Massachusetts Water Resources Authority

Presentation to the

Wastewater Advisory Committee
&
Water Supply Citizens Advisory Committee

Fiscal Year 2018
Proposed

Capital Improvement and Current Expense Budget Overviews

April 18, 2017
FY18 Proposed
Capital Improvement Budget
FY18 Proposed CIP

• Last year of five-year capital spending Cap

• FY18 Proposed CIP complies with the Cap requirements

• Focus on Asset Protection and Long-Term Redundancy

• Metropolitan Tunnel Redundancy

• MWRA continues to reduce debt levels
<table>
<thead>
<tr>
<th>FY18 Proposed CIP - FY14-18 Base-Line Cap</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>Total FY14-18</th>
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<tr>
<td>Projected Expenditures</td>
<td>$142.5</td>
<td>$147.6</td>
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<tr>
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<td>7.6</td>
<td>9.5</td>
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<td>9.8</td>
<td>9.3</td>
<td>46.1</td>
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<td>Inflation on Unawarded Construction</td>
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<td>4.2</td>
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<tr>
<td>Less: Chicopee Valley Aqueduct Projects</td>
<td>(5.0)</td>
<td>(2.2)</td>
<td>(1.4)</td>
<td>(1.3)</td>
<td>(0.4)</td>
<td>(10.3)</td>
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<td>FY14-18 Base-Line Cap</td>
<td>$145.8</td>
<td>$159.1</td>
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<table>
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<tr>
<th>FY18 Proposed FY14-18 Spending</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
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<td>Inflation on Unawarded Construction</td>
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<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Less: I/I Program</td>
<td>0.0</td>
<td>(17.5)</td>
<td>(13.6)</td>
<td>(18.8)</td>
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<td>(69.0)</td>
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<tr>
<td>Less: Water Loan Program</td>
<td>0.0</td>
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<td>5.3</td>
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<td>(7.5)</td>
<td>(4.0)</td>
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<td>$96.6</td>
<td>$86.3</td>
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<td>$128.2</td>
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<table>
<thead>
<tr>
<th>FY18 Proposed vs. FY14-18 Base-Line Cap</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>Total FY14-18</th>
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<tr>
<td>Projected Expenditures</td>
<td>($40.3)</td>
<td>($43.9)</td>
<td>($54.2)</td>
<td>$1.1</td>
<td>$32.7</td>
<td>($104.7)</td>
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<td>(7.6)</td>
<td>(9.5)</td>
<td>(10.1)</td>
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<td>(28.7)</td>
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<td>0.9</td>
<td>1.0</td>
<td>1.2</td>
<td>(0.2)</td>
<td>2.3</td>
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<tr>
<td>FY14-18 Cap ($ Change)</td>
<td>($49.2)</td>
<td>($72.7)</td>
<td>($80.0)</td>
<td>($33.1)</td>
<td>($7.0)</td>
<td>($242.0)</td>
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</table>
• Proposed Expenditures: $169.5M

• Proposed Contract Awards: $203M
Total Proposed FY18 Expenditures: $169.5 million

- Wastewater: $83.2 million
- Waterworks: $76.1 million
- Business and Operations: $10.2 million
### FY18 Proposed CIP - Future CIP Spending and Planning Projections

<table>
<thead>
<tr>
<th></th>
<th>FY17 Final Remaining Balance</th>
<th>FY18 Proposed Remaining Balance</th>
<th>$ Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Wastewater</strong></td>
<td>$1,216.6</td>
<td>$1,241.2</td>
<td>$24.6</td>
<td>2.0%</td>
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<tr>
<td><strong>Total Waterworks</strong></td>
<td>$1,867.9</td>
<td>$2,027.5</td>
<td>$159.6</td>
<td>8.5%</td>
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<tr>
<td><strong>Business &amp; Operations Support</strong></td>
<td>$45.6</td>
<td>$38.8</td>
<td>$(6.8)</td>
<td>-14.9%</td>
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<tr>
<td><strong>Total MWRA</strong></td>
<td>$3,130.2</td>
<td>$3,307.4</td>
<td>$177.2</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

- $3.3 billion in future CIP spending beginning in FY17
- $122.5 million in new projects in FY18 Proposed CIP
- $54.8 million for schedule changes and revised cost estimates
Total New Projects Added in FY18: $122.5 million

- Waterworks: $85.1 million
- Wastewater: $37.4 million
FY18 Proposed CIP - Top New Projects

• Section 57 Water Pipeline and Sections 21/20/19 Sewer Rehabilitation: $22.3 million
• Chestnut Hill Emergency Pump Station Improvements: $18.3 million
• Quabbin Administration Building Rehabilitation: $15 million
• Nut Island Headworks Odor Control and HVAC Improvements: $10 million
• Tops of Shafts Interim Improvements Construction: $6.1 million
FY18 Proposed CIP - Top New Projects

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FY18 Proposed CIP - Top New Projects

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FY18 Proposed CIP - Top New Projects

- Tops of Shafts Interim Improvements Construction: $6.1 million
## FY18 Proposed CIP - Change from Court-Ordered Mandates to Asset Protection and Water Redundancy

<table>
<thead>
<tr>
<th>CIP Category</th>
<th>FY09-13</th>
<th>FY14-18</th>
<th>FY19-23</th>
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<tbody>
<tr>
<td>Asset Protection</td>
<td>30.1%</td>
<td>51.2%</td>
<td>62.5%</td>
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<tr>
<td>Carroll WTP</td>
<td>4.7%</td>
<td>2.0%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Water Redundancy</td>
<td>16.3%</td>
<td>20.1%</td>
<td>28.1%</td>
</tr>
<tr>
<td>CSO</td>
<td>38.2%</td>
<td>10.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Other</td>
<td>10.7%</td>
<td>15.9%</td>
<td>8.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
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- Substantial completion of court-ordered CSO program
- Asset Protection and Redundancy are the principal drivers of future capital expenditures
• Preserve the condition of assets
  – Asset Protection in CIP
  – Day to Day Maintenance in CEB
### FY18 Proposed CIP - Top Construction Projects ($ in 000s)

<table>
<thead>
<tr>
<th>Project</th>
<th>Subphase</th>
<th>FY18 Proposed Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility Asset Protection</td>
<td>Chelsea Creek Headworks Upgrades</td>
<td>$18,215</td>
</tr>
<tr>
<td>Cosgrove Tunnel Redundancy</td>
<td>Wachusett Aqueduct Pump Station</td>
<td>$15,896</td>
</tr>
<tr>
<td>NIH Redundancy &amp; Storage</td>
<td>Section 89 &amp; 29 Redundancy Phase 1C and Phase 2.</td>
<td>$15,448</td>
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<tr>
<td>SEH Redundancy &amp; Storage</td>
<td>Redundancy Pipeline Section 111 Phase 1, 2 and 3</td>
<td>$13,146</td>
</tr>
<tr>
<td>Facility Asset Protection</td>
<td>Alewife Brook Pump Stn Rehab</td>
<td>$5,795</td>
</tr>
<tr>
<td>DI Treatment Plant Asset Protection</td>
<td>HVAC Equipment Replacement</td>
<td>$4,978</td>
</tr>
<tr>
<td>DI Treatment Plant Asset Protection</td>
<td>NMPS &amp; WTF Butterfly Valve Replacement</td>
<td>$3,499</td>
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<tr>
<td>DI Treatment Plant Asset Protection</td>
<td>WTF VFD Replacement</td>
<td>$3,085</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$80,062</strong></td>
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<tr>
<td>% of Total FY 18 proposed MWRA Spending</td>
<td></td>
<td><strong>47.2%</strong></td>
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Alewife Brook Pump Station Rehabilitation

FY18 Budget: $5.8M
Total Contract: $12.6M
NTP: January 2016
SC: May 2018
Chelsea Creek Headworks Upgrades

FY 18 Budget: $18.2M
Total Contract: $72.9M
NTP: November 2016
SC: November 2020
Deer Island Treatment Plant: Top 3 Spenders FY 18 Budget: $12.6M
- HVAC Equipment Replacement
  FY 18 Budget: $5.0M
  - Total Contract: $29.5M
  - NTP: April 2017
  - SC: August 2020
- North Main Pump Station and Winthrop Terminal
  Butterfly Valve Replacement
  FY 18 Budget: $3.5M
  - Total Contract: $17.5M
  - NTP: June 2014
  - SC: June 2017
- Winthrop Terminal VFD Replacement
  FY 18 Budget: $3.1M
  - Total Contract: $11.9M
  - NTP: June 2016
  - SC: March 2020
Wachusett Aqueduct Pump Station:

FY 18 Budget : $15.9M
Total Contract: $53.0M
NTP: March 2016
SC: February 2019
FY18 CIP - FY18 Top Spenders - Redundancy

• Northern Intermediate High Section 89 & 29 Redundancy:
  
  FY 18 Budget: $15.5M
  NTP: December 2016
  SC: December 2019
FY18 CIP - FY18 Top Spenders - Redundancy

• Southern Extra High Section 111 Redundancy:
  
  FY 18 Budget: $13.1M
  NTP: July 2016
  SC: November 2019
FY18 Proposed CIP - Proposed FY18 Contract Awards

- 49 FY18 Contract Awards
- Total Contract Value: $203.5 million
  - Wastewater: $151.7 million
  - Waterworks: $47.3 million
  - Business and Operations: $4.5 million
<table>
<thead>
<tr>
<th>Project</th>
<th>Subphase</th>
<th>Anticipated Contract Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>DI Treatment Plant Asset Protection</td>
<td>Clarifier Rehabilitation Phase 2 - Construction</td>
<td>$80.0</td>
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<tr>
<td>DI Treatment Plant Asset Protection</td>
<td>Gravity Thickener Rehabilitation</td>
<td>$14.5</td>
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<tr>
<td>Metropolitan Redundancy Interim Improvements</td>
<td>Metropolitan Redundancy Interim Design Construction/Resident Inspection</td>
<td>$10.4</td>
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<tr>
<td>DI Treatment Plant Asset Protection</td>
<td>Switchgear Replacement - Construction</td>
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<td>Metropolitan Tunnel Redundancy</td>
<td>Conceptual Design Environmental Impact Report</td>
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<tr>
<td>Wastewater Central Monitoring</td>
<td>Wastewater Supervisory Control and Data Acquisition System (SCADA)</td>
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<td>Program Logic Controller (PLC) Upgrades</td>
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<tr>
<td>Northern Low Service Rehab Section 8</td>
<td>Sec 57 Water &amp; 21/20/19 Sewer Design/Engineering Services During</td>
<td>$4.8</td>
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<tr>
<td></td>
<td>Construction/Resident Inspection</td>
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<tr>
<td>DI Treatment Plant Asset Protection</td>
<td>Future South System Pump Station Variable Frequency Drives Replacements</td>
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<td>- Design</td>
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<td>Application Improvements Program</td>
<td>Enterprise Content Management</td>
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<td>Winsor Station Pipeline Improvements</td>
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<td>Top Ten Awards for FY18</td>
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<td>$144.6</td>
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<tr>
<td>49 Contract Awards Planned for FY18</td>
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<td>$203.5</td>
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MWRA Outstanding Indebtedness

As of June 30th
• FY 19-23 is the next five-year CIP Cap period

• Master Plan Development

• Metropolitan Tunnel Redundancy
Next Steps

- Work with the Advisory Board
- Finalize FY18 CIP
- Submit FY18 Final CIP to Board of Directors for approval in June 2017
MWRA Fiscal Year 2018
Proposed
Current Expense Budget
Managing Uncertainties to Achieve Sustainable and Predictable Rates
• Deliver sustainable and predictable rates

• Achieve progress toward long-term goals

• Manage uncertainty
Historical Spending Chart

Major Budget Elements

$ in Millions

- Indirect Expenses
- Direct Expenses
- Capital Financing
- Total Operating Expense

FY00 FY01 FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18

Historical Spending Chart
FY18 Proposed CEB - Areas of Uncertainty

• Debt
• Investments
• Utility and Chemical Prices
• Construction Costs
  – Materials
  – Labor
• Consumer Price Index
• Tax Code Changes
• Environmental Regulations
FY18 Proposed Current Expense Budget (CEB)

FY18 Current Expense Budget

- Direct Expense: 32%
- Indirect Expense: 5%
- Capital Finance: 63%
CEB Budget Structure

- Direct Expenses
- Indirect Expenses
- Capital Finance Expenses
- Non-Rate Revenue
- Rate Revenue
## FY18 Proposed CEB vs FY 17

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>FY17 Approved Budget</th>
<th>FY18 Proposed Budget</th>
<th>Change FY18 Proposed Budget vs FY17 Approved Budget</th>
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<tbody>
<tr>
<td>TOTAL DIRECT EXPENSES</td>
<td>$226,532</td>
<td>$238,411</td>
<td>$11,879 $ 5.2%</td>
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<tr>
<td>TOTAL INDIRECT EXPENSES</td>
<td>$37,962</td>
<td>$41,581</td>
<td>$3,619 $ 9.5%</td>
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<tr>
<td>TOTAL CAPITAL FINANCE</td>
<td>$455,130</td>
<td>$469,124</td>
<td>$13,994 $ 3.1%</td>
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<tr>
<td>TOTAL EXPENSES</td>
<td>$719,624</td>
<td>$749,116</td>
<td>$29,492 $ 4.1%</td>
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</table>
Direct Expenses

- Wages, Salaries, and Overtime: 56%
- Maintenance: 14%
- Energy & Utilities: 11%
- Chemicals: 4%
- Other: 15%
Highlights – Direct Expenses

• Wages and Salaries - $104.8M – Budgeted FTE’s: 1,150 same as FY17
• Maintenance - $32.5M – $1.4 million above FY17
• Utilities - $25.8M – $4.2 million above FY17
• Other Services - $22.8M – basically level funded to FY17
• Fringe Benefits - $21.5M – $1.3 million higher than FY17
Managing Uncertainty

Direct Expenses

- HEEC Cable Protection - $4.4 million placeholder in various budget lines
- Health Insurance – assume 8% increase
- Utility Costs – anticipate volatility
- Chemicals
  - Regulatory Uncertainty - NPDES Enterococcus - $600k placeholder
  - Contractual Increases
Estimated one-time FY18 CEB Impact Placeholder $4.4 million

- Diesel Fuel - $6.2 million (2.9 million gallons)
- Avoided Electricity Charges – ($2.5 million) – 30.4 million kWh generated by CTG’s)
- Labor - $0.4 million
- Other Charges - $0.3 million
Most recent purchases:

- $1.58/gal Nov 2016
- $1.83/gal Jan 2017
- $0.25 increase

5 -YR Ave. $2.66/gal
10 -YR Ave. $2.59/gal
Electricity Pricing History

Mix of fixed and variable rate power blocks

Procurements: Deer Island, Interval Accounts, and Profile Accounts

5 - YR Ave. $0.102/kWh
10 – YR Ave $.106/kWh
Historical Health Insurance Cost

<table>
<thead>
<tr>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
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<td>$13.5</td>
<td>$14.4</td>
<td>$13.6</td>
<td>$15.1</td>
<td>$15.2</td>
<td>$15.1</td>
<td>$15.7</td>
<td>$15.8</td>
<td>$16.5</td>
<td>$17.5</td>
<td>$18.6</td>
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</tbody>
</table>
Chemical Expense History

Historical Chemical Cost

- Soda Ash
- Sodium Hypochlorite
- Other Chemicals
- Ferric Chloride

$ in Millions

FY08 FY09 FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18
Indirect Expenses Comparison FY17 - FY18

- Watershed/PILOT
- Retirement Fund
- OPEB
- HEEC
- Insurance
- Mitigation
- Addition to Reserves

FY18

FY17

$- $5 $10 $15 $20 $25 $30 $35
Highlights – Indirect Expenses

- Watershed Program for operating and PILOT: $25.0M
- Pension Fund required contribution: $3.3M plus an additional $1.8M contribution
- OPEB half of actuarial funding schedule: $5.0M
- Insurance: $2.1M
- Mitigation: $1.6M
- HEEC contract: $0.7M
Indirect Expenses

• Pension and OPEB Contributions
  • Actuarial Revaluation
  • Lower Investment Returns
CEB Budget Structure - Capital Finance Expenses

Capital Financing

- Other 7%
- State Revolving Fund 18%
- Subordinate Debt 19%
- Senior Debt 56%
Capital Financing Comparison FY17 - FY18

- Senior Debt
- Subordinate Debt
- SRF
- Current Revenue For Capital
- Debt Prepayment
- Local Water Pipeline
- Capital Lease

 FY18
 FY17

$- $50 $100 $150 $200 $250 $300
Capital Finance Expenses – Peak in 2022

Debt Service as % of Total Budget

- Capital Finance Expenses – Peak in 2022

- Debt Service as % of Total Budget

- 1990 - 2027
Ways to address the Debt Service challenge

- Defeasance
- Use of Reserves
  - Rate Stabilization Fund
  - Bond Redemption Fund
- Tactical Issuance – Repayment Structure
- Control Capital Spending
- Strategic Use of Current Revenue/Capital Funding
• Interest Rates
• Amount and Timing of New Money
• Amount and Timing of SRF
• Potential Tax Code Changes
SIFMA Resets
FY97 - Present
Interest Rate Risk

SIFMA Resets
FY97 - Present
Highlights – Capital Finance Expenses

- Variable Rate Debt Assumption 3.50%, 25 bp increase
- $20 million defeasance built into the FY18 Budget
- $10.9 million prepayment of debt built into FY18 Budget
- $1.0 million continued commitment to increase Current Revenue for Capital
- No Debt Service Assistance
Non-Rate Revenue

- Other User Charges - $9.0 million, increase of $0.2 million
- Other Revenue - $7.7 million, increase of $1.1 million
- Investment Income - $11.3 million, increase of $1.8 million
<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Direct Expense</td>
<td>$238.4 M</td>
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<tr>
<td>Indirect Expense</td>
<td>$41.6 M</td>
</tr>
<tr>
<td>Debt Service</td>
<td>$469.1 M</td>
</tr>
<tr>
<td>Non-Rate Revenue</td>
<td>($27.9) M</td>
</tr>
<tr>
<td><strong>Rate Revenue Requirement</strong></td>
<td><strong>$721.2 M</strong></td>
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</table>
Actual and Forecasted Assessment Changes

MWRA Combined Utilities
Historical and Projected Rate Revenue Changes

<table>
<thead>
<tr>
<th></th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
<th>FY21</th>
<th>FY22</th>
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</table>
Actual and Forecasted Assessment Changes by Utility

MWRA Water & Sewer Utilities
Historical and Projected Rate Revenue Changes

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<tr>
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</tbody>
</table>

FY13 - FY22
• Transmit Proposed Budget to Advisory Board for 60 day review
• Public Hearing
• MWRA Board Hearing
• Staff will present Draft Final Budget in June
Thank You