crews and contractors in the public way. The City of Boston Public Works Department issues the street opening permits for which the Commission reimburses the City. This project is renewed annually. The three-year budget total is \$7,500,000.

City of Boston Paving Restoration: The Boston Water and Sewer Commission is responsible for the permanent restoration of streets and sidewalks excavated during construction activities. On an annual basis, the Commission publicly advertises and awards contracts to private contractors for permanent restoration work. In addition, the Commission is required to reimburse City of Boston contractors for the repairs and/or replacement of the Commission's castings through the permanent restoration of the streets under the City contracts. The three-year budget totals \$7,608,000.

<i>Streets</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>2022-2024</i>
<i>Permits</i>	\$2,500,000	\$2,500,000	\$2,500,000	\$7,500,000
<i>Paving</i>	\$2,608,000	\$2,500,000	\$2,500,000	\$7,608,000
<i>Total</i>	\$5,108,000	\$5,000,000	\$5,000,000	\$15,108,000

SEWER SYSTEM

The Commission owns and operates a system for the collection and transport of wastewater in the City of Boston.

The original backbone of the sewer system was the Boston Main Drainage System (“BMDS”). The BMDS was constructed from 1877 to 1884 under the direction of a special committee established by the City of Boston for that specific purpose. The original system consisted of five combined interceptors, the Calf Pasture pumping station and the Dorchester Bay Tunnel. Neither

2022 – 2024 Capital Improvement Program

the pumping station, nor the tunnel is in use today. The BMDS interceptors were initially designed to carry a peak dry weather sanitary flow together with an allowance for stormwater.

In 1988, construction of the New Boston Main Interceptor and the New East Side Interceptor were completed, replacing portions of the original system. The interceptors serve the sewer needs of downtown Boston, the South End, Roxbury, Dorchester, and South Boston. These improvements have increased capacity, eliminated dry weather overflows, and lowered the volume of wet weather overflows.

Other collection facilities provide sewer services to different parts of the City. Charlestown is served by a separated system, except for one small area. East Boston, City Proper, South Boston and Roxbury are served mainly by combined systems; however, major portions of each area have been or are in the process of being separated. The South End has been partially separated under a program initiated by the City's urban renewal program and continued by the Commission where feasible and cost effective. Allston/Brighton, Roslindale, West Roxbury, Hyde Park, Mattapan and portions of Dorchester and Jamaica Plain, all of which are in the southern part of the City, are served by separate systems.

The backbone of the Commission's sewer system is several major interceptors which convey flows from the Commission's system to the MWRA's interceptors. The New East Side Interceptor and the New Boston Main Interceptor completed in 1988, and the New Albany Interceptor completed in 1990, serve downtown Boston, South Boston, South End and Dorchester. The other interceptors and the neighborhoods they serve are:

Interceptor

Boston Main Interceptor
Dorchester Interceptor
East Side Interceptor
Faneuil Street Trunk Sewer
Roslindale Interceptor
South Boston Interceptors
Southwest Corridor Interceptor
Stony Brook Interceptor
Stony Brook Valley Sewer
West Side Interceptor
Talbot Avenue High Level Sewer
Hyde Park Trunk Sewer
East Boston Low Level Sewer
Dorchester High Level Sewer

Neighborhood Served

South End, Roxbury and North Dorchester
Dorchester and Neponset
Downtown and North End
Allston/Brighton
Roslindale and West Roxbury
South Boston
Roxbury and Jamaica Plain
Roxbury
Roxbury and Jamaica Plain
Back Bay, Beacon Hill and West End
Dorchester, Mattapan and Roslindale
Hyde Park
East Boston
Mattapan and Hyde Park

2022 – 2024 Capital Improvement Program

The sewer system is comprised of the following:

APPURTENANCES		SEWER PIPES CITY WIDE		TYPE OR DESIGNATION	
Catch Basins	30,316	Total Linear Feet	8,096,751	Combined Sewer	143 Miles
Manholes	49,761	Total Linear Mile:	1,533	Combined Sewer Overflow	12 Miles
Outfalls	279	Pumping Stations	8	Sanitary Sewer	710 Miles
Regulators	81			Storm Drain	667 Miles
Tide Gates	201				

All wastewater collected by Commission facilities are conveyed to the MWRA’s Deer Island Treatment Plant.

DEDICATED INFILTRATION INFLOW 4:1 PROJECTS

To date, the Commission has implemented nine contracts, which are funded by the 4:1 I/I Infiltration Inflow Reduction Mitigation Account. Contracts 09-309-008, 10-206-005, 10-309-004, 15-206-001 and 17-206-004 are complete and Contracts 14-206-002, 16-206-003, 18-206-004, 19-206-009 and 20-206-008 are ongoing. All costs are funded by the (“DEDII”) account and are 100% reimbursable; therefore, are not included in the 2022-2024 cashflow. The separation portion of the South Boston Separation contracts 20-309-012, 21-309-012, 22-309-012 and 20-206-002 and the East Boston Separation contracts 19-309-002, 21-309-002, 21-206-003 are also funded by the (“DEDII”) account and are 100% reimbursable; therefore, are not included in the 2022-2024 cashflow. Water and Sewer Renewal & Replacement portions of contracts 20-309-012, 21-309-012, 22-309-012, 19-309-002 and 21-309-002 are included in the 2022-2024 cashflow.

In 2004, the Massachusetts Department of Environmental Protection (DEP), in conjunction with the MWRA and its member communities, implemented a program to help remove stormwater infiltration and inflow (I/I) from the sewer system. Large projects that are constructed can contribute substantial additional flows to the sewer collection system and subsequently require additional MWRA treatment. In the 2004 program, the Massachusetts DEP recommended to the Massachusetts Environmental Policy Act Office, through the Executive Office of Energy and Environmental Affairs, that new developments be required to remove I/I from the sanitary sewer system, as part of the requirements by the Secretary of Energy and Environmental Affairs. A ratio of 4:1 is used for I/I removed to new wastewater added. For example, if a proposed project’s calculated new daily wastewater flow is 100,000 gallons per day (gpd), the developer must remove 400,000 gpd of I/I from the sewer system.

The Commission conducts investigations to identify sources of I/I to the Commission’s system. These projects identify both public and private sector sources of I/I. Commission staff initially planned on developing a database with locations of I/I sources which would be provided to a

2022 – 2024 Capital Improvement Program

developer. The developer would correct sources from that list to fulfill their I/I removal requirement. However, Commission staff believed that this process would be unwieldy and unmanageable. Subsequently, at the July 28, 2005 Commission meeting, the Commission approved the establishment of a dedicated account into which developers assessed a 4:1 Infiltration/Inflow reduction requirement by the DEP could pay money to fulfill their requirements. The funds would then be used by the Commission to fund I/I identification and reduction projects.

In April 2014, the DEP promulgated new regulations. The Commission has a National Pollutant Discharge Elimination System (NPDES) Permit for its combined sewer overflows and is subject to these new regulations [314 CMR 12.00, section 12.04(2)(d)]. This section requires all new sewer connections with design flows exceeding 15,000 gpd to mitigate the impacts of the development by removing four gallons of I/I for each new gallon of wastewater flow. In this regard, any new connection or expansion of an existing connection that exceeds 15,000 gallons per day of wastewater shall assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Projects constructed in multiple phases may contribute 4:1 reduction 90 days before each phase comes on-line. Phased construction may include flows under 15,000 gpd. Currently, a minimum ratio of 4:1 is used for I/I removal to new wastewater flow added.

Process of 4:1 Infiltration Inflow Payments

During private project design, Engineering Customer Services receives and reviews the Site Plan for conformance with the Commission's Engineering Design and Construction Standards. Engineering Customer Services will confirm if the project has been assessed a 4:1 compliance requirement by the DEP/MEPA.

Engineering Customer Service will notify the Planning Division of the most current estimated wastewater flow that has been submitted by the project developer. The developer shall coordinate with the Commission how to comply with the proposed assessment, either removing sources of I/I or making a requisite monetary contribution. The removal or contribution must be completed at least ninety days prior to the issuance of the Occupancy Permit by the Boston Inspectional Services Department. If the developer chooses to contribute monetarily to the Commission's I/I reduction program, the check is payable to the Commission. The check is submitted to the Finance Department for deposit into the Commission's dedicated I/I Reduction Account.

A. Commission Contributions Generated to Date

Between July 28, 2005 and February 2021, most projects fulfilled their contribution requirement by monetary means. The Commission has collected \$43,459,386.15.

2022 – 2024 Capital Improvement Program

C. Allocations, Expenditures and Money Remaining in Bank from Dedicated 4:1 I/I Reduction Mitigation Account

Ten contracts to date are funded by the dedicated account:

1. Roxbury Separation Design, Contract 10-206-005,
2. East Boston Separation, Contract 10-309-004,
3. Dorchester Brook Regulator Relocation, Contract 09-309-008,
4. Upper Roxbury Separation Design, Contract 14-206-002,
5. Inflow and Infiltration Analysis of Wastewater Collection System, Contract 15-206-001,
6. Dorchester Avenue Area Separation Planning & Design, Contract 16-206-003,
7. SSES Dorchester, Contract 17-206-004,
8. SSES Roslindale, Contract 18-206-004,
9. SSES Allston/Brighton, Contract 19-206-009,
10. SSES Mattapan, Contract 20-206-008.

The allocations, expenditures to date and the money remaining for each contract are as follows:

Contract No.	Allocations	Expenditures	Money Remaining
10-206-005	\$ 1,773,000.00	\$1,752,541.96	\$ 20,458.04
10-309-004	\$ 498,494.59	\$ 498,494.59	\$ 0.00
09-309-008	\$ 2,548,118.17	\$2,548,118.17	\$ 0.00
14-206-002	\$ 1,050,000.00	\$ 906,717.43	\$ 143,282.57
15-206-001	\$ 1,998,970.00	\$1,718,424.95	\$ 280,545.05
16-206-003	\$ 5,240,000.00	\$3,803,809.31	\$1,436,190.69
17-206-004	\$ 994,470.00	\$ 906,729.31	\$ 87,740.69
18-206-004	\$ 1,126,793.00	\$1,116,278.56	\$ 10,514.44
19-206-009	\$ 1,415,720.00	\$ 701,410.22	\$ 714,309.78
20-206-008	\$ 1,298,700.00	\$ 0.00	\$1,298,700.00
Contracts Subtotal	\$17,944,265.76	\$13,952,524.50	\$3,991,741.26

Unallocated Subtotal	\$25,515,120.39		
Collected Total	\$43,459,386.15		

D. Projected Expenditures from Dedicated 4:1 I/I Reduction Mitigation Account

The following proposed contracts are projected to draw from the \$25,515,120.39 unallocated portion of the dedicated account:

- East Boston Separation 3 (Contract No. 19-309-002), approximately \$4,505,500,
- South Boston Separation 1 (Contract No. 20-309-012), approximately \$5,280,000,
- South Boston Separation 2 (Contract No. 21-309-012), approximately \$2,868,000,
- South Boston Separation 3 (Contract No. 22-309-012), approximately \$964,000,
- Roslindale Inflow Removal (Contract No. TBD), approximately \$2,000,000,
- SSES Jamaica Plain (Contract No. TBD), approximately \$2,000,000,
- SSES Charlestown (Contract No. TBD), approximately \$1,500,000.

2022 – 2024 Capital Improvement Program

E. Deposits Versus Expenditures by Area

The deposits to the dedicated account and the expenditures by area are as follows:

Area	Deposits	Expenditures
Allston-Brighton	\$ 3,621,268.81	\$ 861,215.27
Boston Proper	\$16,532,698.58	\$ 123,893.63
Charlestown	\$ 850,392.20	\$ 49,726.44
Dorchester	\$13,110,046.33	\$7,592,526.30
East Boston	\$ 1,936,628.00	\$ 669,134.42
Roxbury/South End	\$ 4,213,647.39	\$2,837,409.23
West Roxbury	\$ 3,194,704.84	\$1,818,619.21

OPEN CONTRACTS

Charlestown SSES: The Massachusetts Department of Environmental Protection (MassDEP) developed regulations requiring sewer system operators to conduct an infiltration and inflow (I/I) analysis of their wastewater collection system and implement a long term plan to identify and remove extraneous flows. The I/I analysis was completed and the final report was delivered to the Commission in May of 2017. The report's long term plan divided the wastewater collection system into 11 regions and recommended that the BWSC conduct a sewer system evaluation survey (SSES) in one region each year. This project is initiated to identify sources of extraneous flows in the Charlestown region of the wastewater collection system. This project will entail an Infiltration and Inflow Sewer System Evaluation Survey (SSES) to identify sources of extraneous flow in the Commission's wastewater collection system. The SSES will include flow monitoring, manhole inspection, smoke testing, dye testing, and television inspection of sewer pipes. Findings will be provided to the Commission in a report with recommendations for capital improvements to eliminate sources of extraneous flows. This project will entail an Infiltration and Inflow Sewer System Evaluation Survey (SSES) to identify sources of extraneous flow in the Commission's wastewater collection system. The SSES will include flow monitoring, manhole inspection, smoke testing, dye testing, and television inspection of sewer pipes. Findings will be provided to the Commission in a report with recommendations for capital improvements to eliminate sources of extraneous flows. The planning stage will commence in April 2022. The completion date for this contract is September 2024. The three-year budget is \$1,000,000.

Jamaica Plain SSES: The Massachusetts Department of Environmental Protection (DEP) developed regulations requiring sewer system operators to create and implement a long term infiltration and inflow (I/I) reduction plan to remove extraneous flows from the wastewater collection system. The I/I reduction plan was completed in May of 2017. The I/I reduction plan recommends that the Commission conduct sewer system evaluation surveys in sections of the wastewater collection system exhibiting excessive flows. This project is intended to identify sources of extraneous flows in the wastewater collection system serving Jamaica Plain. This project entails an infiltration and inflow, sewer system evaluation survey (SSES) to identify sources of extraneous flow in Jamaica Plain. The SSES may include flow monitoring, manhole

2022 – 2024 Capital Improvement Program

inspections, smoke testing, dyed water testing, and television inspection of sewer pipes. The finding will be provided to the Commission in a report with recommendation for capital improvements to eliminate the sources of extraneous flows. The planning stage commenced in June 2021. The completion date for this contract is January 2023. The three-year budget is \$2,000,000.

East Boston Separation

East Boston Sewer Separation – Phase IV Design Services Contract 21-206-001: This project includes design services to augment in house capability and manage MOM increased work. Design is projected to commence in June 2022 and is projected to be completed by December 2025. The three-year budget is \$1,700,000.

East Boston Sewer Separation Phase III- Contract No. 19-309-002: This project is the third phase of a multi -year plan to separate East Boston Combined sewers. Construction is projected to commence in June 2023 and be completed in June 2025. The three-year budget is \$1,195,000.

South Boston Separation

South Boston Sewer Separation - Contract 1: Contract 20-309-012: This project includes the construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction Contract No. 1 is one of five (5) planned contracts to construct new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. Construction started in April 2021 and is projected to be completed by August 2023. The three-year budget is \$4,020,000.

South Boston Sewer Separation – Final Paving Contract 1: Construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Final Paving Contract No. 1 is one of two (2) planned contracts to install final pavement where new storm drains have been constructed in contracts 1 and 2 to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. New paving will also be installed where upgrades of the sanitary sewer and water main systems impact the roadway surface. Construction commenced in April 2021 and is projected to be completed by November 2024. The three-year budget is \$969,000.

South Boston Sewer Separation - Contract 2: Contract 21-309-012: This project includes the construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction Contract No. 1 is one of five (5) planned contracts to construct new storm drains to separate

2022 – 2024 Capital Improvement Program

approximately 400 acres in South Boston along the Dorchester Avenue Corridor. Construction is projected to commence in August 2023 and is projected to be completed by November 2025. The three-year budget is \$103,000.

South Boston Sewer Separation - Contract 3: Contract 22-309-012: This project includes the construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction Contract No. 3 is one of five (5) planned contracts to construct new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. This contract is currently scheduled to commence in April 2024.

South Boston Sewer Separation - Contract 4: Contract 23-309-012: This project includes the construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction Contract No. 4 is one of five (5) planned contracts to construct new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. This contract is currently delayed.

Construction Oversight of South Boston Sewer Separation Contract No. 20-206-002: This project includes the construction oversight of the South Boston Separation. This project commenced in November 2020 and is projected to be completed by February 2027. The three-year budget is \$1,395,000.

Infiltration and Inflow Analysis SSES (Mattapan) Contract 20-206-008: The Massachusetts Department of Environmental Protection (DEP) developed regulations requiring sewer system operators to conduct infiltration and inflow (I/I) analysis of their wastewater collection system and implement a long term plan to identify and remove extraneous flows. The I/I reduction plan was completed and delivered to the Commission in May of 2017. The report's long term plan divided the wastewater collection system into 11 regions and recommended that the BWSC conduct a sewer system evaluation survey (SSES) in one region each year. This project is initiated to identify sources of extraneous flows in the wastewater collection system serving Mattapan. The SSES will include flow monitoring, manhole inspections, smoke testing, dyed water testing and television inspection of sewer pipes. Findings will be provided to the Commission in a report with recommendation for capital improvements to eliminate the sources of extraneous flows. The planning phase of this project commenced in April 2020 and is estimated to be completed in September 2022. The three-year budget is \$200,000.

Infiltration and Inflow Analysis SSES (Allston/Brighton) Contract No. 19-206-009: The Massachusetts Department of Environmental Protection (DEP) developed regulations requiring sewer system operators to create and implement a long term infiltration and inflow (I/I) reduction plan to remove extraneous flows from the wastewater collection system. The I/I reduction plan was completed in May of 2017. The I/I reduction plan recommends that the Commission conduct

2022 – 2024 Capital Improvement Program

sewer system evaluations surveys in sections of the wastewater collections system exhibiting excessive flows. This project entails to identify sources of extraneous flows in the Allston/Brighton. The SSES will include flow monitoring, manhole inspections, smoke testing, dyed water testing and television inspection of sewer pipes. Findings will be provided to the Commission in a report with recommendation for capital improvements to eliminate the sources of extraneous flows. The planning phase of this project commenced in November 2019 and is estimated to be completed in April 2021. The three-year budget is \$615,000.

Roxbury Sewer Separation Design Contract No. 14-206-002: This project includes the final design and subsequent construction for sewer separation in the Dudley Square of Roxbury. Sewer Separation removes gross inflow from the sewer system and is the most direct and efficient form of I/I reduction. Sewer Separation decreases the Commission's sewer payments to MWRA and decreases CSO activity. Work includes construction of new sewer and drains. The design phase of this project began in July 2014 and was completed in December 2021.

<i>Contract</i>	<i>Description</i>	<i>Cost</i>	<i>Status</i>
09-309-008	Dorchester-Brook-Regulator-Relocation	\$2,548,118.17	Complete
10-206-005	Roxbury-Separation-Design-Contract	\$1,732,975.60	Complete
10-309-004	East Boston Separation	\$504,381.30	Complete
14-206-002	Roxbury-Separation-Design-Contract	\$1,049,954.30	Complete
15-206-001	Infiltration-and-Inflow-Analysis	\$1,998,970.00	Complete
16-206-003	South Boston Separation	\$5,240,000.00	Active
17-206-004	Infiltration and Inflow Analysis	\$994,470.00	Complete
18-206-004	Infiltration and Inflow SSES	\$1,301,793.00	Complete
19-206-009	Allston/Brighton	\$1,415,720.00	Active
20-309-012	South Boston Separation	\$5,820,000.00	Active
21-309-012	South Boston Separation	\$2,868,000.00	Active
20-309-012P	South Boston Separation	\$964,000.00	Active

OBJECTIVES

The primary objectives of the Sewer System Capital Improvement Program for 2022-2024 are to provide uninterrupted wastewater transport and storm drainage services to the residents, businesses, and visitors of Boston and to improve water quality in Boston Harbor and its tributary waters. The 2022-2024 CIP has five major programs for the Sewer System: the sewer renewal and replacement program, the increased capacity program, the sewer separation, the Infiltration/Inflow program, and sewer special program.

2022 – 2024 Capital Improvement Program

The primary objectives of the 2022-2024 Sewer CIP are:

- ✓ Implement and manage contracts affiliated with the Consent Decree
- ✓ Implement Green Infrastructure Projects
- ✓ Comply with the requirements of the Commission's National Pollutant Discharge Elimination System (NPDES) and Municipal permits
- ✓ Minimize Infiltration and Inflow into the sanitary system, which will increase system capacity and decrease treatment costs
- ✓ Reduce combined sewer overflows by reducing wet weather discharges and minimizing sea water intrusions
- ✓ Provide sufficient hydraulic capacity for current and projected flows
- ✓ Protect the structural integrity of the wastewater collection and storm drainage systems
- ✓ Coordinate sewer system improvements with the related projects of other public agencies

The Commission's CMOM Program utilizes closed circuit TV camera inspection equipment and software to assess the structural and maintenance condition and identify areas of excessive infiltration and inflow. The System Condition Risk Enhanced Assessment Model "SCREAM" software system is utilized to prioritize these inspection results for repair and replacement by Commission crews and under its Capital Improvement Program. The CMOM Program includes the cleaning and inspection of approximately 80 miles of sewer pipe in 2022. This along with TV inspection under other programs will result in the inspection of 80 miles of pipe in 2022 with the goal of completing the entire system over a ten- year period.

Projects included in the Sewer System CIP include repair or replacement of approximately 7 miles of deteriorated or failing sanitary sewers and storm drains each year. Work is included under contracts 22-309-009, 22-309-010, 22-309-004, 21-309-009, CMOM for future contracts (TBD – to be determined), 21-309-009, 21-309-010, 21-309-001, 21-309-002, 21-309-014, and 20-309-014. Also included in the Sewer System CIP are South Boston Separation contracts 20-309-11P, 20-309-012, 21-309-012, 22-309-012 and 23-309-012, the East Boston Separation contracts 19-309-002 and 21-309-002 as well as the Roxbury Sewer Separation Contract 3.

In addition, all sewers and drains on streets, where water mains are to be replaced, will be inspected prior to replacement. All defective pipes will then be replaced or rehabilitated in the water main replacement contract under the Sewer System Capital Program.

2022 – 2024 Capital Improvement Program

2022-2024 SEWER SYSTEM CAPITAL PROGRAM

The sewer system objectives will be carried out through the continuation of the following program activities: renewal and replacement of sewer pipes, rehabilitation of sewer and drains, separation of combined sewers into sewer and storm drains, improvements that will result in an increase in system capacity, an infiltration/inflow reduction program including the disconnection of downspouts, and a number of special projects necessary to improve the efficiency and effectiveness of the sewer system.

WASTEWATER PROJECTS HIGHLIGHTS

- ✓ East Boston Separation Phase 3 & 4
- ✓ South Boston Separation (Contracts 1, 2, & 3)
- ✓ Replacement and Rehabilitation of Sewer and Drains Citywide
- ✓ CCTV of Sewers and Storm Drains / CMOM Program
- ✓ Replacement of Tide gates
- ✓ Sewer Separation in Roxbury (Contract 1, 2, & 3)
- ✓ Infiltration/Inflow Analysis
- ✓ Downspout Disconnection Program

Three- year total expenditures are \$110.9 million, of which \$50.8 million is anticipated to be spent in 2022.

SEWER RENEWAL AND REPLACEMENT

DESCRIPTION AND JUSTIFICATION

Renewal and replacement projects involve the trenchless rehabilitation or replacement of sewers and storm drains in response to persistent malfunction, structural deterioration, excessive emergency repairs and other operation and maintenance problems.

The Commission identifies sewer and drain lines that require renewal or replacement through television inspections, sewer system evaluation surveys and routine maintenance activities. Renewal and replacement projects are coordinated with the Boston DPW's Roadway Reconstruction Program to ensure that the Commission avoids excavating newly resurfaced street, unless under emergency circumstances.

The objectives of the renewal and replacement program are to: insure the operability of sewers and storm drains, protect the structural integrity of the sewer system, reduce long-term capital and maintenance costs and minimize disruptions of service caused by sewerage back-ups or other related problems.

NEW PROJECTS

2022 – 2024 Capital Improvement Program

CCTV of Sewers and Storm Drains/CMOM - Contract No. 22-309-009: This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction is expected to commence in March 2022 and is expected to be completed by March 2023. The three-year budget is \$750,000.

CCTV of Sewers and Storm Drains/CMOM - Contract No. 22-309-010: This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction is expected to commence in March 2022 and is expected to be completed by March 2023. The three-year budget is \$750,000.

Future CCTV of Sewers & Storm Drains/CMOM Contracts 23-309-009, 23-309-010, 24-309-009 & 24-309-010: This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately thirty (30) miles of various sized pipes will be cleaned and inspected under each contract. The majority of this contract will be completed in 2022 with project closeout expected during the first quarter of 2023. Construction is expected to commence in March 2022 and to be complete by March 2023. The three year budget for this project is \$3,300,000.

CCTV of Sewers - Contract No. 22-309-004: This project includes television inspection and cleaning of sewer pipes in the City of Boston for streets, where water main work is programmed, to assess the need for sewer and/or drain replacement. Construction is expected to commence in April 2022 and is expected to be completed by December 2022. The three-year budget is \$350,000.

South Boston Sewer Separation-Contract 4 - Contract No. 23-309-012: This project includes upgrades of the sanitary sewer systems to continue highlight level service to the community and support future development along Dorchester Avenue. Construction is expected to commence in April 2024 and is expected to be completed by April 2026. The three-year budget is \$500,000.

Sewer Replacement & Rehabilitation (“R&R”) in Roslindale and West Roxbury - Contract No. 22-309-001: This project includes rehabilitation of sewers and point repairs identified by the Planning Department during the Roslindale Sanitary Sewer Evaluation Survey. This intent of this project is to reduce I/I into the Roslindale Interceptor. Construction is expected to commence in January 2024 and is expected to be completed by June 2025. The three-year budget is \$50,000.

Sewer R & R Citywide - Contract No. 22-309-002: This project includes the rehabilitation and replacement of sewers where SSOs have occurred to mitigate future overflows. Construction is expected to commence in January 2024 and is expected to be completed by December 2024. The three-year budget is \$50,000.

Sewer R & R in Upper Roxbury - Contract No. 22-309-003: This project includes the replacement and rehabilitation of failing 1800s combined sewers where SSOs have occurred to mitigate future overflows. Construction is expected to commence in January 2024 and is expected to be completed by December 2025. The three-year budget is \$100,000.

2022 – 2024 Capital Improvement Program

Sewer R & R in City Proper - Contract No. 22-308-001: This project includes the replacement of rehabilitation of sewer mains in Boston Proper. Construction is expected to commence in January 2024 and is expected to be completed by December 2025. The three-year budget is \$50,000.

Sewer R & R Citywide - Contract No. 22-308-002: This project includes the replacement of rehabilitation of sewer mains Citywide. Construction is expected to commence in January 2024 and is expected to be completed by December 2025. The three-year budget is \$50,000.

Sewer R & R in the Georgetowne Neighborhood - Contract No. 22-308-003: This project includes the replacement of rehabilitation of sewer mains in the Georgetowne Neighborhood of West Roxbury. Construction is expected to commence in January 2024 and is expected to be completed by December 2025. The three-year budget is \$50,000.

ONGOING PROJECTS

CCTV OF Sewers and Storm Drains/CMOM - Contract No. 21-309-009: This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. The majority of this contract will be completed in 2021 with project closeout expected during the first quarter of 2022. The program represents progressive increase in the amount of pipe cleaned and televised with an end goal of completing approximately 10% of the system annually. Construction commenced in May 2021 and is expected to be completed by March 2022. The three-year budget is \$330,000.

CCTV OF Sewers and Storm Drains/CMOM - Contract No. 21-309-010: This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. The majority of this contract will be completed in 2021 with project closeout expected during the first quarter of 2022. The program represents progressive increase in the amount of pipe cleaned and televised with an end goal of completing approximately 10% of the system annually. Construction commenced in May 2021 and is expected to be completed by March 2022. The three-year budget is \$330,000.

South Boston Sewer Separation-NBBI Phase 1 – Contract 21-309-05A: This project includes the rehabilitation of the 102" New Boston Main Interceptor (NBMI) between the approximately the crossing at Dorchester Brook Sewer to the Columbus Park Headworks, both siphon chambers at Andrew Square, and other associated manhole/cambers. Initial evaluation of the siphon chambers at Andrew Square identified significant deterioration of both structures. Construction is projected to commence in April 2022 and is expected to be completed in 2024. The three-year budget is \$11,488,000.

Construction Supervision Services-NBBI Rehabilitation – Contract 21-103-001: This project includes the rehabilitation of the 102" New Boston Main Interceptor (NBMI) between the approximately the crossing at Dorchester Brook Sewer to the Columbus Park Headworks, both siphon chambers at Andrew Square, and other associated manhole/cambers. Initial evaluation of the siphon chambers at Andrew Square identified significant deterioration of both structures.

2022 – 2024 Capital Improvement Program

Construction is projected to commence in April 2022 and is expected to be completed in 2024. The three-year budget is \$919,000.

Sewer Renewal & Rehabilitation in Hyde Park – Contract 21-309-001: This project includes Sewer and Storm Drain Improvements in Hyde Park based on the findings of the CMOM group which identified sewer and drain defects in this area. The contract also includes associated water relay for pipes within project limits that have reached the end of their lifespan. Construction is projected to commence in September 2022 and is expected to be completed by October 2024. The three-year budget is \$1,000,000.

Sewer Renewal & Rehabilitation in South Boston and Dorchester – Contract 21-308-001: This project includes rehabilitation and replacement of damaged sewers and drainpipes in South Boston and Dorchester. Construction is projected to commence in July 2022 and is expected to be completed by December 2024. The three-year budget is \$1,200,000.

Sewer Renewal & Rehabilitation in City Proper – Contract 21-308-003: This project includes rehabilitation and replacement of damaged sewers and drainpipes in City Proper. Construction is projected to commence in April 2022 and is expected to be completed by August 2023. The three-year budget is \$2,814,000.

Emergency Sewer & Storm Drain Replacement 2020 - Contract No. 20-309-014: This project includes the replacement of sewers and storm drains in critical condition, citywide. These improvements are based on the findings of the CMOM group which identified sewer and drain defects, with associated water relay. Construction is projected to commence in April 2022 and is expected to be completed by November 2022. The three-year budget is \$1,750,000.

Emergency Sewer & Storm Drain Replacement 2021-2022 Contract No. 21-309-014: Replacement of sewers and storm drains in critical condition, citywide. These improvements are based on the findings of the CMOM group which identified sewer and drain defects, with associated water relay. Construction is projected to commence in 2022 and is expected to be completed in 2023. The three-year budget is \$4,200,000.

Sewer Renewal & Rehabilitation in South End - Contract No. 20-308-001: This project includes sewer and storm drain replacement & rehabilitation on Harrison Ave. in the South End. Construction is projected to commence in February 2023 and be completed in December 2024. The three-year budget is \$1,000,000.

Sewer R & R in South End - Contract No. 20-308-002: This project includes sewer replacement & rehabilitation of pipes that are in disrepair on Shawmut Ave in the South End. Construction is expected to commence in April 2023 and be completed in December 2024. The three-year budget is \$250,000.

Sewer Renewal & Rehabilitation in Charlestown - Contract No. 20-308-003: This project includes sewer and storm drain replacement & rehabilitation on Rutherford Ave. in Charlestown. Construction is projected to commence in November 2022 and be completed in May 2024. The three-year budget is \$1,000,000.

2022 – 2024 Capital Improvement Program

Sewer R & R in City Proper/Charlestown - Contract No. 20-308-004: This project includes sewer replacement & rehabilitation of pipes that are in disrepair in City Proper and Charlestown. Construction is expected to commence in July 2022 and be completed in July 2024. The three-year budget is \$289,000.

Sewer R & R in City Proper/Mission Hill - Contract No. 20-308-005: This project includes sewer replacement & rehabilitation of pipes that are in disrepair in City Proper and Mission Hill. Construction is expected to commence in April 2022 and be completed in November 2024. The three-year budget is \$852,000.

South Boston Sewer Separation – Final Paving Contract 1 - Contract No. 20-309-011P: The project includes paving following upgrades of the sanitary sewer systems to continue providing a high level of service to the community and support future development along Dorchester Avenue. Construction is projected to commence in March 2022 and be completed in January 2025. The three-year budget is \$1,150,000.

South Boston Sewer Separation - Contract 1 - Contract No. 20-309-012: Construction Contract No. 1 is one of five planned contracts. This project includes sewer replacement & rehabilitation along the Dorchester Ave. corridor in South Boston. Construction commenced in July 2021 and will be completed in November 2023. The three-year budget is \$5,365,000.

South Boston Sewer Separation – Contract 3-Contract No. 22-309-012: This project includes upgrades of the sanitary sewer systems to continue high level service to the community and support future development along Dorchester Avenue. Construction is expected to commence in April 2023 and be completed in April 2025. The three-year budget is \$1,437,000.

South Boston Sewer Separation - Contract 2 - Contract No. 21-309-012: Construction Contract No. 2 is one of five planned contracts. This project includes sewer replacement & rehabilitation along the Dorchester Ave. corridor in South Boston. Construction is projected to commence in April 2022 and be completed in April 2024. The three-year budget is \$3,497,000.

Sewer & Storm Drain Improvements Associated with East Boston Sewer Separation Phase III-Contract No. 19-309-002: This project is the third phase in a multi-year plan to separate East Boston combined sewers to reduce combined sewer overflows and improve water quality in the Boston Harbor. The project also includes upgrades of the sanitary sewer systems to continue a high level of service to the community. Construction commenced in September 2021 and is projected to be completed by September 2023. The three-year budget is \$1,212,000.

Storm Drain Improvements in Allston/Brighton - Contract No. 19-309-004: This project includes sewer and storm drain rehabilitation replacement as well as the replacement of water mains in Allston/Brighton. Construction is projected to commence in August 2022 and be completed by December 2023. The three-year budget is \$2,768,000.

South End Sewer R & R Phase I - Contract No. 19-308-001: This project includes sewer replacement & rehabilitation of 6,480 feet and 6,220 feet of storm drain relay/rehab on Washington

2022 – 2024 Capital Improvement Program

St. and East Berkeley St. in the South End. Construction is projected to commence in April 2022 and be completed in November 2022. The three-year budget is \$482,000.

Sewer R & R in Charlestown - Contract No. 19-308-002: This project includes sewer replacement & rehabilitation of 4,329 feet and 1,909 feet of storm drain relay/rehab on Bunker Hill Ave, Vine St., Chelsea St., School St., and Bartlett St. in Charlestown. Construction is projected to commence in April 2023 and be completed in November 2025. The three-year budget is \$2,406,000.

Sewer R & R Citywide - Contract No. 19-308-003: This project includes sewer replacement & rehabilitation on Tide St, Edgerly Rd, Columbus Ave (rear), Playstead Rd and Savin Hill Ave. Construction is projected to commence in April 2022 and be completed in December 2024. The three-year budget is \$2,500,000.

City Proper Sewer R & R Improvements - Contract No. 19-308-004: This project includes sewer renewal & rehabilitation on Cambridge St, Charles St, Beacon St. and various streets within Beacon Hill. Construction is projected to commence in April 2023 and be completed by November 2025. The three-year budget is \$1,250,000.

Sewer & Drain R & R in Fenway- Contract No. 18-309-001: This project includes the replacement and rehabilitation of sanitary sewer; storm drain and combined sewer pipes in the Fenway area. Construction is projected to commence in May 2022 and be completed in November 2023. The three-year budget is \$4,102,000.

Sewer & Drain R & R in Roslindale, Hyde Park & Mattapan- Contract No. 18-309-003: This project includes replacement of sanitary sewer and drain pipes in Roslindale, Hyde Park & Mattapan. Construction is projected to commence in September 2022 and be completed by June 2024. The three-year budget is \$4,200,000.

Sewer R & R in Back Bay/Fenway- Contract No. 18-308-001: This project includes the replacement & rehabilitation of sanitary sewer and drain pipes in Back Bay/Fenway. Construction is projected to commence in October 2021 and be complete by November 2022. The three-year budget is \$1,400,000.

Sewer R & R in Dorchester- Contract No. 18-308-003: This project includes the replacement & rehabilitation of sanitary sewer and drain pipes in Dorchester. Sewers serving the area were found damaged and undersized. The work in this contract also includes the replacement of 670 feet of 8" clay pipe with new 10" sewer pipe. Construction commenced in July 2021 and will be completed by April 2022. The three-year budget is \$1,629,000.

Sewer & Drain R & R in Dorchester, Hyde Park, South Boston & West Roxbury- Contract No. 17-309-001: This project includes the replacement & rehabilitation of sanitary sewer and drain pipes in Dorchester, Hyde Park, South Boston & West Roxbury. Construction commenced in August 2021 and will be completed by February 2023. The three-year budget is \$3,008,000.

2022 – 2024 Capital Improvement Program

Rehabilitation of Large Diameter Sewer Mains and in City Proper and South Boston - Contract No. 17-309-015: This project includes trenchless rehabilitation of large diameter sewer conduits in City Proper / South Boston. Recent CCTV inspection of sewer and drain in these areas have shown signs of hydrogen sulfide chemical attack to the existing pipe walls. Pipes in this contract have been found defective and in need of repair as determined by CCTV inspection under contract 17-309-006. Construction is projected to commence in December 2021 and be completed by December 2022. The three-year budget is \$5,367,000.

Sewer & Drain R & R in Dorchester, Fenway/Kenmore, Mattapan and Roxbury- Contract No. 17-308-002: This project includes replacement & rehabilitation of sanitary sewer and drain pipes in Dorchester, Fenway/Kenmore, Mattapan & Roxbury. Construction commenced in July 2020 and will be completed by March 2022. The three-year budget is \$100,000.

Sewer & Drain R & R in Back Bay, Beacon Hill & City Proper- Contract No. 17-308-006: This project includes sanitary sewer & drain replacement and rehabilitation in Back Bay/Beacon Hill and City Proper. Construction commenced in July 2019 and will be completed by September 2022. The three-year budget is \$1,083,000.

Sewer & Drain Rehabilitation in City Proper- Contract No. 17-308-007: This contract will replace 2,980 feet of 8-inch to 12-inch water mains on Harvard Street, High Street, Lincoln Street, Monsignor Shea Road, and South Street in the Financial District, the Leather District, and Chinatown, along with associated sewer and storm drain relay/rehab. This work is in response to break history. Construction commenced in March 2021 and will be completed in March 2022. The three-year budget is \$215,000.

INCREASED CAPACITY PROJECTS

DESCRIPTION AND JUSTIFICATION

During the 1980s, the Commission completed the construction of several new major interceptors including the New Boston Main and New East Side Interceptors. They provided increased system capacity, which reduced wet weather combined sewer overflow discharges and virtually eliminated dry weather discharges to Boston Harbor and its tributary waters.

Since their completion, the Commission has continued to make capital investments to increase system capacity in some areas and maximize the existing capacity of the system in other areas. The Commission's efforts to increase system capacity are designed to ensure sufficient hydraulic flow in all areas of the city, reduce long-term maintenance costs, minimize the frequency and volume of CSO discharges and ensure the continued structural integrity of the wastewater collection system.

In 1994, the EPA issued a policy nationwide on CSOs that requires communities with CSOs to implement nine minimum controls to reduce the frequency and volume of CSO discharges. Maximizing the use of in-system storage, or system capacity, is one of the nine controls. The Commission continues its efforts to increase system capacity. The projects presented in the CIP Increased Capacity Program seek to fulfill that objective.

2022 – 2024 Capital Improvement Program

NEW PROJECTS

No New Projects

ONGOING PROJECTS

Installation of Tide-gates City-Wide- Contract No. 19-309-001: This contract will evaluate the need for and provide design for the installation of five tide gates on drainage systems of various sizes in Water Front/North End, South Boston (Seaport), and Dorchester. The Design Department is working with the planning department to identify outfalls which may not be protected from extreme tides to prevent street flooding from surcharged drainage systems. This project includes the installation of tide-gates in City Proper, South Boston, Charlestown and Dorchester. Construction is projected to commence in April 2022 and will be completed in April 2023. The three-year budget is \$600,000.

Installation of Tide-gates City-Wide- Contract No. 20-309-001: This contract will evaluate the need for and provide design for the installation of five tide gates on drainage systems of various sizes in City Proper. The Design Department is working with the planning department to identify outfalls which may not be protected from extreme tides to prevent street flooding from surcharged drainage systems. Construction is projected to commence in January 2024 and will be completed in December 2024. The three-year budget is \$1,000,000.

Installation of Backflow Prevention Devices in North End, Charlestown, and East Boston: Installation of backflow prevention devices at storm drain outfalls to prevent the receiving water from entering the storm drain system and flooding inland areas during exceptionally high tide and river levels. This project also includes ongoing coordination with the City of Boston's effort to prevent inundation of coastal land by constructing barriers. In conjunction with the barriers, backflow prevention devices must be installed on the storm drain system by the Commission to prevent water from by-passing the barriers. The Commission and the City of Boston are committed to protect the City from predicted rising sea levels and increase in the number and severity of storms brought by climate change. The intent of this project to identify areas and backflow prevention devices on storm drains near the outfall pipe to prevent the receiving water entry into the storm drain system. Construction is projected to commence in October 2022 and be completed in February 2023. The three-year budget is \$600,000.

SEWER SEPARATION

DESCRIPTION AND JUSTIFICATION

The Commission's separation program involves the replacement of combined sanitary and storm sewers with two separate systems, one for sanitary sewage and one for stormwater. The purpose of the separation program is to reduce the frequency and volume of wet weather CSO discharges and ensure the continued compliance with state and federal permits. Combined systems will be separated where it is appropriate and cost effective to do so. Sewer separation work most often involves converting the combined sewer to a separate sanitary sewer and constructing a new storm drain.

2022 – 2024 Capital Improvement Program

In addition to addressing CSO concerns, the Commission is identifying sanitary sewage that is being discharged into the storm drain system. Between 1986 and December 31, 2021, the Commission removed more than 1,885 illegal connections, eliminating the discharge of an estimated 848,000 gallons of wastewater per day to the storm drainage system and receiving waters. In 2021, the Commission eliminated 10 illicit sanitary sewer connections to storm drains, removing an estimated 2,890 gallons per day of sewage from the drainage system and receiving waters.

Since 1996, the Commission has spent approximately \$300 million on sewer separation projects. Projects were designed with the intent of eliminating combined sewer overflow (“CSO”) discharge, improving water quality in Boston Harbor and its tributaries and diverting stormwater from environmentally sensitive areas. The Commission’s ability to remove extraneous flow from its sewers will result in a reduction in its metered wastewater flow and wholesale sewer charges. Thus far, these projects have reduced annual discharge of CSO by 124.3 million gallons.

The Commission regularly inspects, cleans and maintains its catch basins city-wide. Cleaning restores the effective capacity of catch basins., thereby allowing for greater solids removal from stormwater flows. Hoods and traps are replaced on catch bases as needed. The Commission’s site plan review process has been upgraded and enhanced in recent years. The Commission now exercises greater control over non-stormwater discharges and ensures that construction sites and new development projects conform to its requirements, as well as State and Federal requirements for stormwater management.

NEW PROJECTS

East Boston Sewer Separation Phase IV- Contract No. 23-309-002: This project includes CSO reduction in conjunction with the MWRA. The project is expected to commence in April 2024 and to be completed by April 2026. The three-year budget for this project is \$100,000.

ONGOING PROJECTS

City-Wide Correction of Illicit Sanitary Building Connections Contract No. 20-309-015: This contract involves disconnection of sanitary sewer laterals from storm drains and reconnection of laterals to sanitary sewers. Sanitary sewer laterals connected to storm drains allow untreated sewage to discharge to storm drains and from there to rivers, streams, wetlands and Boston Harbor. Sanitary sewer laterals connected to storm drains are prohibited under the Commission’s NPDES Stormwater Permit and the Consent Decree. This project commenced in October 2020 and will be completed by October 2023. The three-year budget is \$1,800,000.

Construction Oversight of South Boston Sewer Separation Contract No. 20-206-002: This project includes the construction oversight of the South Boston Separation. Construction commenced in August 2021 and is projected to be completed by October 2028. The three-year budget is \$4,185,000.

2022 – 2024 Capital Improvement Program

Sewer Separation in East Boston Contract No. 17-309-005: This project will include the Separation of combined sewers in East Boston and West Roxbury. Work will also include replacement or rehabilitation of sewer pipes as necessary. Construction began in September 2019 and is projected to be completed by November 2021. The three-year budget is \$498,000.

Sewer Separation Upper Roxbury Phase III- Contract No. 17-309-011: This project includes the installation of sewers and drains for sewer separation in Upper Roxbury. Construction is scheduled to commence in April 2023 and is projected to be completed by November 2024. The three-year budget is \$11,500,000.

City-wide Illegal Connections Investigation Phase 5 Contract 20-206-007: This project is a continuation of the Commission's Citywide Illegal Connection Investigation Program under Phase 5. Under the Consent Decree with the EPA and NPDES Stormwater Permit the Commission is required to identify and eliminate sanitary sewer connections to storm drains and annually screen all the Commission's outfalls. Under this program illicit sanitary sewer connections to storm drains are identified using manhole inspections and sandbagging, water quality sampling, and dye tests of buildings. This program also includes wet and dry weather outfall screening to prioritize drainage sub-catchments for investigation. This project began in August 2020 and is expected to be conclude in August 2023. The three-year budget for this project is \$1,946,000.

Owner Fix of Illegal Connections: Illicit connections in the public way are usually corrected by a Commission contractor. In a few instances, homeowners must alter internal plumbing by installing an ejector pump or redirecting piping to correct an illicit connection. In these instances, the Commission will reimburse owners up to \$7,500 for the work. Illicit connections are a violation of Federal law and must be promptly corrected. This program was instituted and approved by the Commission to assist property owners with costly alterations required to correct illicit connections. The average need is four per year for a total of \$30,000 per year. Capital reserved for reimbursements for the 2022-2024 period is \$90,000.

SEWER SYSTEM SPECIAL PROJECTS

DESCRIPTION AND JUSTIFICATION

The Sewer System Special Projects category provides funding for a variety of system planning and other studies and for professional services associated with the rehabilitation and operation of the sewer system.

Overall, the objectives of the Sewer System Special Projects are to extend the useful life of the Commission's wastewater facilities, comply with the requirements of the NPDES Permit regulations and plan for future sewer system projects.

NEW PROJECTS

Sewer and Drain Models-Update & Maintenance: The purpose of this program is to update the Commission's Sewer and Drain Models to incorporate changes to the Commission's sewer and

2022 – 2024 Capital Improvement Program

drain systems since the last time the models were updated in 2018. The project will also recalibrate the Stormwater Quality component of the Stormwater Model to the sampling data that was collected for the Stormwater Quality and Model Validation Project and will provide a general hydrologic recalibration to account for changes in the sewer and drain system. The project will provide maintenance of the models and will continue to provide support and training for Commission staff that utilize the Models. The project will update the inundation model with new LIDAR data and rerun the inundation model as needed to determine if areas of the city will change based upon implementation of flood barriers. The planning phase will commence in October 2022 and will be completed by October 2025. The three-year budget is \$1,000,000.

Dorchester Interceptor-Relief Sewer Design: Prior studies have shown that the Dorchester Interceptor is not able to convey flows during large storm events. The purpose of this project will be to design a 3,500 linear foot sewer in Gallivan Boulevard and a 4,600 linear foot sewer in Morrissey Boulevard to redirect and store excess flows from the Dorchester Interceptor and provide relief to address SSOs during large storm events. The design phase is set to commence in November 2022 with a projected completion date of June 2024. The three-year budget for this project is \$3,500,000.

Dorchester Interceptor-Storage Tank Design: Prior studies have shown that the Dorchester Interceptor is not able to convey flows during large storm events. The purpose of this project will be to design a storage facility that will provide relief to the Dorchester Interceptor to store excess flows from the Dorchester Interceptor and provide relief to address SSOs during large storm events. The design phase is set to commence in August 2024 with a projected completion date of December 2025. The three-year budget for this project is \$250,000.

Port Norfolk Pump Station: This project includes Replacement of Discharge Piping, Valves, Gates, Access Hatch, miscellaneous repairs, and upgrades to this pump station. Construction is projected to commence in January 2022 and to be completed by December 2022. The three-year budget for this project is \$1,500,000.

ONGOING PROJECTS

Drain Sensor Deployment: The purpose of this project is to install sensors through the Commission's major sewer and drains and develop an application for real-time monitoring of the systems. The application will have a graphic component showing profiles of pipes and graphical representation of depth of flow. Planning for this project commenced in December 2021 and is to be completed by December 2024. The three-year budget is \$1,200,000.

3D Depictions of Sewer Structures Phase II: The project will produce animated files that allow Commission staff to educate themselves on how regulating structures are configured and how they operate under varying weather conditions. The depictions will provide Commission employees with knowledge about what they will see in the field and how the structure operates and how the tributary pipes impact them. These animated three-dimensional renderings will help the Commission in its goal to provide knowledge transfer to Commission employees. This project will produce animated three-dimensional interactive renderings for up to 50 sewer regulators and

2022 – 2024 Capital Improvement Program

other sewer structures. Planning commenced in July 2021 with a completion date of December 2022. The three-year budget is \$250,000.

Lateral Testing & CCTV of Sewers & Drains (IDDE) - Contract No. 21-309-004: Under the Consent Decree with EPA the Commission must adhere to strict deadlines for completing illicit discharge investigations. Testing of sewer laterals will verify whether the laterals leak sewage to the storm drain system. CCTV of sewers and drains will aid in identifying illicit sanitary discharges and structural deficiencies in the pipes. This funding will be used to continue testing sewer laterals to determine whether they leak sewage into drains, and to CCTV inspect sewers and drains to aid in identifying illicit connections and structural deficiencies in pipes. This is expected to be a two-year contract. Construction for this project commenced in May 2021 and is expected to be completed by May 2023. The three-year budget is \$355,000.

Technical Assistance Sewer and Drain Models Contract No. 19-206-012: The purpose of this project is to acquire technical assistance in running Sewer and Drain Models. The program will also include provisions for training and manual development. The Commission has made a significant investment in both the Sewer Model and the Drain Model. Engineering staff will benefit from the technical advice on how to use the software more efficiently. Planning commenced in December 2019 and is expected to be completed in December 2022. The three-year budget is \$120,000.

Dorchester Interceptor Study Contract No. 18-206-003: The purpose of this project is to identify how the Dorchester Interceptor operates during wet weather. The Dorchester Interceptor is not able to convey flows during large storms. Several gates are in place along the interceptor to divert flows out of the interceptor. The project will identify what measures are necessary to eliminate the need for the gates. The project will meter and model flows over a three-year period. Flow meters will supplement existing data. The Commission's model will attempt to simulate flows in real time. The modeling and metering efforts will help to determine if the interceptor is too small. The project commenced in September 2018 and is projected to be completed by September 2022. The three-year budget is \$319,000.

Trilling Way Pump Station Improvements: In 2016 a condition assessment of the Commission's pump stations was completed which recommended various repairs and improvements to be made to maintain service and reliability of the pump stations. This project includes the upgrade or replacement of essential equipment and components related to the Commission's Pump Stations. The upgrades will commence in January 2022 and will be completed by December 2022. The three-year budget is \$325,000.

Discharge Notification for CSOs – Contract No. 19-206-008: The purpose of this is to comply with the anticipated new State Regulations and the Commission's CSO NPDES Permit, which requires the Commission to notify the public of discharges from its combined sewer system. Professional metering services will be used to determine when an overflow began and when it ended. A website will be maintained for the public to access the overflow information. The planning stage commenced in August 2019 and is estimated to be completed in December 2022. The three-year budget is \$900,000.

2022 – 2024 Capital Improvement Program

Interactive Training Tool: This project includes the development of an interactive training tool that will support knowledge sharing specific to the operation of the Commission’s sewer and drainage systems and relevant components of the MWRA’s wastewater collection system. The Planning stage is scheduled to commence in September 2023 and is projected to be completed in December 2024. The three-year budget is \$200,000.

BWSC Union Park Pump Station Upgrades: In 2016 a condition assessment of the Commission’s pump stations was completed which recommended various repairs and improvements to be made to maintain service and reliability of the pump stations. This project includes the upgrade or replacement of essential equipment and components related to the Commission’s Pump Stations. The upgrades are expected to commence in January 2022 and are projected to be completed by December 2022. The three-year budget is \$1,000,000.

Geotechnical Service Contract No. 19-206-002: This project includes professional geotechnical services related to Commission projects. Services include soil borings and engineering analysis to design pipe and soil support systems. This is a professional services contract. To install sewer and drain pipe in deep locations and in certain soils it is required to sample and analyze the soils to determine the correct method of support for the pipes and excavations. Services commenced in January 2020 and are expected to conclude in December 2022. The three-year budget is \$100,000.

Land Survey Services Contract No. 19-206-003: This project includes surveys for Capital Improvement Projects after construction is completed. This is used to supplement Commission staff with their surveys for busier roadways and difficult to access locations. These services are necessary to complete contracts for the Capital Improvement Program. Services commenced in August 2019 and are expected to conclude in August 2022. The three-year budget is \$12,000.

Castings & Gratings: This project involves payments to the City of Boston’s roadway and sidewalk reconstruction contractors for the repair or replacement of the Commission’s iron castings during the paving of the City of Boston streets or pouring of sidewalks by the Boston Public Works Department. Services are projected to commence in January 2022 and expected to conclude in December 2024. The three-year budget is \$750,000.

Survey Services for CIP Projects Contract 20-206-005: This project includes total station surveys for Capital Improvement Projects. This is used to augment Commission staff with their surveys. These services are necessary to complete contracts for the Capital Improvement Program. Services commenced in October 2020 and conclude in October 2023. The three-year budget is \$200,000.

2022 – 2024 Capital Improvement Program

SUPPORT PROJECTS

Various Support Projects are included in the 2022-2024 CIP, which the Commission firmly believes will improve the overall efficiency of Commission's functions and enhance its ability to collect revenues and track information. Funds are also allocated for software licenses and upgrades, hardware and peripheral equipment, metering, and vehicles.

OBJECTIVES

The primary objectives of the Support category for 2022-2024 are as follows:

- ✓ Upgrade of Automatic Meter Reading System Data Base
- ✓ Replacement of HVAC System of Commission Headquarters
- ✓ Rooftop Upgrade Replacement
- ✓ Replacement of Commission Vehicles

Support Projects are divided into three sections. These sections are:

- ✓ Metering
- ✓ Information Technology
- ✓ Administrative Equipment

Support Projects for 2022-2024 CIP total \$24.4 million. Funds allocated for 2022 total \$13.4 million.

METERING

DESCRIPTION AND JUSTIFICATION

Metering programs include meter downsizing, which involves the replacement of large meters with smaller meters, where hydraulically feasible. On an annual basis, the Meter Service Department repairs, replaces tests and installs water meters and automatic reading devices and maintains all field components of the Commission's Automatic Meter Reading system. All meters that are removed are tested on and fully equipped test bench, which was purchased in 2009. Meters 3" and larger are field tested, based on size, at intervals of: every year (6" to 10", every other year (4") and every three years (3"), in accordance with American Water Works Association standards. In addition, usage is evaluated utilizing the AMR system and recommendations are made to downsize identified meters to more accurately account for low flow.

NEW PROJECTS

No new projects.

In conjunction with Aclara, the Commission will perform a Propagation Study of the entire City of Boston based on all the new development over the last 10 years to ensure we have proper Data Collection Unit (DCU's) coverage which increases reading percentages. It may be necessary to move a few DCU's or install a few more to maintain a high read percentage.

ONGOING PROJECTS

MTU and DCU Maintenance/Repair/Replacements and Upgrades: Having completed the upgrade of its AMR infrastructure in 2018, efforts will focus on quickly addressing any system issues with the intent of preserving the elimination of estimated bills which the system has achieved. The three-year budget is \$1,600,000.

Large Meter Work (Water): The Commission closely follows AWWA recommendations and tests all large meters in accordance with AWWA parameters. In the course of its large meters work, the Commission prioritizes the repair/replacement of any malfunctioning parts and/or replaces large meters, as necessary. Wherever feasible, the Commission downsizes large meters to improve accuracy of registration. The three- year budget for this project is \$945,000.

Residential Metering (Water): The residential metering program is an ongoing project to replace approximately 4,000 residential meters sizes 5/8” through 2” annually. The three- year budget for this project is \$900,000.

INFORMATION TECHNOLOGY

Effective use of the right technologies enables BWSC to provide more efficient and high-quality water and sewer services to the City of Boston. Strategic planning, careful selection of technological tools, and effective use of such tools has enabled BWSC to continue to improve the level of service associated with emergency responses, preventative maintenance, infrastructure improvements, and most importantly, quality customer service. Providing staff with appropriate training and utilizing the right mix of hardware and software is something BWSC continues to assess and act upon as new technologies continue to evolve.

A number of mission critical software applications are utilized to support BWSC’s daily operations and provide for emergency response services 24 hours a day, 7 days a week. BWSC is actively upgrading and replacing various systems. The following are projects that have been completed to date and projects projected to be completed during the next several years.

- Replace the Commission’s Building Access Control and CCTV Security system. This project will be completed in 2021.
- Upgrade Engineering Construction Management application. This project will be completed in 2021.
- Upgrade GIS and Asset Management Systems. This project will begin 2021 and is expected to be completed in 2022.

Cybersecurity: BWSC adheres to the NIST (National Institute of Standards and Technology) Cybersecurity Framework (the “NIST Framework”). As the Cybersecurity landscape evolves so does the NIST Framework. The only way to accelerate detection and response to sophisticated

2022 – 2024 Capital Improvement Program

threats is to understand the behavior of all individual components of an attack across your organization. BWSC has selected security products from different vendors which integrate to offer an overlapping layered approach to security with multiple levels of protection. In the event of a breach BWSC has multiple levels of backups in place to mitigate data loss. Most of the deployed security products are now cloud based and rely on analysis of datasets to identify threats based on patterns. These products also include remote monitoring and response. BWSC has deployed security products to cover each functional level of the NIST Framework: Identify, Protect, Detect, Respond and Recover. BWSC has recently completed a cybersecurity assessment, which is compliant with the AWIA Cybersecurity and Resilience assessment requirement.

NEW PROJECTS

New Projects included in Software and Hardware line items are listed below.

ONGOING PROJECTS

Server / Network Hardware & Peripheral Equipment: New Server/Network Hardware is used to upgrade and add to the Commission's Computing Infrastructure, which provides sufficient capacity and performance to support computing activities including: billing, HRIS, payroll, financials, work order system and GIS. The total three-year budget for this project is \$1,260,000. Monies are budgeted for the following items:

- Backup disk/tape
- Communications/Networking
- Server Upgrades
- B&W Network Printers
- Disaster Recovery Hardware
- Replace/Upgrade PC's
- Tablets/Ipads/Phones
- Laptops
- Peripherals (cables, adapters, cases etc.)

Server/Network Software Licenses and Upgrades: Funding is included for software upgrades and additions to the Commission's Computer Infrastructure. Software and related upgrades to support Commission computing activities include: Billing, HRIS, Payroll, Financials, Work Order system, GIS, Document Management and Construction Management System. The total three-year budget for this project is \$6,360,000. Software and upgrades consist of the following:

- Workorder Mgt. System (Cityworks)
- CIS
- Database Software
- Application Development Tools
- Construction Management Software
- Website
- GIS Software/Upgrade
- Management Portal

2022 – 2024 Capital Improvement Program

- Information Security
- Disaster Recovery Software & Services
- AutoCAD & Design Software/Upgrades

ADMINISTRATIVE EQUIPMENT

DESCRIPTION AND JUSTIFICATION

The projects contained in the administrative equipment category provide funding for improvements to administrative facilities and equipment. The Fleet department manages and coordinates all activities required for the efficient operation and maintenance of the Commission's fleet of vehicles including heavy equipment. To minimize fleet total cost of ownership (operating and capital cost) and ensure the ability to provide required customer services using reliable transportation and equipment, vehicles should be replaced at regular intervals, derived from optimal replacement cycle analyses. Vehicle replacement cycles provide the basis for long-term replacement plans for year-to-year replacement earmarking and budgeting. A recent study of the Commission's fleet by a professional management consulting firm has determined that optimum replacement cycles for all classes of vehicles range from 7 to 12 years with a weighted average replacement cycle of 8.8 years for all vehicle.

NEW PROJECTS

No New Projects

ONGOING PROJECTS

Exterior Work – 980 Harrison Avenue: A summary review of building conditions undertaken in late 2017 noted several areas on the exterior of 980 Harrison Avenue that would require work over the near term. These included work on the buildings skin (limestone, composite and metal panels) and replacement of perimeter sealant. Twenty years of urban grime has left several exposed building exterior sections unsightly and in need of cleaning. Time has also had a negative effect on the sealant around building panels and at windows. The deterioration of sealant has allowed for leaks to occur when there is a driving rain. Certain building maintenance initiatives have dented some of the metal panels and additionally degraded associated seals around them. Construction will commence in the summer 2022 and be completed in the summer 2023. The total cost of this project is \$240,000.

Gasket Replacement in 2nd Floor Garage: The gasketing material at the expansion joint at the second floor garage has deteriorated and heaved out of its setting. The absence of the material does not allow the expansion joint to function as designed and presents a trip hazard to all traveling to and from vehicles parked at this level. Construction is expected to commence in the September 2022 and to be completed in December 2022. The total cost of this project is \$175,000.

2022 – 2024 Capital Improvement Program

Owner's Project Manager (OPM): There are pressing needs to undertake major repairs at Commission facilities. MGL Ch 149, requires that all building projects with a cost in excess of \$1.5 million have an OPM assigned to the project. Several of the projects required at Commission facilities trigger this threshold. Additionally, staff in the Facilities Department has a proven track record of capabilities in the maintenance of facilities. Construction of facilities is a separate skill set and existing Staff has little capacity to independently undertake large scale construction projects. The Commission has engaged an OPM to provide staff with expert advice for undertaking facilities construction projects toward the restoration of Commission physical plant. The projects commenced in the summer of 2020 and will be ongoing through the entire length of this capital plan and beyond. The total cost of OPM services through 2023 are projected to be \$200,000.

Atrium Door Improvements: This project allows for the Commission to replace the original front doors of 980 Harrison Avenue. The front doors located in the atrium of 980 Harrison Avenue are original to the building and are outdated and in need of repairs. The proposed new doors will allow for cohesive pedestrian traffic at the building's main entrance, including ADA improvements. This project is projected to commence in July 2022 and completed August 2022. The total budget is \$300,000.

Selection of "House Doctors" for Facilities Projects: Several of the major components of the Commission's headquarters building (roof, HVAC system, etc.) need replacement. The original components have been begun to deteriorate and must either be replaced or completely refurbished. House Doctor/design services are architectural/engineering services required for the design and development of plans and specifications to undertake upgrades to existing components of Commission's buildings and/or to build/renovate additional buildings on Commission owned property. The House Doctor will also be utilized to undertake an evaluation of flood protection systems for the Commission Headquarters, Materials Handling Facility and two above ground pump stations. In 2020, the Board approved \$850,000.00 for these services. It is expected that all architectural/engineering work at Commission facilities will be undertaken by the House Dr. However, there may be circumstances where it makes more sense for the Commission to engage a "specialized" design contract for a unique circumstance. This project is expected to commence in January 2022 and completed in December 2024. The total three-year budget is \$850,000.

Upgrade to Building HVAC Equipment: The existing HVAC system is the system that came on-line with the Headquarters opening in 2001. As with most major building components, the system was installed well in advance of actual building opening. This project includes the replacement of existing heating/AC units throughout the Headquarters Facility. The project is scheduled to commence in the September 2022 and be completed in the October 2022. The estimated cost is \$3,500,000.

Deflection Monitoring System: At the Headquarters facility, there was an expansion joint installed between the existing building (Stride Rite factory) and the addition installed when the headquarters campus was constructed. Over time, there has been movement at the location of the expansion joint which has caused cracks and floor heaves. To mitigate the situation and eliminate trip hazards, additional deflection monitoring will need to occur, as will the replacement of expansion joint covers which no longer adequately cover the locations where they were placed. This project

2022 – 2024 Capital Improvement Program

includes the installation of a Deflection Monitoring System to ensure that the building is only moving within acceptable parameters and the movement does not exceed permissible tolerances. The installation of these devices was undertaken in the January of 2022 and is expected to be completed by December 2024. The estimated cost is \$150,000.

Roof Upgrade Replacement: This project includes the upgrade and/or replacement of the Commission’s Roof. The project is scheduled to commence in October 2022 and is projected to be completed in March 2023. The estimated cost is \$2,300,000.

Vehicles/Equipment: The Fleet department manages and coordinates all activities required for the efficient operation and maintenance of the Commission’s fleet of vehicles including heavy equipment. In order to minimize fleet total cost of ownership (operating and capital costs) and sure the ability to provide required customer services using reliable transportation and equipment, vehicles should be replaced at regular intervals derived from optimal replacement cycle analyses. Vehicle replacement cycles provide the basis for long-term replacement plans for year-to-year replacement earmarking and budgeting. A recent study of the Commission’s fleet by a professional fleet management consulting firm has determined that optimum replacement cycles for all classes of vehicles range from 7 to 12 years with a weighted average replacement cycle of 8.8 years for all vehicles. Funding is provided for the replacement of various vehicles for utility and operational purposes. The vehicles being replaced have reached their useful life. The total amount budgeted for Vehicles total \$5,631,000.

STORMWATER/GREEN INFRASTRUCTURE/LOW IMPACT DEVELOPMENT PROJECTS

DESCRIPTION AND JUSTIFICATION

Funding is provided in the 2022-2024 CIP for the implementation of the Commission’s Stormwater Program. This program consists of studies of existing and new drainage infrastructure, best management practices and implementation of programs designed to improve water quality, the environment and manage stormwater resources.

The primary purpose of the Stormwater Program is to participate in the Boston Harbor pollution abatement projects, implement green infrastructure/low impact development to improve the water quality of discharges to the local receiving waters and promote public awareness of stormwater quality issues. The goal is also to study existing conditions and make recommendations for placement of new best management practices designed to promote improved water quality, ensure compliance with state and federal regulations, minimize flooding and manage stormwater throughout the City of Boston.

The Green Infrastructure/Low Impact Development (“GI/LID”) category provides funding for (“GI/LID”) projects as needed in collaboration with public improvements in the City of Boston.

The Commission is under an obligation to meet the Phosphorus Total Maximum Daily Load (“TMDL”) for the Lower Charles River Basin by reducing elevated levels of phosphorus discharged from its stormwater outfalls. The Commission was required by its Consent Decree with the U.S. EPA to develop a stormwater model to identify pollutant loadings (including

2022 – 2024 Capital Improvement Program

phosphorus) from land areas that contribute stormwater runoff to the Commission's storm drain system. In addition, the Commission is developed a Best Management Practice ("BMP") Recommendations Report in compliance with the terms of the Consent Decree. The BMP Recommendations Report provides a scheduled plan for implementation of structural BMPs to reduce pollutant loadings discharged to the twenty-seven sub-watersheds of the City of Boston.

The BMP Recommendations Report provides a plan for the Commission's whole stormwater collection system. According to the interim findings, the cost to implement this plan could be substantial. The purpose of this program is to make available funding to implement GI/LID projects (in collaboration with other city departments and/or private landowners) in the City of Boston as they become available. This program will further the Commission's goal of compliance with the Consent Decree.

NEW PROJECTS

Harambee Park Drainage Structure Replacement: This project involves the replacement of the existing drainage overflow structure at Harambee Park and installation of phosphorus removal technology within the proposed drainage structure. Construction will commence in May 2022 and to be completed in November 2022. The three-year budget for this project is \$500,000.

Construction of Stormwater Detention Facilities Phase I: This project includes construction of stormwater detention facilities at various locations in the city. The detention facilities will be constructed at locations that have the potential to store sufficient quantities of stormwater to relieve flooding in downstream areas during severe rainfall events. The work may include earthworks, construction of outlet and inlet control structures, and site amenities. Construction will commence in July 2024 and to be completed in May 2025. The three-year budget for this project is \$500,000.

ONGOING PROJECTS

Design Stormwater Detention Facilities Phase II: The Wastewater and Storm Drainage System Facilities Plan included recommendations for temporary surface storage of stormwater to alleviate the hydraulic stress on the Commission's storm drain system from increased rainfall volumes and peak intensities that may be experienced during future storms. Under Contract 18-206-002, the Stormwater Detention Investigation, identified potential sites for stormwater storage. This planning and design project will advance the Commission's stormwater storage program. Engineering services for design of stormwater detention facilities at locations that will be determined based on future needs. The design project will include records research, site investigations, field survey, permitting and preparation of bid documents for the final design of facilities designed to detain stormwater and slowly release it into the storm drain system. Construction cost estimates for the new facilities will be developed as part of the design. The design phase of this project is estimated to commence in October 2023 and is projected to be completed in August 2024. The three-year budget for this project is \$520,000.

Coastal Stormwater Impact Analysis: The purpose of this project to conduct an analysis of areas along the coast in Boston that will be unable to discharge stormwater due to potential higher tides and develop a strategy for addressing the impact. The project will review topographic changes and low-lying areas to identify areas where stormwater will gather if it is unable to discharge to receiving waters due to higher tides. The project will develop recommendations for addressing the potential inundation issues. The planning phase of this project commenced in November 2020 and is projected to be completed in August 2023. The three-year budget for this project is \$1,060,000.

Design of Stormwater Detention Facilities Phase I: BWSC has completed a study to identify sites where stormwater runoff can be temporarily stored during large storm events. Storing stormwater at these locations will free up conveyance capacity in the storm drainage system and reduce the potential for flooding. The detained stormwater will be slowly released back to the storm drain system after storms have ended and capacity in the storm drain system is back to normal. The study included the preliminary design of the detention facilities that could be installed at these locations. This planning and design project will advance the Commission's stormwater and storage program. The purpose of this project is to provide Engineering services for design of stormwater detention facilities in Roslindale and Jamaica Plain. This design project will include records research, site investigations, field survey, permitting and preparation of bid documents for the final design of facilities designed to detain stormwater and slowly release it into the storm drain system. Construction of stormwater detention facilities is expected to start in the Spring of 2022. Construction cost estimates for the new facilities will develop as part of the design. The planning phase of this project is expected to commence in October 2021 and the design phase is projected to be completed in March 2023. The three-year budget for this project is \$850,000.

Sampling and Metering for Storm Drain Model Validation: The project will entail collection of flow metering and storm-water quality data to validate the Commission's Storm Water Model. The Commission's 2012 Stormwater Model Project (the 2012 Project) characterized the quality of discharges from over 200 storm drain outfalls. The Project monitored conditions at 20 locations over two 12-week periods in 2011 and 2012 to comply with conditions set forth in the Commission's Consent Decree with the EPA. The data collected for the 2012 Project reflected conditions at the time; however, since 2012, extensive improvements have been made in the stormwater system. For example, over 500 illicit sanitary discharges have been eliminated removing an estimated 176,000 gallons of sewage per day from the drain system. Also, over 1,500 infiltration devices have been installed by developers, thus reducing the concentrations of phosphorus in stormwater runoff. Inherently, these measures improve stormwater quality; however, having current stormwater quality data with which to compare this historic data will enable the Commission to demonstrate whether stormwater quality improvements have in fact occurred. This Project proposes to continuously collect flow metering and water quality data over a multi-year period rather than the shorter period used in the past. The data will then be used to verify the Commission's Stormwater Model. Planning commenced in May 2020 and a completion date in November 2022. The budget is \$640,000.

2022 – 2024 Capital Improvement Program

Constructed Wetland in Stormwater Tributary at Daisy Field: This project is to construct a vegetated subsurface gravel filter and bioretention feature to treat stormwater runoff in tributary area of Daisy Field. Construction of the gravel filter and bioretention feature to treat stormwater runoff will improve the stormwater quality entering the Charles and Muddy rivers. The construction phase is set to commence in April 2022 and is expected to be completed by November 2024. The three-year budget is \$750,000.

Construct BMPs & Green Infrastructure at City Hall Plaza: This project is being undertaken as part of the Consent Decree requirements. The purpose of this project is to install stormwater BMPs and Green Infrastructure components in the City Hall Plaza area of Boston to serve as a demonstration project for such installations. The components will have monitoring devices installed to determine their effectiveness for stormwater retention and addressing pollutant discharges. Construction commenced in August 2020 and completed by April 2022. The three-year budget is \$3,000,000.

Green Infrastructure: This line item is for funds for BWSC contributions to the construction of Green Infrastructure opportunities within BPWD projects. There are currently three projects, which have been designed by an On-Call consultant that are included in BPWD projects. These projects are New England Avenue, Codman Square as well as funding for potential GI opportunities with BPWD. Construction commenced in August 2021 and is expected to be completed November 2024. The three-year budget is \$745,000.

Long Range Forecast

As part of the annual financial planning process, the Commission develops a five-year forecast of revenues, expenses and required rates. In assembling these projections, the Commission must estimate the level of expenditures required in each of the following years to operate and maintain the systems, provide basic services and meet all its financial obligations. In addition, estimates of water demand, based on recent actual trends, are made to calculate water and sewer rate revenue. Utilizing a computerized financial model, the Commission can develop various scenarios reflecting current and proposed program goals and objectives. Upon final review, the Commission decided to institute a 4.50% rate increase for 2022, and similarly, forecast a 3.00% rate increase for the years 2023 - 2026.

Financial Modeling Results

MWRA Assessment

Since the MWRA Assessment is the largest single expense in the CEB, the annual increase in the assessment has a significant impact on the rate projections of the Commission. Federal mandates require the MWRA to invest heavily in water system improvements. These extensive capital projects along with the operation and maintenance of the regional water distribution and wastewater collection systems have caused the MWRA's funding requirements to increase significantly. Consequently, rate increases are expected to continue while these projects are in progress. Again, in developing future rate projections, the Commission must utilize the most current rate projections, which have been issued by the MWRA. The MWRA projections listed below are based on the MWRA fiscal year, which begins July 1, 2021.

The line chart on the following page shows historical results of the MWRA Assessment for the years 2017 through 2021 and the projections for 2022 through 2026. Based on the above forecast increases, the MWRA Assessment is projected to experience an average compounded annual increase of 3.3% from 2022 to the year 2026. The 2021 actual assessment of \$243.4 million is anticipated to escalate to \$281.7 million by the year 2026. This forecast amount would represent approximately 62.2% of the total expenses of the Commission for that year.

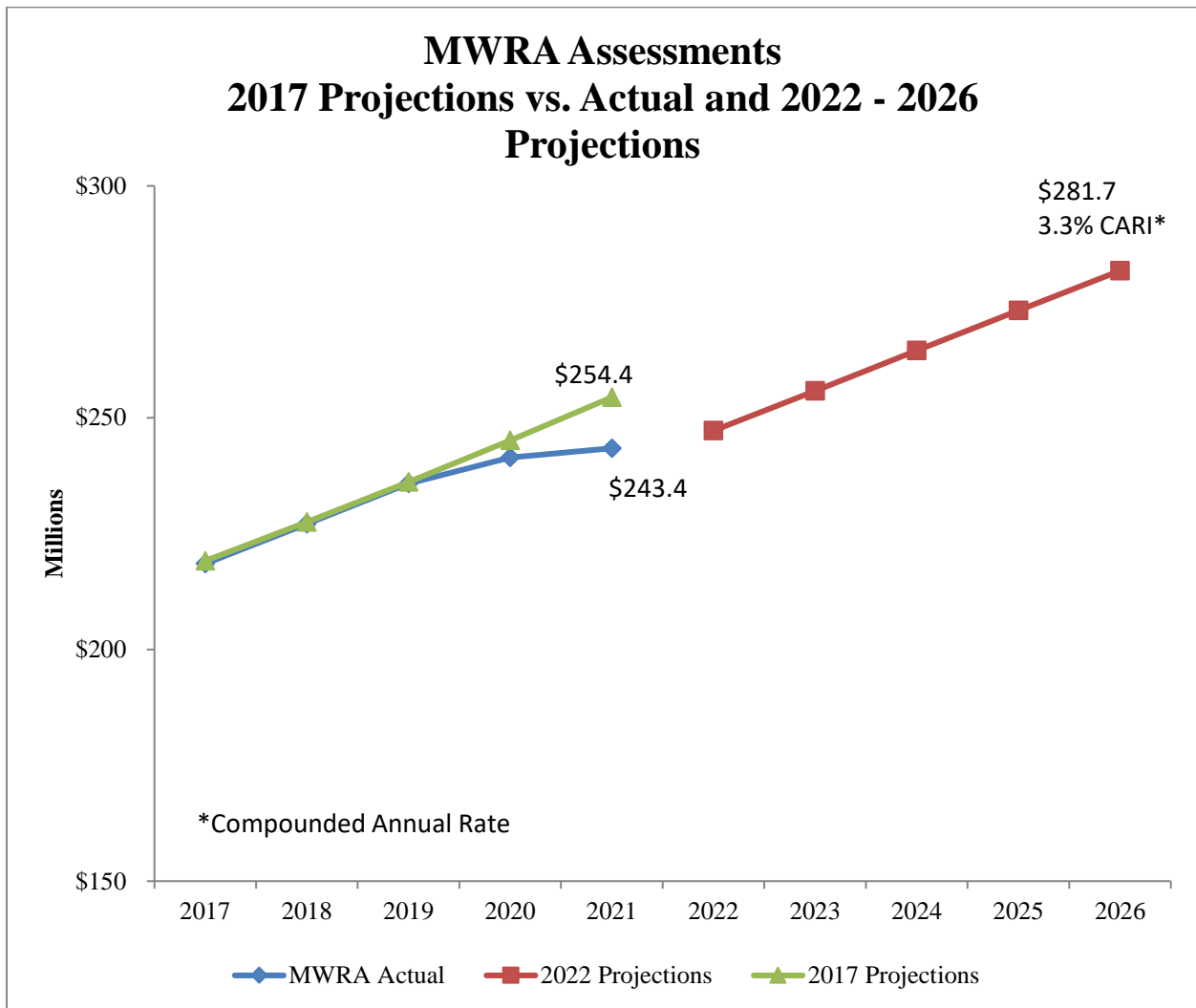
In an effort to minimize the impact of the MWRA Assessment increases, the Commission began an aggressive program to update and improve the water system in 1978. The program included replacing old, ineffective water mains and aggressive leak detection and repair. These efforts, which continue today, combined with the inclining rate structure, have had the net effect of reducing the overall level of water purchased by the Commission from 146.1 MGD in 1977 to 58.1 MGD in 2021. In addition to reducing the level of water purchases from the MWRA, the Commission continues to pursue increasing billable consumption through its ongoing meter replacement and meter downsizing programs. All of these efforts have combined to reduce the level of unbilled water from 48% in 1977 to 17.8% in 2021.

Long Range Forecast

The past success that the Commission has realized in reducing purchases, maximizing billings and reducing unaccounted-for-water, resulted in a reduced level of rate increases to be passed on to the customer.

Forecasted MWRA Rate Increases

2022	2023	2024	2025	2026
2.95%	3.5%	3.4%	3.3%	3.1%



Long Range Forecast

Forecast Assumptions

Revenue and expense forecast assumptions used in setting the 2022 CEB and rates are detailed below. (\$000)

	2022	2023	2024	2025	2026
Fire Pipe Charges (% of Water)	3.00	3.00	3.00	3.00	3.00
Elderly Discount (% of Billed Chgs.)	1.00	1.00	1.00	1.00	1.00
Late Payment (% of Billed Chgs.)	0.50	0.50	0.50	0.50	0.50
Adjustments (% of Billed Chgs.)	2.75	2.75	2.75	2.75	2.75
Bad Debt (% of Billed Chgs.)	0.10	0.10	0.10	0.10	0.10
Interest on Fund Balances	1.25%	1.25%	1.25%	1.25%	1.25%
Increase in Direct Operating Expenses	3.00%	3.00%	3.00%	3.00%	3.00%
Increase in MWRA Rate Revenue Requirement – MWRA FY					
Water	3.5%	3.9%	3.9%	3.9%	3.9%
Sewer	2.7%	3.3%	3.2%	3.0%	2.7%
Estimated MWRA Rate Revenue Requirement – MWRA FY					
Water	277,415	288,267	299,576	311,247	323,423
Sewer	514,669	531,861	548,732	565,085	580,107
BWSC Share of MWRA Expense					
Water	33.9%	33.9%	33.9%	33.9%	33.9%
Sewer	28.9%	28.9%	28.9%	28.9%	28.9%
Annual MWRA Assessment to BWSC					
Water	95,800	99,553	103,445	107,483	111,682
Sewer	151,359	156,285	161,090	165,628	170,042
Total	247,158	255,838	264,535	273,112	281,724
Stabilization Fund					
Discretionary Deposits	3,548	2,310	3,442	0	0
Discretionary Withdrawals	0	0	0	5,187	1,984

Long Range Forecast

Financial Projections

The table below illustrates the Commission's pro forma financial projections for the years 2022 to 2026. This table details the estimated revenues and expenses for the period and the corresponding rate increases required allowing the Commission to meet all its financial obligations.

Pro Forma Financial Projections (\$000)

	<i>Unaudited</i> 2021	2022	2023	2024	2025	2026
REVENUES						
Water and Sewer Revenue	\$398,340	\$412,036	\$420,154	\$428,430	\$439,077	\$449,988
LESS:						
Adjustments	(11,040)	(11,331)	(11,554)	(11,782)	(12,075)	(12,375)
Discounts	(2,914)	(4,120)	(4,202)	(4,284)	(4,391)	(4,500)
Bad Debt	(48)	(412)	(420)	(428)	(439)	(450)
NET BILLED CHARGES	384,338	396,173	403,978	411,936	422,172	432,663
Prior Year Surplus	372	524	0	0	0	0
Late Charges	1,997	2,060	2,101	2,142	2,195	2,250
Miscellaneous Income	14,091	14,858	15,125	15,433	21,030	18,181
SUBTOTAL	16,460	17,442	17,226	17,575	23,225	20,431
TOTAL REVENUE	\$400,798	\$413,615	\$421,204	\$429,511	\$445,397	\$453,094
EXPENSES						
Direct Operating Expenses	\$78,943	\$85,968	\$88,457	\$91,020	\$93,661	\$96,381
MWRA Assessment	243,396	247,159	255,838	264,536	273,112	281,724
Renewal/Replacement	11,236	24,435	22,163	16,136	20,911	21,957
Debt Service	49,579	50,324	50,941	53,808	54,452	50,685
Contractual Funding Obligations	16,904	5,526	3,604	3,812	3,063	2,150
SDWA Assessment	215	203	201	199	198	197
TOTAL OPERATING EXPENSES	\$400,273	\$413,615	\$421,204	\$429,511	\$445,397	\$453,094
NET INCOME	\$525	\$0	\$0	\$0	\$0	\$0
Average Combined Rate (\$/1000gal)	\$22.54	\$23.55	\$24.26	\$24.99	\$25.74	\$26.51
Annual Increase (%)	8.9%	4.5%	3.0%	3.0%	3.0%	3.0%
Typical Household Bill	\$1,257	\$1,270	\$1,308	\$1,347	\$1,388	\$1,429

Long Range Forecast

Reserve Fund Levels

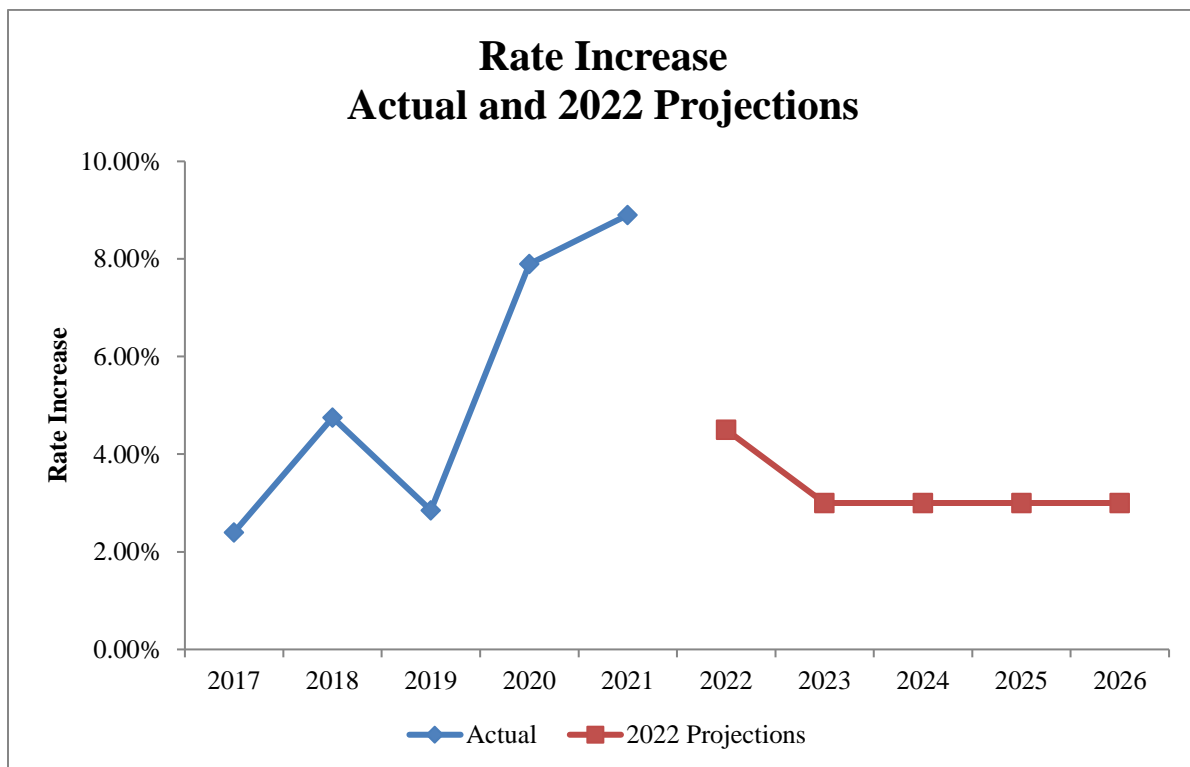
Deposits will be made to the reserve funds to comply with the Commission's Bond Resolution. A description of the Commission's Reserve Funds and current balances are shown in the Budget Overview section of this document. Boston Water and Sewer Commission rate projections for the year's 2022 - 2026 are outlined on the following page. These rate projections are based on the best data available during the 2022 Financial Planning Process.

Long Range Forecast

BWSC Rate Increases

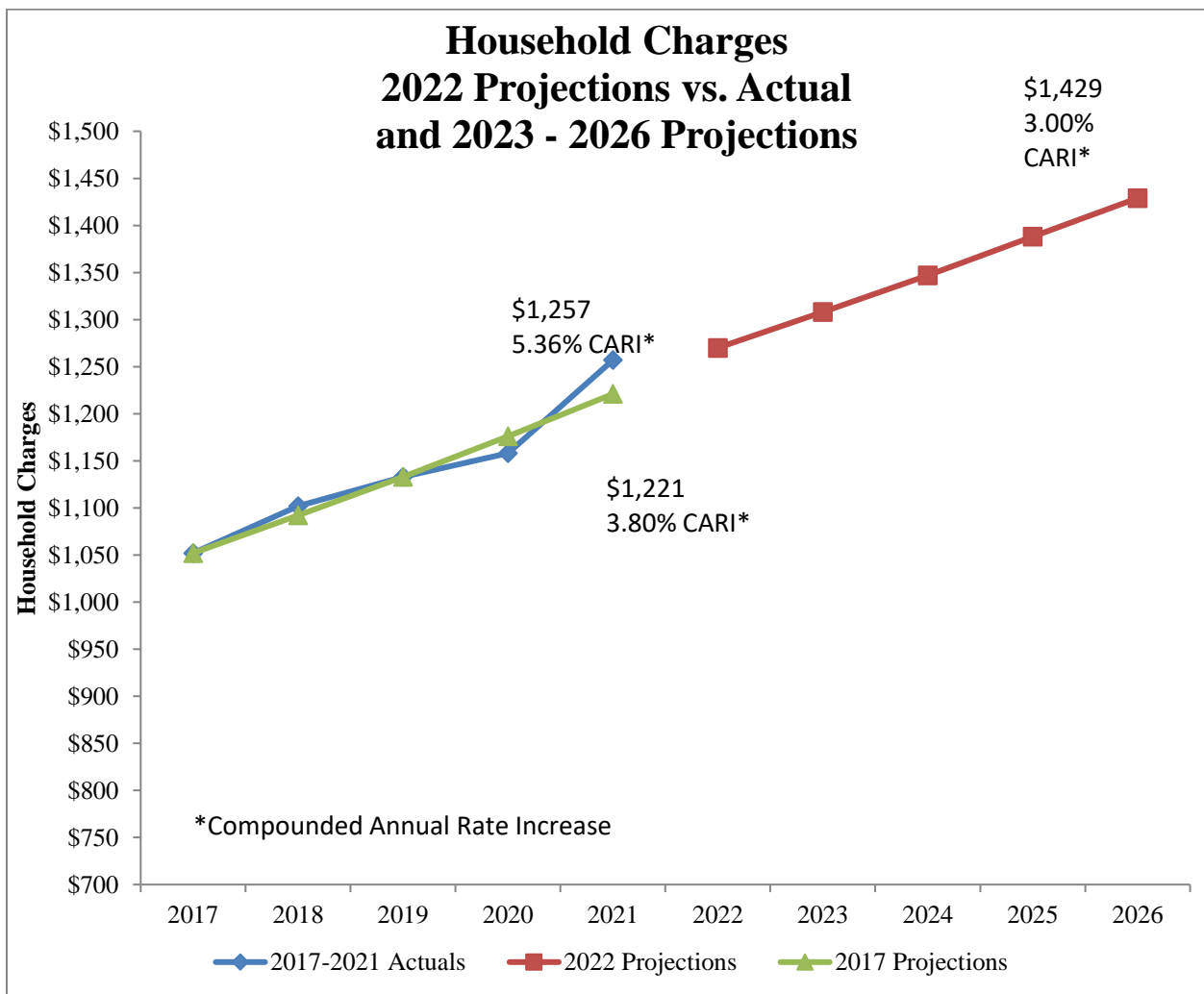
2022	2023	2024	2025	2026
4.50%	3.00%	3.00%	3.00%	3.00%

The current increase for 2022 is 4.50% and 3.00% for years 2023 – 2026. The graph below illustrates the actual rate increases occurring during the years 2017 through 2021. The Commission was able to do this by effectively controlling costs and utilizing the Stabilization Fund withdrawals.



Household Charges

The Commission approved a rate increase of 4.50% for 2022 and projects a 3.00% increase for years 2023-2026. This rate increase translates into an average household dollar cost to increase from \$1,270 in 2022 to \$1,429 in the year 2026. This is depicted below in the graph, which also shows the actual household charges for the years 2017 - 2021 versus projections made during the same period. The variance between the actual and projected household charges is directly attributed to lower than anticipated wholesale water and sewer rate increases experienced between 2017 and 2021.



THIS PAGE INTENTIONALLY LEFT BLANK

Demographics

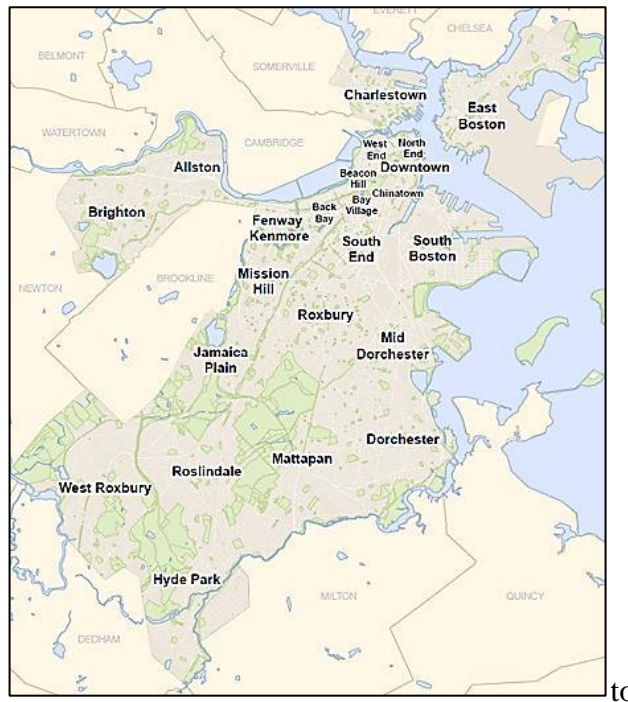
City of Boston Overview

The first settler in what would become Boston was Reverend William Blackstone, an Anglican clergyman, who built a cottage on what is now Beacon Hill in 1625. He was drawn by the considerable accessibility of fresh water and vast open land. Subsequently, Governor John Winthrop of the Massachusetts Bay Company and a group of Puritan Englishmen who followed Reverend William, formally founded Boston in 1630.

The city is named for a port in Lincolnshire, England, which received its name in honor of a Benedictine monk called Botolph (“bot” meaning boat and “ulph” meaning “helper” in Old English). “Bot Ulphs” Town became Bottleston and ultimately Boston. As most of the Puritan settlers came from the Lincolnshire district of England, they honored their English hometown by transporting the name Boston to the New World.

The City of Boston is the economic heart of the Commonwealth of Massachusetts and the entire New England region, a hub for professional, business, governmental, financial, advanced educational, medical, transportation, communicative, technological, cultural and entertainment services. Additionally, research and development, bio-technology, manufacturing and wholesale distribution also significantly contribute to the economy of the City and the surrounding suburbs.

Boston’s population reached 675,647 according to the 2020 U.S Census Bureau, registering a 9.4% gain since the Census of 2010, the third consecutive decade in which the city’s population has grown. Below is a simplistic version of a map of Boston.



Population

Neighborhood Population by Race – City Boston 2019

	White Alone	Black/ African American	Hispanic	Asian alone	Other Races
Boston	304,524	155,096	135,757	65,613	23,389
Allston	9,839	1,099	2,586	4,811	926
Back Bay	13,044	761	1,715	1,917	346
Beacon Hill	8,074	138	580	578	278
Brighton	36,019	2,379	6,689	8,160	2,050
Charlestown	14,692	1,019	2,198	1,613	368
Dorchester	28,244	55,787	25,288	12,540	5,050
Downtown	10,172	730	1,100	5,701	603
East Boston	16,011	1,171	26,707	2,167	1,207
Fenway	18,856	1,810	4,022	7,071	1,730
Hyde Park	8,719	18,042	10,242	763	1,158
Jamaica Plain	22,533	5,825	9,001	2,004	1,504
Longwood	3,746	291	389	752	173
Mattapan	1,612	19,821	3,771	499	956
Mission Hill	7,156	2,662	3,716	3,419	433
North End	7,692	29	614	287	127
Roslindale	15,291	5,805	7,182	750	993
Roxbury	5,937	27,243	16,637	1,905	2,439
South Boston	28,008	2,064	4,065	2,070	565
South Boston Waterfront	3,640	93	128	425	117
South End	18,044	3,669	4,715	4,974	1,169
West End	4,436	463	838	706	176
West Roxbury	22,584	4,094	3,376	2,500	972

Population growth within the City of Boston is projected to increase in the ensuing years. The table below displays the historical population and the increase for the year 2020.

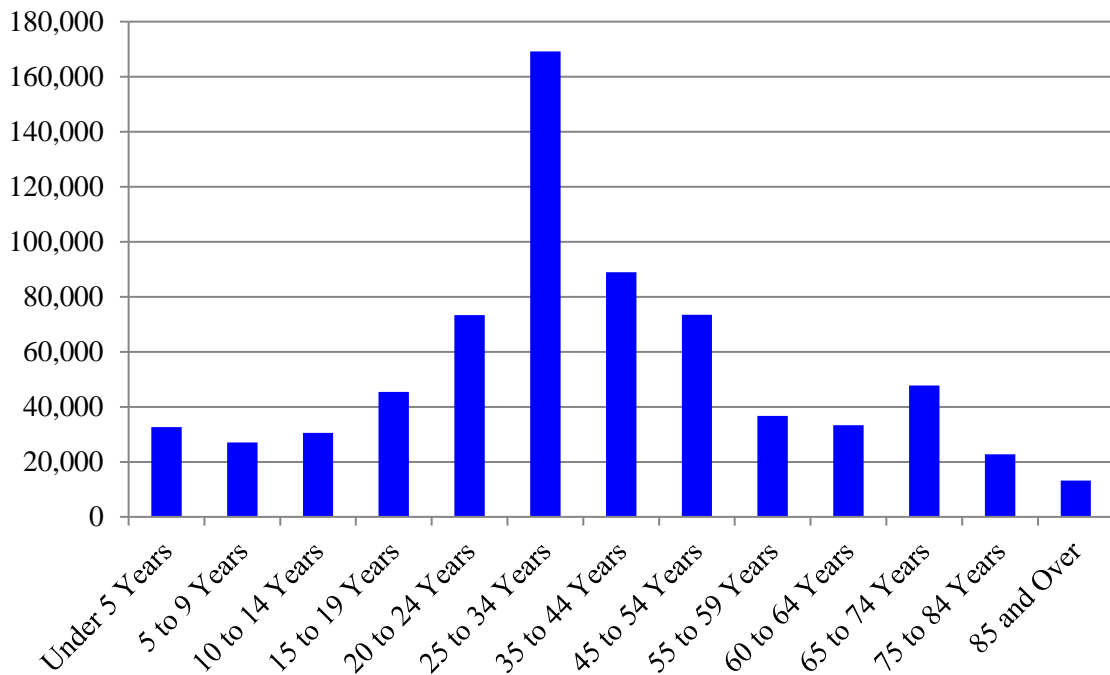
Population	1980	1990	2000	2010	2020
Total	562,994	574,283	589,141	617,594	675,647
Growth Rate	-12.2%	2.0%	2.6%	4.8%	9.3%

Population Breakdown by Age in Boston

Age	Population	Percent
0 - 5	32,567	4.7%
5 - 9	27,002	3.9%
10 - 14	30,569	4.4%
15 - 19	45,460	6.5%
20 - 24	73,347	10.6%
25 - 34	169,201	24.4%
35 - 44	88,935	12.8%
45 - 54	73,481	10.6%
55 - 59	36,752	5.3%
60 - 64	33,325	4.8%
65 - 74	47,731	6.9%
75 - 84	22,705	3.3%
85 and over	13,220	1.9%

Source: 2019 US population by age estimates

Population Breakdown by Age



Employment

The World economy as well as the National Economy has had some drastic and fundamental Shifts in the last three decades. In the U.S. as a whole and Boston in particular the industrial and manufacturing sectors of the economy have drastically declined due to such forces as rising gains in worker productivity assisted by Information Technology and growing levels of automation and off-shoring of jobs to low wage nations.

But Greater Boston has with its unique concentration of institutions of higher education that has helped anchor the growing economic sectors of the innovative economy attracting research and venture capital funding, with multiplier effects across other sectors such as health care and financial services. From 2009 through 2010 the Metro Boston economy grew by 4.8% topping all U.S. large metros and since 2002, the Milken Institute has ranked Massachusetts #1 on its Science & Technology State Index, which is conducted every other year. The study also ranked the Boston Metro Area third in the country in overall educational achievement during that same time period. Furthermore, economic growth in Metropolitan Boston is trending up. In 2014, there was a net gain in jobs of 2.3%.

The economy of Boston is more specialized in the financial, business, professional services, medical, and educational sectors than the suburban economy which is more specialized in high technology and the defense industry. According to a 2013 report by the BRA, Boston regained all but 1,000 of the jobs lost between 2008 and 2010. Shown in the table on the following page is the breakdown of Boston Employment by Industry for the years 2013, 2014 and 2015.

Five Largest Public & Private Companies in Massachusetts **Ranked by Revenue**

Public Company	Industry	2018 Revenue
General Electric Co.	Electronics/Lighting	\$122,009,000.00
The TJX Cos. Inc	Retail	\$35,018,000.00
Raytheon Co.	High Technology	\$25,350,000.00
Thermo Fisher Scientific Inc.	High Technology	\$20,920,000.00
Shire PLC	Bio-Tech	\$15,160,000.00
Private Company	Products/Service	2018 Revenue
Liberty Mutual	Insurance Products and Services	\$39,400,000,000
Massachusetts Mutual Life Insurance Co.	Financial Services/Insurance	\$26,100,000,000
Fidelity Investments	Financial Services	\$18,200,000,000
Demoulas Super Market Inc.	Supermarket Operator	\$5,000,000,000.
The Kraft Group	Sports Entertainment, Manufacturing	\$4,800,000,000

*2019 Book of Lists, Boston Business Journal, Ranked by Revenue

Unemployment

City of Boston Employment by Industry for 2021

Area and Industry	Aug 2020	Aug 2021	Net change	Percent change
Total nonfarm	1,709.6	1,816.5	106.9	6.3%
Mining, logging, and construction	72.2	78.5	6.3	8.7%
Manufacturing	72.9	76.7	3.8	5.2%
Trade, transportation, and utilities	223.2	235.8	12.6	5.6%
Information	59.6	64.2	4.6	7.7%
Financial activities	152.2	151.2	-1.0	-0.7%
Professional and business services	385.8	407.8	22.0	5.7%
Educational and health services	388.8	403.3	14.5	3.7%
Leisure and hospitality	121.7	165.9	44.2	36.3%
Other services	55.7	61.7	6.0	10.8%
Government	177.5	171.4	-6.1	-3.4%

U.S. Bureau of Labor Statistics 2021 - Boston-Cambridge-Newton, MA division

The unemployment rate for the Boston area in 2021 decreased to 3.9%, approximately equal of Massachusetts at 3.9% and above the national rate of 3.7%. The table and following bar graphs show the unemployment trends of Boston versus the United States, and Massachusetts.

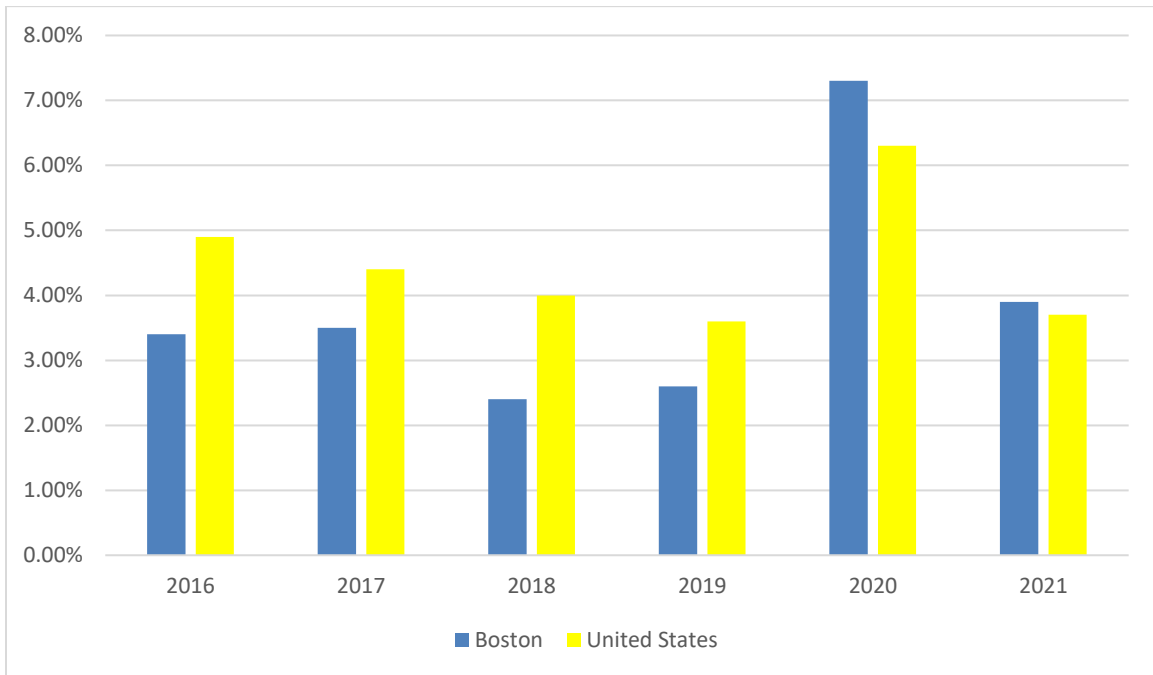
Unemployment Rates

Unemployment	2016	2017	2018	2019	2020	2021
Boston	3.4%	3.5%	2.4%	2.6%	7.3%	3.9%
Massachusetts	3.9%	3.7%	3.3%	2.9%	7.4%	3.9%
United States	4.9%	4.4%	4.0%	3.6%	6.3%	3.7%

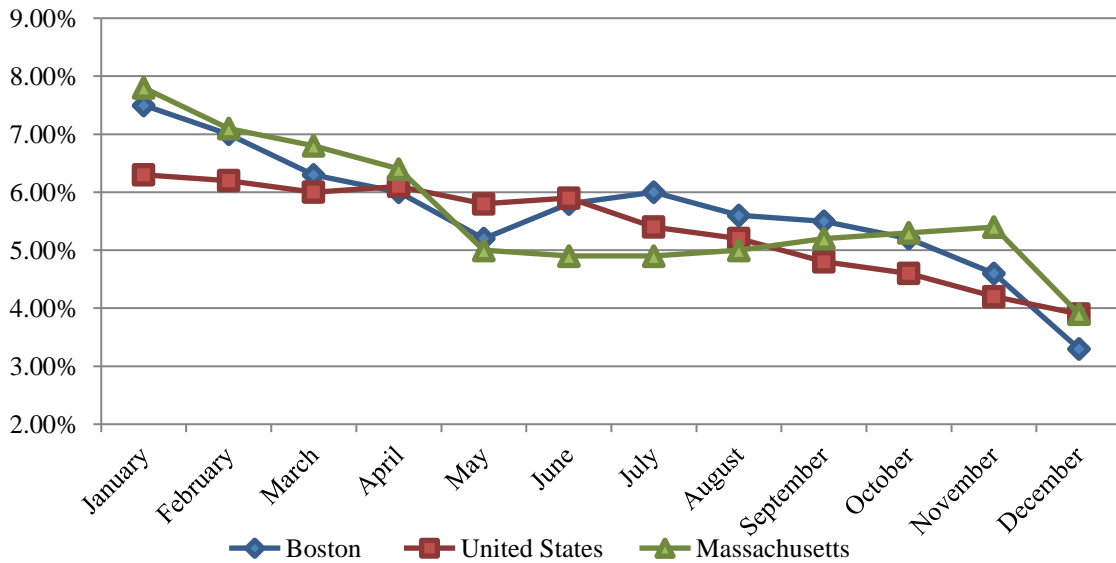
Source: Bureau of Labor Statistics for Boston, United States, and Massachusetts.

Unemployment

Unemployment Rate for Boston and United States for the Years 2016 – 2021



Unemployment Rate for Boston & Massachusetts in Comparison to the United States 2021



Source: U.S. Bureau of Labor Statistics. *Latest available monthly data.

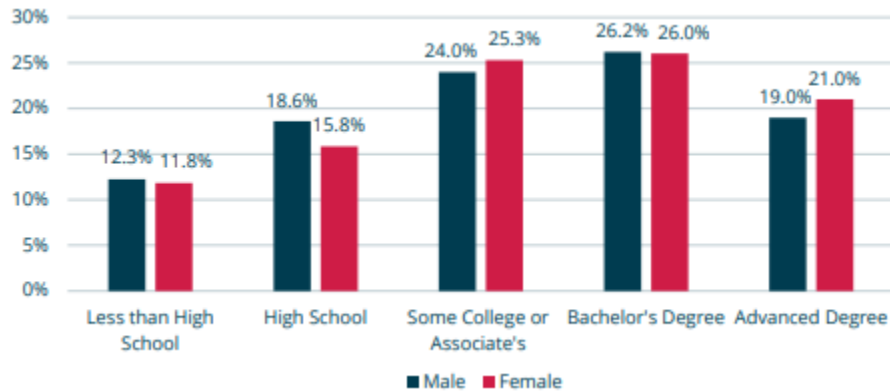
Largest Employers in Boston (With 1,000+ employees, listed alphabetically)

Mass General Brigham	Beth Israel Lahey Health
University of Massachusetts	The Stop and Shop Supermarket Co. LLC
Harvard University	Demoulas Super Markets Inc.
The TJX Cos. Inc.	Steward Heath Care Systems
Massachusetts Institute of Technology	Raytheon Technologies Corp.
UMass Memorial Health	Wellforce
Boston University	State Street Corp.
Boston Medical Center Health System	The Kraft Group
Takeda Pharmaceutical	National Grid
Dell Technologies	Southcoast Health
Northeastern University	Dana-Farber Cancer Institute
Verizon Communications Inc.	Wayfair
Fidelity Investments	Liberty Mutual Insurance
Tufts University	Atrius Health Inc.
Cambridge Health Alliance	Eversource Energy
Bank of America	Boston College
Massachusetts Mutual Life Insurance Co.	Cape Cod Healthcare
Point32Health	Sanofi
Blue Cross Blue Shield of Massachusetts	Santander Bank NA
John Hancock	Cushman & Wakefield
Allied Universal	GE
Thermo Fisher Scientific Inc.	Citizens Financial Group Inc.
MathWorks	Deloitte
Comcast	Vertex Pharmaceuticals Inc.
Benchmark Senior Living	Ernst & Young (EY)

Source: Boston Business Journal, 2022.

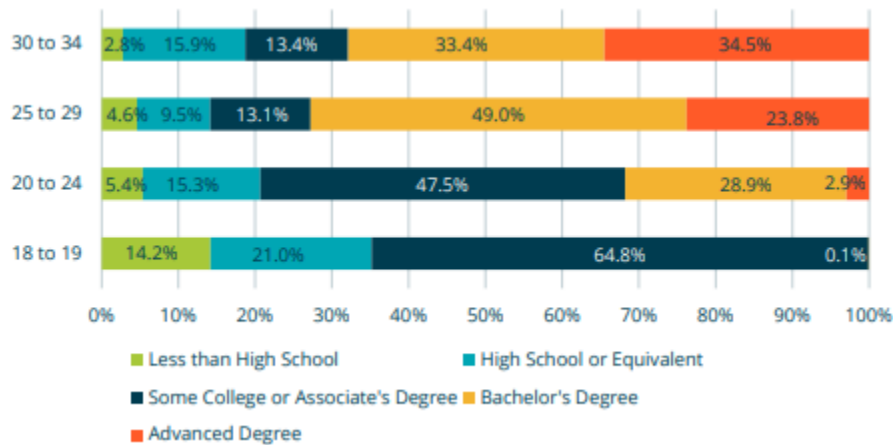
Education

Educational Attainment of Boston Residents by Gender (Age 18+)



Source: U.S. Census Bureau, 2018 1-year American Community Survey, BPDA Research Division Analysis

Educational Attainment of Young Adults 2018



Source: U.S. Census Bureau, 2018 1-year American Community Survey, BPDA Research Division Analysis

Expenditures Per Pupil

2020

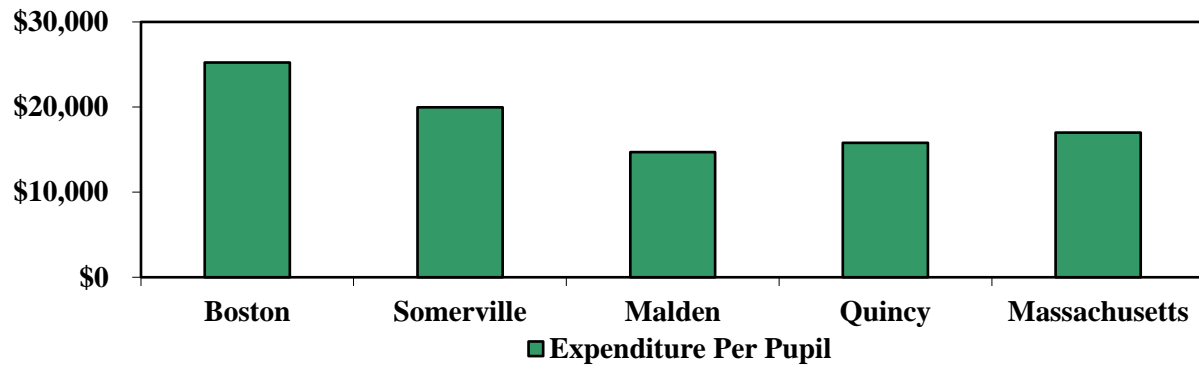
School Year

Boston	\$25,217.49
Somerville	\$19,959.01
Malden	\$14,712.90
Quincy	\$15,788.56
Massachusetts	\$16,983.99

Source: Massachusetts Department of Education Website

Education

Expenditures Per Pupil Boston vs. Somerville, Malden, Quincy & Massachusetts



Boston Consumer Price Index, 2016 - 2021

Category	2016	2017	2018	2019	2020	2021
All Items	260.5	267.0	275.8	281.0	284.3	293.5
Food	258.0	261.9	266.0	269.4	283.3	292.3
Shelter	312.7	321.4	336.0	348.2	358.1	365.5
Fuel and Utilities	249.0	271.1	294.6	293.6	280.4	309.8
Transportation	183.1	187.1	196.0	193.0	183.7	206.7
Medical	633.7	639.6	651.6	678.6	699.9	698.4

Consumer Spending

Boston’s consumer price index for the period of 2016 – 2021 can be compared to the United States consumer price index for the same goods and services. The table below provides data for such purpose.

U.S. Consumer Price Index, 2016 - 2021

Category	2016	2017	2018	2019	2020	2021
All Items	239.2	244.1	251.2	255.7	258.8	271.0
Food	248.0	247.6	255.2	249.2	268.9	277.8
Shelter	288.1	293.7	311.6	310.8	318.9	334.6
Fuel and Utilities	239.2	233.9	205.9	214.7	195.4	260.54
Transportation	298.4	204.3	322.3	337.8	327.6	230.7
Medical	493.1	472.2	522.5	544.8	574.8	525.3

Source: United States Consumer Bureau of Labor Statistics

Per Capita Personal Income Comparison, 1970, 1980, 1990, 2000, 2010, 2020

Year	United States	Massachusetts	Boston*
1970	\$4,196	\$4,575	\$4,794
1980	\$10,150	\$10,693	\$11,138
1990	\$19,584	\$23,074	\$24,669
2000	\$30,587	\$38,430	\$42,085
2010	\$40,144	\$51,487	\$55,548
2020	\$63,444	\$78,458	\$85,724

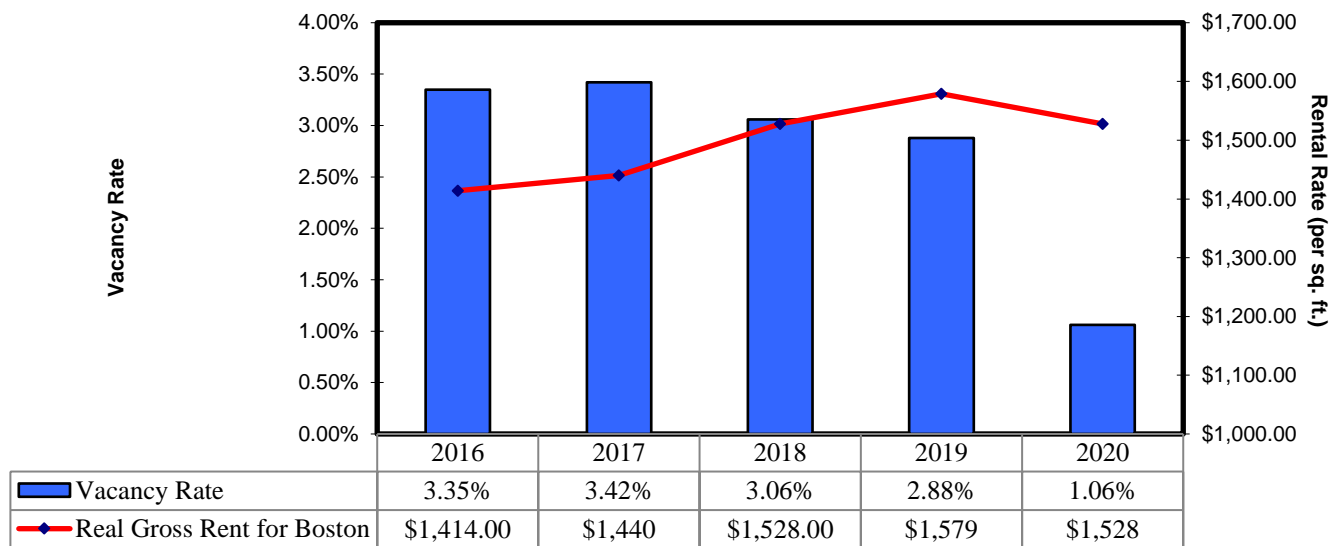
*Boston-Cambridge-Newton, MA-NH (Metropolitan Statistical Area)

Source: Bureau of Economic Analysis

Commercial Market

The Boston Office Market contains over 63.9 million square feet of office space in eight submarkets: The Financial District, Back Bay, Charlestown, Crosstown, Fenway/Kenmore, North Station, Seaport District and South Boston. In 2015 the Boston office space vacancy rate declined to approximately 8.90% from 10.90% in 2014. From 2011 - 2013 the Seaport District had significant leasing activity with two to three the rate relative to its market share. But in 2014, the Financial District regained its dominance in terms of market share. Furthermore, rents appear to be steadily rising, reflecting the declining vacancy rate, as this trend continued in 2017 as well.

Boston Vacancy Rate versus Real Gross Rent for the Period 2016 - 2020



Boston's 2020 Most Valuable Taxable Businesses

Owner	Taxable Assessed Value
Boston Properties (NYSE: BXP)	\$4,110,000,000
Eversource Energy (NYSE: ES)	\$2,510,000,000
Oxford Properties	\$1,880,000,000
Tishman Speyer Properties	\$1,420,000,000
TIAA	\$1,350,000,000
Fort Hill Association	\$1,150,000,000
MetLife Real Estate Investment	\$1,090,000,000
Rockpoint	\$1,010,000,000
John Hancock Financial	\$936,000,000
Morgan Stanley (NYSE: MS)	\$863,000,000
Senior Housing Properties Trust	\$819,000,000
National Grid	\$756,000,000

Median Sales Price, Single-Family Homes-Boston
For the period 2015 - 2020

Year	Median Sales Price	Percent Change
2015	\$471,500	
2018	\$615,000	30.43%
2019	\$650,000	5.69%
2020	\$690,000	6.15%

Federal Reserve. (Boston, Cambridge, Quincy Metro Area); Massachusetts Association of Realtors and MLS Property Information Network

City of Boston Property Tax Recap 2019 – 2021

Class	Total Value	FY21 Tax Rate	Value Percent
Residential	\$127,136,166,756	\$10.67	66.7%
Commercial	\$54,632,351,855	\$24.55	28.7%
Industrial	\$1,251,386,403	\$24.55	0.7%
Personal	\$7,633,024,951	\$24.55	4.0%
Total	\$190,652,929,965		
Class	Total Value	FY20 Tax Rate	Value Percent
Residential	\$115,818,106,832	\$10.56	66.7%
Commercial	\$51,958,596,980	\$24.92	28.7%
Industrial	\$1,153,868,704	\$24.92	0.7%
Personal	\$7,268,332,238	\$24.92	4.1%
Total	\$176,198,904,754		
Class	Total Value	FY19 Tax Rate	Value Percent
Residential	\$107,628,598,330	\$10.54	65.7%
Commercial	\$4,9035,301,302	\$25.00	29.8%
Industrial	\$1,206,341,032	\$25.00	0.7%
Personal	\$6,643,880,066	\$25.00	4.0%
Total	\$164,514,120,730		

Monthly Advertised Rent in Boston Neighborhoods for 2018 vs. 2019

Neighborhood	2018	2019
Allston/Brighton	\$2,466	\$2,667
Back Bay	\$3,853	\$4018
Beacon Hill	\$3,819	\$4018
Charlestown	\$3,158	\$3304
Dorchester	\$2,368	\$2604
East Boston	\$2,748	\$2,315
Fenway/Kenmore	\$2,795	\$3,047
Jamaica Plain	\$3,177	\$3,267
Mattapan	\$2,231	\$1,650
Roslindale	\$2,169	\$2,552
Roxbury	\$2,425	\$2,922
South Boston	\$3,702	\$3,545
South End	\$3,965	\$3,873
West Roxbury	\$2,246	\$2,475
Citywide	\$3,082	\$3,018

Rent Jungle 2018, Rent Jungle, 2019

* Dorchester rent calculated by average of North Dorchester and South Dorchester rent from Rent Jungle

Tourism

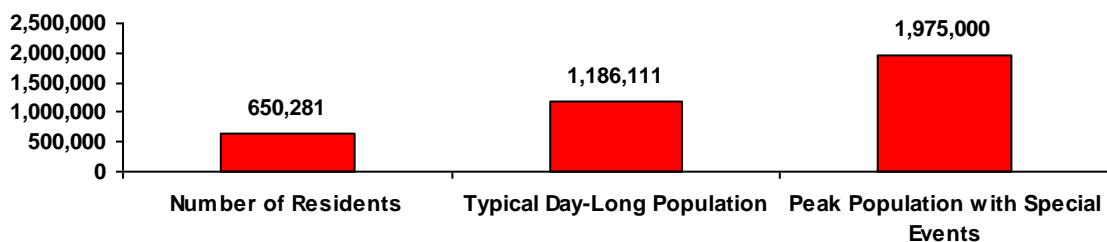
Boston continues to be a city that offers a variety of tourist attractions and is well known as an inviting destination for conventions, concerts, circuses, ice shows, theatrical performances, along with other entertainment and sporting events. In addition to being one of the few major cities that generates more jobs than it has residents, Boston attracts hundreds of thousands of additional visitors who come to shop and visit historic sites. On days when special events are held in Boston, like Sail Boston, or annual events like the Boston Marathon, Fourth of July Esplanade Celebration, or the Head of the Charles Regatta, the city’s population can approach two million people. Regularly scheduled and special events can add from 50,000 to 800,000 visitors to Boston on a single day. Boston is also recognized as a great professional sports city and attendance is generally high for each of the three teams regardless of their record. Last season, the Boston Red Sox drew 2,917,678 fans to Fenway Park. At the Bank North Garden, the Boston Bruins drew 720,165 fans and Boston Celtics drew 760,690 fans for each of their seasons. Based upon the average attendance for all three teams and the total number of home dates, sporting events attract 27,108 people to Boston on game days. In 2015, Faneuil Hall Marketplace was ranked the seventh most-visited tourist attraction in the world with approximately eighteen million visitors per year.

Listed in the following table are the most frequent tourist attractions in Boston.

Tourist Attractions – City of Boston

Tourist Attraction	Description
Faneuil Hall Marketplace	Historic Marketplace with stores, restaurants and pubs 2016 Attendance 18,000,000.00
The Freedom Trail	Walking tour of Boston’s historical sites
Museum of Science	Science education exhibits and exploration museum 2016 Attendance: 1,500,00
The New England Aquarium	Marine exhibition/research facility 2016 Attendance: 1,390,000
Museum of Fine Arts, Boston	New England’s largest art museum 2016 Attendance: 1,181,657
Boston Duck Tours	Amphibious sightseeing tour
Old North Church	American history museum 2016 Attendance: 578,000
Boston Children’s Museum	Children’s museum 2016 Attendance: 492,105
Black Heritage Trail Afro-American History	Black history museum and tour

Boston Statistics and Reports



Most Popular Boston Restaurants*

Sam LaGrassa's	1	North Street Grille	6
Mario's Restaurant	2	Saltie Girl	7
Italian Express Pizzeria	3	Ma Masion	8
Mamma Maria	4	Ostra	9
The Capital Grille	5	SRV Restaurant	10

*Trip Advisor 2021

Largest Hotels in Boston 2018

<u>Company</u>	<u>Rooms</u>	<u>Room Rates</u>
Sheraton Boston Hotel	1,220	\$159-\$1,500
Boston Marriott Copley Place	1,147	\$149 to \$899
Boston Park Plaza	1,060	\$149 to \$1,500
Westin Copley Place	803	\$189 to \$694
Westin Boston Waterfront	793	\$199 to \$799
Hilton Boston Logan Airport	599	\$139 to \$475
Boston Omni Parker House	551	\$129 to \$759
Hyatt Regency Boston	502	\$149 to \$599
Renaissance Boston Waterfront Hotel	471	\$119 to \$899
Hyatt Regency Cambridge	470	\$119 to \$789

*Boston Business Journal 2018

Commission Background

The Commission was created on July 18, 1977 pursuant to a “home rule” petition enacted by the Massachusetts Legislature as the Boston Water and Sewer Reorganization Act of 1977, Chapter 436 of the Acts of 1977 (“the Enabling Act”). The Enabling Act created the Commission as “...a public instrumentality, a body politic and corporate, a political subdivision of the Commonwealth, separate and apart from the City...” In August of that year ownership of and responsibility for the water distribution system and the wastewater collection and storm water drainage system (collectively known as the sewer system) was transferred to the Commission from the City of Boston’s Department of Public Works (“DPW”).

Water Distribution and Sewer Systems

The Commission's water distribution system serves approximately 90,000 active accounts throughout the City of Boston. Service is provided to the City's schools, hospitals, residential population, businesses, and industries and public and private institutions. In addition to the resident population of nearly 650,281, the daytime population of Boston is increased by approximately 375,590 commuting workers, 52,000 shoppers, 44,530 commuting students, 13,940 overnight guests in hotels and homes, 11,600 tourists, 67,480 combined for conventions, trade shows and sporting events, and 31,830 hospital patients and visits.

The Commission currently owns and operates a system for the distribution of potable water to customers throughout the City of Boston. The Commission purchases finished water (fluoridated and disinfected) from the MWRA. The MWRA is the wholesale provider of water to 54 communities in the metropolitan Boston area.

Boston’s early settlers relied on water from cisterns and underground wells, but the quality was poor and the supply inadequate. The first attempt to provide an alternative came from a private company. In 1796, the Aqueduct Corporation began delivering water from Jamaica Pond through a system of wooden pipes.

In 1848, the City of Boston obtained its first municipal water supply from Lake Cochituate via the Cochituate Aqueduct and the Brookline Reservoir. In order to meet the growing needs of Boston and the necessary system expansion, construction began in 1866 on the Chestnut Hill Reservoir and construction of reservoirs on the Sudbury River to feed the Chestnut Hill Reservoir through the Sudbury Aqueduct soon followed. The Metropolitan Water District was formed in 1895 and by 1908 the Wachusett Dam, Reservoir and Aqueduct were completed.

By the early 1900s, it was apparent that the Boston metropolitan area required additional water supplies and a more comprehensive plan to ensure its delivery. The MDC Water Supply Division was created in 1926 as a solution to this problem and was responsible for building many MDC facilities, among them Quabbin Reservoir, the Quabbin Aqueduct and the Hultman Aqueduct.

On July 1, 1985, legislation was enacted which transferred the possession, control and operation of the MDC Water and Sewerage Divisions to the newly created MWRA. However, the MDC remains responsible for the operation and maintenance of the watershed at the Quabbin and Wachusett Reservoirs, the expenses of which are reimbursed to the MDC by the MWRA.

Commission Background

Currently, the MWRA is authorized to provide water supply services to 54 cities, towns, and special purpose entities located in central and eastern Massachusetts. The Commission is the MWRA's largest single customer for both water and sewer services, and MWRA charges represent the largest single component of the Commission's operating expenses. For the Commission's 2022 fiscal year beginning January 1, 2022, the MWRA assessment is projected to be approximately \$247.2 million, or 59.8% of total expenses projected to be approximately \$413.6 million.

The Commission's current water distribution system consists of approximately 1,014 miles of pipes with diameters ranging from 4 to 48 inches; 17,699 valves; 12,750 hydrants; and 15 miles of high-pressure fire pipe.

The system serves approximately 90,000 accounts through five major service networks: Southern Low Service which serves the City proper, South Boston and parts of Roxbury; Northern Low Service which serves Allston, Charlestown and East Boston; Southern High Service which serves Brighton, Dorchester, Hyde Park, Roslindale, parts of Jamaica Plain, parts of Roxbury and parts of West Roxbury; and Southern Extra-High Service which serves portions of Jamaica Plain, West Roxbury and Hyde Park. In addition, a relatively small area in the Orient Heights section of East Boston is served by a single connection to the MWRA Northern High Service System. Approximately 90% of the water consumed in the city is delivered through the Southern Low Service and Southern High Service, with most of the remainder delivered through the Northern Low Service. These service networks are supplied with potable water purchased from the MWRA at 29 metered delivery points. This water is drawn from the Quabbin and Wachusett Reservoirs located in western and central Massachusetts. Supply is conveyed via aqueducts from these reservoirs to the Weston and Norumbega Reservoirs, where it is held for delivery to the Commission's service networks.

A number of services in conjunction with the water distribution system are provided by the BWSC. These include mandatory cross connection inspections, meter installation, meter testing on demand, flow testing to determine adequate service line size, fire flow testing, grease trap inspections, water service shut offs and let on's. The Commission also provides assistance for customers in the form of providing construction plan drawings, providing hydrant meters for access to hydrant water, and also the licensing of individuals to ensure properly qualified contractors. A contestant schedule of water sample testing in conjunction with the MWRA is also maintained to ensure safe and desirable water.

The Commission owns and operates a system for the collection and transport of wastewater and storm drainage in the City of Boston. The original backbone of the sewer system was the Boston Main Drainage System ("BMDS"). The BMDS was constructed from 1877 to 1884 under the direction of a special committee established by the City of Boston for that specific purpose. The original system consisted of five combined interceptors, the Calf Pasture pumping station and the Dorchester Bay Tunnel (neither the pumping station nor the tunnel is now in use). The BMDS interceptors were initially designed to carry a peak dry weather sanitary flow together with an allowance for stormwater.

In 1988, construction of the New Boston Main Interceptor and the New East Side Interceptor was completed, replacing portions of the original system. These interceptors serve the sewer needs of

Commission Background

downtown Boston, the South End, Roxbury, Dorchester and South Boston. They increase capacity and virtually eliminate dry weather overflows. The volume of wet weather overflows has been reduced as well.

Other collection facilities provide sewer services to different parts of the City. Charlestown is served by a separated system, except for one small area. East Boston, South Boston and Roxbury are served mainly by combined systems; however, major portions of each area have been or are in the process of being separated. The South End has been partially separated under a program initiated by the City's urban renewal program and continued by the Commission where feasible and cost effective. Allston/Brighton, Roslindale, West Roxbury, Hyde Park, Mattapan and portions of Dorchester and Jamaica Plain, all of which are located in the southern part of the City, are served by separate systems.

The Commission's Sewer System collects wastewater and stormwater in the City. The Sewer System consists of approximately 1,533 miles of sewers, including 710 miles of sanitary sewers, 667 miles of storm drains and 143 miles of combined sewers. Sanitary sewers range in size from six-inch clay pipes to 20ft by 15 ½ft reinforced concrete interceptors. The overall sewer system includes 81 regulators and 201 tide-gates. Separate sanitary sewers and storm drains serve approximately 35 square miles, or 83 percent of the City. There are 279 stormwater outfalls. Other facilities include 8 pumping stations and 2 gatehouses. All wastewater collected by the Commission facilities is conveyed to the MWRA's Deer Island Treatment plant.

Commission Background

Water Consumption Total 2017-2021 Consumption by Land Use Code (cubic ft.) – Boston Water and Sewer Commission

Codes	2017	2018	2019	2020	2021
A	289,440,668	295,537,002	289,987,676	296,078,854	295,078,992
AH	7,791,037	6,302,239	6,774,917	7,043,969	5,917,351
C	449,953,090	465,272,033	444,564,707	324,913,129	347,021,103
C3	19,025,570	19,062,250	18,045,108	19,194,587	18,967,848
CC	17,237,544	17,712,992	16,824,994	13,490,657	14,008,477
CD	7,681,732	7,268,526	6,889,002	6,843,730	7,064,630
CL	10,294,885	9,953,174	9,557,940	7,687,051	7,555,401
CM	163,817,390	164,319,788	157,759,584	157,170,048	154,496,339
E	630,782,396	646,138,984	613,415,136	549,360,699	551,174,393
EA	20,443,641	17,871,565	14,943,713	15,016,589	14,789,563
I	73,425,800	81,423,264	75,202,150	64,835,207	66,079,512
R1	211,072,051	211,180,276	200,904,494	218,961,099	206,235,640
R2	213,477,068	213,525,654	205,049,599	216,053,907	207,279,516
R3	269,718,378	266,290,085	254,772,490	266,543,327	257,036,867
R4	70,157,107	71,423,439	66,570,061	64,379,694	62,794,229
RC	155,930,786	164,136,007	164,573,942	158,066,124	168,632,687
RL	2,757,801	3,015,796	3,149,239	3,373,440	3,881,296
TOTAL	2,613,006,944	2,660,433,074	2,548,984,752	2,389,012,111	2,388,013,844

Legend for Codes

A = Apartment Building-7 Units or More	EA = Clause 121A Exempt
AH = Agricultural/Horticultural	I = Industrial
C = Commercial	R1 = One Family
C3 = Condo 3 Units	R2 = Two Family
CC = Commercial Condo	R3 = Three Family
CD = Condominium Unit	R4 = Four to Six Units
CL = Commercial Land	RC = Residential Commercial
CM = Condominium Master	RL = Residential Land
E = Exempt	

Water Consumption Percent by Category 2021

	ACCTS	%ACCTS	CONS	%CONS
RESIDENTIAL	67,232	76.3%	670,552,023	28.1%
OTHER RES.	9,793	11.1%	549,355,052	23.0%
COMMERCIAL	7,007	7.9%	530,145,950	22.2%
TAX EXEMPT	3,278	3.7%	571,881,307	23.9%
INDUSTRIAL	862	1.0%	66,079,512	2.8%
TOTAL	88,172	100.0%	2,388,013,844	100.0%

Sources

- Boston.com
- 2021 Boston Apartment Rental Market Report
- Boston Business Journal
- Boston Municipal Research Bureau
- Boston Planning and Development Agency
- Boston Redevelopment Authority – Boston’s Economy
- Boston Statistics and Reports
- City of Boston Department of Neighborhood Development
- CLR search.com
- Colliers International
- Federal Reserve Bank of Boston - Indicators
- Jumpshell.com
- Massachusetts Department of Education
- Massachusetts Office of Tourism
- Rent Jungle
- United States Census Bureau
- United States Bureau of Economic Analysis
- United States Bureau of Labor Statistics Report

THIS PAGE INTENTIONALLY LEFT BLANK

The Commission

Overview

Bargaining Unit	Code	Number of Grades	Number of Position Titles	Number of Budgeted Positions	Weekly Salary Ranges
Executive	EX	10	121	137	\$979.29 - \$5,940.36
Local 6	L	5	41	64	\$1,149.00 - \$2,500.00
Local 888	C	6	20	60	\$800.00 - \$1,826.92
Council 93	S	4	16	32	\$1,153.85 - \$2,211.54
Local Lodge 100	W	8	26	209	\$928.69 - \$1,932.72

Executive Detail

Grade	Position Title	Number of Positions	Weekly Minimum	Weekly Maximum
Grade	Job Title	# of positions	Weekly Minimum	Weekly Maximum
X02			\$979.29	\$1,454.50
X02	Administrative Assistant	1		
X03			\$1,126.19	\$1,672.68
X03	Assistant Manager of Fleet	1		
X03	Assistant Manager Revenue Protection	1		
X03	Executive Assistant	2		
X03	Facilities Administrator	2		
X03	Human Resource Generalist	1		
X03	Mobile Device Administrator	1		
X03	Operations Administrator	1		
X03	Safety Coordinator	1		
X03	Sr. Investigator Revenue Audit & Analysis	1		
X03	Senior Investigator/Revenue Protect	1		
X03	Special Project Coordinator	1		
X04			\$1,295.11	\$1,923.58
X04	Compliance Coordinator	1		

The Commission

X04	Contract Coordinator	1		
X04	Educational Programs Coordinator	1		
X04	Environmental Outreach & Communications Coordinator	1		
X04	Environmental Outreach Coordinator	1		
X04	Executive Assistant	5		
X04	Exec. Asst. to the Chief Engineer Officer	1		
X04	Exec. Asst. to the Chief Financial Officer	1		
X04	Exec. Asst. to the Director of Operations	1		
X04	Finance Specialist	1		
X04	Internal Communications Manager	1		
X04	Human Resources Coordinator/Recruiter			
X04	Labor Relations Specialist	1		
X04	Manager of Enforcement Compliance	1		
X04	Manager of Inventory Control	1		
X04	Manager of Operations	1		
X04	Manager of Operations	1		
X04	Safety Compliance Specialist	1		
X04	Senior Payroll Administrator	1		
X04	Senior Human Resource Generalist	1		
X05			\$1,489.38	\$2,212.12
X05	Business Systems Analyst			
X05	Collections Administrator	1		
X05	Communications Program Manager	1		
X05	Manager of Benefits/HRIS	1		
X05	Manager of Collections	1		
X05	Manager of Construction	1		
X05	Manager of Customer Service	1		
X05	Manager of Enforcement	1		
X05	Manager of Enforcement	1		

The Commission

X05	Manager of Engineering Customer Service	1		
X05	Manager of Facilities/Nights	1		
X05	Manager of Field Engineering	1		
X05	Manager of GIS	1		
X05	Manager of Operations	1		
X05	Manager of Payroll	1		
X05	Manager of Safety	1		
X05	Manager of Support Services	1		
X05	Night Manager Fleet/Storeroom	1		
X05	Project Director Emergency Preparedness	1		
X05	Senior Application Specialist	1		
X05	Sr. Coordinator of Employment and Comp	1		
X05	Training Manager	1		
X06			\$1,712.79	\$2,543.94
X06	Assistant General Counsel	3		
X06	Asst. Gen. Counsel/Dir. of Health & Safety	1		
X06	Capital Budget Manager	1		
X06	Deputy Director of Facilities	1		
X06	Enterprise Applications Administrator	1		
X06	IT Project Manager	2		
X06	Manager of Accounts Payable	1		
X06	Manager of Billing & Adjustments	1		
X06	Manager of Budget	1		
X06	Manager of Computer Operations	1		
X06	Manager of Enforcement and Compliance	1		
X06	Manager of Fleet	1		
X06	Manager of Leaves	1		
X06	Manager of Meter Projects	1		
X06	Manager of Meter System	1		

The Commission

X06	Manager of Operations	3		
X06	Project Director	2		
X06	Project Director Asset Management	1		
X06	Senior Manager Organizational Diversity	1		
X06	Systems Administrator	3		
X07			\$1,832.68	\$2,722.01
X07	Database Administrator	1		
X07	Deputy Director Communications			
X07	Deputy Director Construction	1		
X07	Deputy Director Organizational Diversity	1		
X07	Deputy Superintendent Field Operations	1		
X07	Director of Accounting	1		
X07	Director of Application Development	1		
X07	Director of Automatic Meter Reading	1		
X07	Director of Budget	1		
X07	Director of CAD	1		
X07	Director of Facilities and Security	1		
X07	Director of Financial Services	1		
X07	Director of GIS	1		
X07	Dir. of IT Support and Comm. System	1		
X07	Director of Payroll	1		
X07	Director of Procurement	1		
X07	Director of Revenues	1		
X07	Director of Special Projects	1		
X07	Director of Special Projects	1		
X07	Director of Strategic Planning	1		
X07	IT Project Director	1		
X07	Manager of Meter Services	2		
X07	Senior Manager of Operations	1		
X08			\$2,015.95	\$2,994.21

The Commission

X08	Deputy Director of Account Services	1		
X08	Deputy General Counsel	1		
X08	Director of Finance	1		
X08	Director of Human Resources	1		
X08	Director of IT Infrastructure	1		
X08	Director of IT Security	1		
X08	Senior IT Project Manager	1		
X08	Director of Meter Services	1		
X08	Superintendent AM//CMOM Director	1		
X08	Superintendent Enforcement & Comp	1		
X08	Superintendent Support Service	1		
X08	Superintendent Water & Sewer	1		
X09			\$2,318.34	\$3,443.34
X09	Deputy Gen. Counsel/Chief of Compliance	1		
X09	Director of Communications	1		
X09	Director of Construction	1		
X09	Director of Engineering	1		
X09	Director of Planning & Sustainability	1		
X09	Director of Operations	1		
X09	Director of Organizational Diversity	1		
X10			\$2,666.10	\$3,959.85
X10	Chief Administrative Officer	1		
X10	Chief Financial Officer/Treasurer	1		
X10	Chief Information Officer	1		
X10	Chief of Operations	1		
X10	General Counsel	1		
EXC			\$3,066.01	\$5,940.36
EXC	Chief Engineer Officer	1		
EXC	Executive Director	1		

The Commission

Local 6 Detail

Grade	Position Title	Number of Positions	Weekly Minimum	Weekly Maximum
L08			\$1,149.00	\$1,756.16
L08	Admin Assistant/Account Services	1		
L08	Assistant Manager Purchasing	1		
L08	CMOM Data Coordinator	1		
L08	Collections Investigator	2		
L08	Community Project & Events Officer	1		
L08	Community Relations Officer	1		
L08	Construction Administrator	1		
L08	Evaluation & Compliance Coordinator	1		
L08	Financial Analyst	3		
L08	GIS Analyst	1		
L08	Help Desk Administrator	1		
L08	Legal/Claims Investigator	1		
L08	Staff Accountant	3		
L08	Stock Control Operator	1		
L09		1	\$1,264.00	\$1,856.15
L09	Assistant Manager Construction			
L09	Asst. Mgr. Revenue Audit & Analysis	1		
L09	Construction Site Engineer	1		
L09	Field Service Engineer	7		
L09	Planner	1		
L09	Project Engineer	3		
L10		1	\$1,456.00	\$1,980.77
L10	Application Support Analyst/Trainer	1		
L10	Assistant Manager Collections	1		
L10	Assistant Manager Customer Service	1		

The Commission

L10	Design Engineer I	4		
L10	Proj. Coord. Stormwater Infrastructure	5		
L10	Project Engineer I	1		
L10	Project Engineer II Planning	1		
L10	Project Engineer I	1		
L10	Senior Accountant	1		
L10	Senior Financial Analyst	2		
L10	Senior GIS Coordinator	1		
L10	Senior GIS Programmer/Analyst	1		
L10	Senior Programmer/Analyst	1		
L10	Site Plan Review Engineer	1		
L10	Support Analyst II	2		
L10	System Engineer	1		
L11			\$1,648.00	\$2,216.18
L11	Assistant Database Administrator	1		
L11	Design Engineer II	3		
L11	Project Engineer II	1		
L11	SSO/Project Manager - Operations	1		
L12			\$1,840.00	\$2,500.00
L12	Project Manager	3		
L12	Senior Design Engineer	2		
L12	Senior Programmer Analyst II	1		

Local 888 Detail

Grade	Position Title	Number of Positions	Weekly Minimum	Weekly Maximum
C09			\$800.00	\$1,200.68
C09	Account Service Clerk	1		
C09	Facilities Representative	6		

The Commission

C09	Receptionist	1		
C10			\$880.00	\$1,303.42
C10	Account Service Representative	10		
C10	Financial Services Representative	6		
C10	GIS Technician	1		
C10	Junior Engineering Technician	2		
C10	Senior Account Service Clerk	1		
C11			\$960.00	\$1,538.46
C11	Buyer	1		
C11	Meter Services Representative	2		
C11	Plans Examiner	2		
C11	Senior Computer Operator	2		
C11	Senior Financial Services Rep	4		
C12			\$1,040.00	\$1,634.61
C12	CAD Technician	2		
C12	Principal Account Service Rep	8		
C12	Principal Financial Services Rep	3		
C12	Senior Engineer Technician	1		
C13			\$1,100.00	\$1,730.76
C13	Senior CAD Technician	3		
C13	Senior GIS Technician	2		
C14			\$1,160.00	\$1,826.92
C14	Principal CAD Technician	2		

Council 93 Detail

Grade	Position Title	Number of Positions	Weekly Minimum	Weekly Maximum
S07			\$1,153.85	\$1,884.62
S07	Meter Records Supervisor	1		

The Commission

S07	Supervisor Collections	1		
S07	Supervisor Customer Service	1		
S07	Supervisor Meter Installation	2		
S07	Supervisor Water & Sewer	2		
S08			\$1,250.00	\$2,019.23
S08	Field Supervisor/Collections	1		
S08	Field Supervisor Revenue Auditing	1		
S08	Financial Supervisor	3		
S08	Supervisor Adjustments	1		
S08	Supervisor of Construction	1		
S08	Supervisor Water & Sewer	13		
S08	Supervisor Hydrant Maint Repair	1		
S08	Work Order Systems Supervisor	1		
S09			\$1,346.15	\$2,115.38
S09	Meter Services Supervisor	1		
S09	Supervisor Buildings & Grounds	1		

Local Lodge 100 Detail

Grade	Position Title	Number of Positions	Weekly Minimum	Weekly Maximum
W04			\$963.45	\$1,326.00
W04	Apprentice/Ops Svc Repairperson	6		
W04	Ops Service Repairperson I	15		
W05			\$1,004.16	\$1,380.10
W05	Building Maint Tech	2		
W05	Senior Storekeeper	2		
W06			\$1,046.35	\$1,436.24
W06	Building Maint Tech II	4		
W06	Maint Mechanic Mason	1		

The Commission

W06	Meter Technician	11		
W06	Ops Service Repairperson II	2		
W06	Yard Clerk	10		
W07			\$1,090.16	\$1,494.50
W07	Ops Service Repairperson II	1		
W07	Ops Svc Rep IIA	42		
W08			\$1,135.70	\$1,561.36
W08	Field Service Technician	8		
W08	Fleet Mechanic	3		
W08	Principal Storekeeper	2		
W08	Spec Heavy Motor Equip Oper I	8		
W8F			\$1,188.66	\$1,616.96
W8F	WF Bldg. Maint Tech	1		
W8F	WF Fleet Mechanic	2		
W8F	WF Oper Service Repairperson	16		
W09			\$1,242.76	\$1,710.14
W09	Enforcement Inspector	17		
W09	Inspector	26		
W09	Regulating Inspector	1		
W09	Senior Field Service Technician	5		
W09	Senior Meter Technician	5		
W09	Spec Heavy Motor Equip Oper II	14		
W10			\$1,361.72	\$1,877.12
W10	Licensed Electrician	2		
W10	Maint Mechanic Lic Plumber	6		

Glossary of Financial and Operating Terms

Accrual Budgeting: An accrual method whereby monthly deposits to all appropriate funds are made in an amount sufficient to equal the total projected level of accrued expenditures for each fund thus enabling the Commission to have sufficient funds available to meet scheduled payments of all financial obligations when due.

Attrited: To lose (personnel) by attrition.

Average Household: A residential customer with average water consumption of 180 gallons per day.

Board of Commissioners: The three-member, non-salaried governing board of the Commission, appointed by the Mayor subject to the approval of the City Council. Commissioners serve for a term of four years.

Bond: A certificate of debt issued by a government or corporation guaranteeing periodic payments of interest and return of original investment on specified future dates.

Bond Resolution: A document that contains terms and conditions relating to the issuance and sale of Bonds and sets forth the Commission's legal obligations to bondholders.

Boston Harbor Cleanup Project: An extensive plan of activities, which the MWRA developed and is implementing in response to a federal court order to comply with the provisions of the U.S. Clean Water Act.

BESS (Business and Engineering Support System): The Commission has customized computer programs, which provide the Commission with billing, collection, and service information about its customers.

BWSC: The Boston Water and Sewer Commission.

CEB (Current Expense Budget): A financial plan, which estimates the revenues and expenses, associated with the Commission's operations for a fiscal year.

CIP (Capital Improvement Program): A plan which identifies and estimates the nature, schedule, cost, priority and financing of long-term assets that the Commission intends to build, rehabilitate or acquire during a specific period.

Cleaning and Lining: A process to improve unlined but structurally sound, older cast iron mains. The mains are cleaned and lined with cement, while still in place to improve hydraulic capacity and extend useful life.

Collection System: The pipes, conduits, pumping stations, and appurtenances involved in the collection and transportation of wastewater and stormwater.

Contractual Funding Obligations: The incremental deposits into the various reserve accounts so that the Commission may meet the minimum funding requirements of its General Bond Resolution.

Glossary

Combined Sewer: A sewer designed to receive both sanitary sewage and stormwater.

CMOM (Capacity, Maintenance, Operations, and Management): A Self-assessment study in 2012 that analyzed all aspects of the Commission's sanitary sewer and storm drainage facility operations and maintenance.

CSO (Combined Sewer Overflow): The discharge from combined sewers which collect both sanitary sewage and storm water runoff for wastewater treatment. During rainstorms, the system becomes overloaded and the excess is discharged directly into neighboring waterways from CSO outlets. In the City of Boston, there are 37 permitted combined sewer overflow outlets.

Debt Service: In a given fiscal year, the amount of money necessary to pay interest and principal on outstanding instruments of indebtedness.

Debt Coverage Requirement: The Commission is required to set rates and charges at levels sufficient so that total net revenues equal at least 125% of the Bond Debt Service Requirement during such Fiscal Year with respect to all Bonds Outstanding as of the first day of such Fiscal Year.

DEP (Department of Environment Protection): The Massachusetts agency that regulates water pollution control, water supplies, and waterways and dispenses federal and state grant funds to support these activities.

Direct Expenses: Expenses directly associated with providing water and sewer services, or of a division, department or operating unit.

Division: A major organizational unit within the Commission, encompassing the activities and resources for providing a major service or function. A Division is further divided into departments, units, and programs.

Drain: A pipe or conduit, which conveys wastewater or stormwater.

Enabling Act: Chapter 436 of the Acts of 1977, the legislation, which established the Commission and defined its purpose and responsibilities as of August 5, 1977.

EPA (Environmental Protection Agency): The federal government agency responsible for promulgation and enforcement of environmental regulations and investigation and prosecution of infractions of non-compliance with regulations.

Expenditures: Actual payment for goods and services received.

Financial Statement: A set of summary documents which pertain to financial information that consist of the following: Balance Sheet, Statement of Operation, Statement of Equity, Statement of Cash Flows, Notes of Financial Statements and, in the Commission's case, Supplements, Schedules of Revenues and Expenses - Rate Basis.

Fiscal Year: A twelve-month period for which an organization plans the use of its resources. The Commission's fiscal year is January 1 through December 31.

Glossary

Fund: An account established under the Commission's General Bond Resolution into which deposits and withdrawals for specific purposes are made or held.

Full-Time Equivalent (FTE): Full-time Employee, who works 40 hours per week and is benefited, coded as 1.0 FTE.

General Revenue Bonds: Bonds, which are obligations of the issuer on which revenues received from operations, are pledged for the payment of the principal and interest thereon.

Goal: general statements of a desired state, condition, or situation to be achieved, which may be stated from a short or long term perspective.

Hydrant: A device connected to a public water main for the purpose of providing water for firefighting or other authorized purposes.

Independent Auditor: External public accounting firm hired to audit the annual financial statements and express an opinion on those statements as to conformity with generally accepted accounting principles.

Indirect Expenses: Those costs including expenditures and accrued costs, which are not directly associated with providing services or performing activities.

Infiltration/Inflow: Infiltration is groundwater that leaks into the sewerage system through pipe joints and defects. Inflow refers to water that enters sewers from improperly connected catch basins, sump pumps, and land and basement drains and defective manholes. Inflow also enters through improperly closed or defective harbor CSO tide gates when the tide is high.

Interceptors: The large pipes or culverts that convey wastewater from the localized collection system to the treatment plant. The Commission's largest interceptors are 20 foot by 15-1/2 foot concrete box culverts.

Investment Income: Income derived by investing certain fund balances in interest-yielding securities in compliance with the provisions of the Commission's General Bond Resolution and Investment Policy.

Inventory: A product either purchased as a replacement part or as new equipment, costing more than \$100.00 and having a useful life greater than three years.

Labor Costs: Direct costs of employing permanent and temporary personnel, including wages, salaries, overtime pay, benefits, and workers' compensation insurance.

MBE/WBE: Minority Business Enterprise/Women Business Enterprise.

Meter: An instrument for measuring the flow of water.

Meter Pit: An underground vault enclosing a meter.

MGD: Million gallons per day.

Glossary

MH: Manholes.

Mission: A description of the fundamental purpose and major activities of a division, department, or other operational unit.

MWRA (Massachusetts Water Resources Authority): An agency created by the enactment of Chapter 372 of the Acts of 1984. The MWRA is responsible for providing potable water and wastewater collection, transport, delivery, and treatment services to 60 user communities in Eastern Massachusetts.

MWRA Assessment Fund: A fund which receives monthly deposits equal to one twelfth of the annual MWRA Assessment of the Commission which is used to pay the Commission's wholesale water and sewer liability.

NPDES (National Pollutant Discharge Elimination System) Permit: A permit issued by EPA in conjunction with DEP to govern discharges into waterways.

Objective: (1) A statement defining the result-oriented activities necessary to achieve a stated goal, quantify work output or measure the quality of service; (2) a statement describing continuing targets, long and short term to achieve improvements in efficiency or productivity or establish long range plans.

OPEB: Other Post-Employment Benefits Liability (GASB 43 and GASB 45)

Operating Account: An account in the Operating and Maintenance Fund which is used as a depository for funds to meet the ensuing months operating liabilities.

Operating Reserve Fund: A fund established by the Commission's General Bond Resolution to provide a reserve for operating contingencies. The Operating Reserve Fund is required by the Commission's bond resolution to be funded at not less than one-sixth of its annual operating expenses including the assessments from the MWRA.

Potable Water: Water fit for human consumption in conformance with the regulations of the Environmental Protection Agency and Massachusetts Department of Environmental Protection.

Program: (1) A sub-unit of a department which is organized as a separate administrative or functional unit; (2) an organized group of activities and the resources to carry them out, aimed at achieving related goals.

Public Water Main: The piping and associated valves, hydrants, and appurtenances installed in a public way, Commission-owned easement or private way open to public travel, for the purpose of supplying water to one or more customers or for public fire protection.

Rate Revenue: Income received during a specific period from user charges for providing water and sewer services.

Rate Revenue Requirement: The amount of revenue necessary to equal total expenses, plus revenue adjustments, less other revenues.

Glossary

Reserves: Funds not appropriated for payment of expenditures or that are designated for specific use.

Residential Meter: A meter two inches in size or smaller used to measure the flow of water to predominantly residential properties.

Sanitary Sewage: Liquid and water-carried human and domestic wastes from buildings, exclusive of ground, storm and surface water.

Sanitary Sewers: In a separated system, pipes that carry only domestic or commercial sanitary sewage as opposed to rainwater runoff.

Sewer: A pipe or conduit that carries wastewater, either sanitary sewage or storm or surface water runoff, or both.

Sewer System: The combined Wastewater System and Storm Drainage System.

SHEMO: Special Heavy Equipment Machine Operator.

Stabilization Fund: A fund established by the Commission's Bond Resolution to mitigate the impact of extraordinary costs. The Resolution requires minimum funding of the Stabilization Fund in an amount equal to 4% of the aggregate principal amount of the Commission's outstanding variable rate bonds.

State Revolving Fund (SRF): See Water Pollution Abatement Trust.

Storm Drain: A pipe or conduit designed to carry stormwater or surface water runoff.

Storm Drainage System: Storm drains, tide gates, flow regulators, catch basins, stormwater pumping stations and appurtenant facilities.

Storm Sewers: Storm drains or storm drainage system.

Stormwater: Any water resulting from rainfall or other precipitation that runs off surfaces during or after a storm.

Strategic Goal: The long range plans and direction of each division, department or program of the Commission.

Tactical Goal: A one-time improvement and/or enhancement to a technical or service oriented process.

Unaccounted for Water: Difference between amount of water purchased from the MWRA and the amount of water sold. The difference is caused by system losses, leakage, unbilled public usage, and water used during construction projects.

Variance: The dollar and/or percentage difference between two sets of figures.

Glossary

Wastewater: The spent water of a community, which may be a combination of the liquid and water-carried domestic or industrial wastes from buildings, together with any groundwater and stormwater that may be present.

Wastewater System: The totality of the devices, equipment or works used in transportation, pumping, storage, treatment, recycling, or reclamation of wastewater or in the disposal of the effluent.

Water Demand: A projection of aggregate water usage for the City of Boston, which is expressed in million gallons per day.

Water Pollution Abatement Trust: A funding mechanism created to administer the Water Pollution Abatement Revolving Fund (State Revolving Fund) established by the Commonwealth of Massachusetts to provide funding for water pollution abatement projects in Massachusetts, incorporating federal and state loans to local governmental units.

Water Service Pipe: The connection, piping and associated valves and appurtenances that extend from a public water main to a building or property for the purpose of supplying water.

Weir: A dam built to raise, regulate, or divert water.

Index

A

Additional Bonds & Refunding Bonds ...	38
Adjustments to Rate Revenue.....	54
Administration Division.....	192

B

Budget Allocations.....	30
Budget Comparison by Line Items	65
Budget Message	11
Budget Overview	45
2021 Financial Position.....	45
2021 Revenues and Expense.....	45
2021 Budget Summary	49
Budget Process Schedule	22
Budget Revenues Sources.....	51
Budget Summary	49
Budget Variance Monitoring And Analysis.....	30
Budgeting & Accounting Basis	48

C

Capital Improvement Program (CIP)....	235
CIP Cash Flow	238
CIP Funding Sources	238
Administrative Equipment.....	285
Funding Sources and Financial Impact	247
Project Highlights	239
Projects Associated with the Consent Decree & Water Quality Improvements	241
Information Technology Systems ...	283

Management Objectives and Accomplishments	235
Metering	282

Capital Improvement Program Budget Development.....	19
--------------------------------------------------------	----

Capital Improvement Program Process..	31
Development	32
Capital Project Funding.....	33
Capital Budget Amendments.....	34
Capital Budget Reallocations	34
Capital Program Monitoring and Reporting.....	34

Commission Budget Summary.....	110
--------------------------------	-----

Commission Goals for 2022.....	112
--------------------------------	-----

Commission Results for 2021	109
-----------------------------------	-----

Commission Organization.....	105
------------------------------	-----

Commission-Wide Organization Chart	106
------------------------------------	-----

Commission Personnel Summary	111
------------------------------------	-----

Current Expense Budget Process	29
--------------------------------------	----

Customer Base.....	107
--------------------	-----

D

Debt Plan	35
-----------------	----

Demographics.....	299
-------------------	-----

Direct Expense Budget.....	63
----------------------------	----

Direct Expense Budget Comparison	62
----------------------------------------	----

Direct Expense and CEB Development .	20
--------------------------------------	----

Index

E

Engineering Division	176
Executive Division.....	113

F

Finance Division.....	211
Financial Planning Process	19
Financial Policies	23
Banking	24
Commercial Banking	23
Funding and Utilization	
of Reserve Funds.....	24
Operating.....	25
Insurance	25
Renewal and Replacement.....	25
Stabilization	25
Departmental Program	
Plans & Budgets.....	26
Development, Monitoring &	
Amendments of the CEB	27
Development, Monitoring &	
Amendments of the CIP.....	27
Establishment of Water and Sewer	
Rates, Fees and Other Charges ...	27
Investment of BWSC Funds	23
Other Commission Policies.....	28
Fund Balances	92

G

General Fund.....	102
Glossary	331
Goal Setting Process	19

H

Historical Financial Analysis.....	50
------------------------------------	----

I

Impact of CIP on CEB.....	248
Increased Capacity Projects.....	275
Index	337

Indirect Expenses	81
Information Technology Systems	283
Insurance Reserve Fund	99

L

Long Range Forecast.....	291
--------------------------	-----

M

Management Objectives	12
Miscellaneous Revenue.....	57
MWRA	246
MWRA Assessment Fund.....	100
MWRA Five Year Rate Forecast	17

O

Operations Division.....	135
Operating and Maintenance Fund	95
Operating Reserve Fund.....	98

P

Personnel Summary.....	321
Plans, Policies, and Procedures	19
Prior Year Net Operating Surplus	56
Program Based Budgeting.....	19

Index

Program Goals and Budgets.....	105	Support Projects Expenditures	245
<u>R</u>		<u>T</u>	
Rate Increase.....	296	Total Expenses	61
Rate Revenue	53	<u>W</u>	
Rate Setting Process.....	21	Water Distribution System	249
Renewal and Replacement Fund.....	101	Water Distribution System Capital Program.....	250
Requirements and Future Impacts	47	Water Distribution System Expenditures	249
Revenue and Expense	45	Water Distribution System Special Projects	257
Revenue Fund	94	Water Main Replacement Program	250
Revenue Sources.....	51	Water Main Replacement Summary	252
<u>S</u>		Water Replacement	252
Senior Debt Service Fund	96	Water System	252
Senior Debt Service Reserve Fund.....	97	<u>Y</u>	
Sewer Renewal & Replacement.....	269	Year End Financial Position.....	45
Sewer Separation	276		
Sewer System.....	259		
Sewer System Capital Program.....	269		
Sewer System Expenditures.....	245		
Sewer System Special Projects	278		
Stabilization Fund	103		
Stormwater/Green Infrastructure/Low Impact Development Projects	287		
Stormwater Project Expenditures	245		
Support Projects	282		

THIS PAGE INTENTIONALLY LEFT BLANK



Boston Water and Sewer Commission

980 Harrison Avenue

Boston, MA 02119

www.bwsc.org