PROJECT 2030
WATER MAIN REPLACEMENT

CITRUS HEIGHTS
WATER DISTRICT
Customer Advisory Committee Meeting 4
FEBRUARY 5, 2019
PLEDGE OF ALLEGIANCE
MEETING AGENDA

- Public Comment
- Approve Meeting #3 Summary
- Spending Overview
- Funding Overview
- Spending/Funding Alternatives
- Q & A Activity
- Answer Questions and Group Dialogue
- Public Comment
- Preview of CAC Meeting #5 on February 26, 2019
- Meeting Take Away’s
PUBLIC COMMENT
APPROVE MEETING #3
SUMMARY – DECEMBER 11, 2018
WHERE WE ARE & WHERE WE ARE GOING
PROJECT 2030 SCOPE

- Asset Inventory
- Future Water Demand Projections
- Water Main Assessment & Costs
- Funding Strategy/Rate Analysis
- Water Main Replacement Phasing Plan
- Implementation Plan

Public Engagement
SPENDING OVERVIEW & OPTIONS
REMEMBER THIS?
HOW WILL RISK-BASED APPROACH BE USED?

• Using sophisticated risk assessment software
  • Evaluate multiple LOF and COF risk factors
  • Develop prioritized main replacement list

• Short-Term Planning (by CHWD staff)
  • Develop and update capital improvement plan (annually and 5-year intervals)
  • Revisit LOF and COF factors and weighting

• Long-Term Planning (by CHWD staff and CAC)
  • Understand key risk factors
  • Develop multi-decade spending and funding strategy
## RISK FACTORS AND INITIAL RELATIVE WEIGHTING

<table>
<thead>
<tr>
<th>Likelihood of Failure (LOF)</th>
<th>Consequence of Failure (COF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOF #1: Pipe Age / Survival Probability</td>
<td>COF #1: Pipe Diameter</td>
</tr>
<tr>
<td>LOF #2: Pipe Material</td>
<td>COF #2: Pipe Flow</td>
</tr>
<tr>
<td>LOF #3: Historical Main Breaks</td>
<td>COF #3: Transmission Pipelines</td>
</tr>
<tr>
<td>LOF #4: Creek Crossings (Vulnerability)</td>
<td>COF #4: Critical Facilities</td>
</tr>
<tr>
<td>LOF Total</td>
<td>COF #5: Creek Crossing (Environmental Impact)</td>
</tr>
<tr>
<td></td>
<td>COF #6: High Traffic Areas</td>
</tr>
<tr>
<td></td>
<td>COF #7: Difficult Access Areas (Backyard Mains)</td>
</tr>
<tr>
<td></td>
<td>COF Total</td>
</tr>
</tbody>
</table>
LOF #1

WHAT DOES “SURVIVAL PROBABILITY” MEAN?

• Likelihood that a pipe won’t experience a “failure”.
• “Failures” can be repaired and returned to service.
• Everyday examples: car repairs/replacement

  1. *How do you decide when to replace with new?*
<table>
<thead>
<tr>
<th>Benchmark</th>
<th>How We Measure</th>
<th>Indicator Of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains Replaced</td>
<td>Percent per Year</td>
<td>Pace of Replacement</td>
</tr>
<tr>
<td>Water Loss</td>
<td>Percent, GPD/Connection</td>
<td>Integrity of System</td>
</tr>
<tr>
<td>Breaks and Leaks</td>
<td>Events per 100 miles of Main</td>
<td>Integrity of System</td>
</tr>
</tbody>
</table>
## TOTAL PIPELINE REPLACEMENT COSTS

<table>
<thead>
<tr>
<th>Pipe Classification</th>
<th>Total Miles</th>
<th>Cost (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution Mains (&lt;=12 inch diameter)</td>
<td>235</td>
<td>$ 317</td>
</tr>
<tr>
<td>Transmission Mains (&gt;12 inch diameter)</td>
<td>15</td>
<td>$ 54</td>
</tr>
<tr>
<td>Appurtenances (e.g. fire hydrants)</td>
<td>n/a</td>
<td>$ 61</td>
</tr>
<tr>
<td>Total Construction Cost</td>
<td>n/a</td>
<td>$ 432</td>
</tr>
<tr>
<td>Engineering, Management and Permitting</td>
<td>n/a</td>
<td>$ 108</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>$ 540</td>
</tr>
</tbody>
</table>

### Notes:
- Costs are planning level estimates and should be reevaluated regularly based on recent construction project data.
SPENDING ASSUMPTIONS

• All total and average annual spending costs in this section are expressed in 2018 dollars.

• The planning period of all spending options is a 50-year period between 2030 and 2080.

• Baseline spending on water main replacement is $2 million per year.
SURVIVAL PROBABILITY CURVES

YEAR

$0  $100  $200  $300  $400  $500  $600

2030  2040  2050  2060  2070  2080

2% Surv  4% Surv  5% Surv  8% Surv  10% Surv  15% Surv
20% Surv  25% Surv  40% Surv  50% Surv  60% Surv
SURVIVAL PROBABILITY CURVES

Baseline
CUMULATIVE AND DECADE SPENDING – 8% SURVIVAL PROBABILITY

Baseline

Baseline By Decade

8% SP Cumulative

8% SP By Decade

Crosses Baseline

YEAR

COST ($MILLION 2018)
CUMULATIVE AND DECADE SPENDING – 2% SURVIVAL PROBABILITY

YEAR

COST ($MILLION 2018)

2030 2040 2050 2060 2070 2080

$0 $100 $200 $300 $400 $500 $600

Baseline

Baseline By Decade

2% SP Cumulative

2% SP By Decade

Crosses Baseline
CUMULATIVE AND DECADE SPENDING – 15% SURVIVAL PROBABILITY
<table>
<thead>
<tr>
<th>Option</th>
<th>Average Annual Spending ($2018 million)</th>
<th>Water Mains Replaced (Percent per Year)</th>
<th>Total Spending by 2080 ($2018 million)</th>
<th>Calculated Survival Probability in 2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1 (Baseline)</td>
<td>$2.0</td>
<td>0.4%</td>
<td>$100</td>
<td>2.1%</td>
</tr>
<tr>
<td>Option 2 (1.5x Baseline)</td>
<td>$3.0</td>
<td>0.6%</td>
<td>$150</td>
<td>2.4%</td>
</tr>
<tr>
<td>Option 3 (2x Baseline)</td>
<td>$4.0</td>
<td>0.8%</td>
<td>$200</td>
<td>3.9%</td>
</tr>
<tr>
<td>Option 4</td>
<td>$6.4</td>
<td>1.2%</td>
<td>$320</td>
<td>6.4%</td>
</tr>
<tr>
<td>Option 5</td>
<td>$7.8</td>
<td>1.4%</td>
<td>$390</td>
<td>7.3%</td>
</tr>
<tr>
<td>Option 6</td>
<td>$9.6</td>
<td>1.8%</td>
<td>$480</td>
<td>8.2%</td>
</tr>
<tr>
<td>Option 7 (~5x Baseline)</td>
<td>$10.2</td>
<td>1.9%</td>
<td>$510</td>
<td>8.6%</td>
</tr>
</tbody>
</table>
OPTION 1 – BASELINE
$2M / 0.4% PER YEAR
$100M TOTAL

COST ($MILLION 2018)

%SP IN 2060

10%
4%
2%
2.1%

YEAR

2030 2040 2050 2060 2070 2080

Option 1 Spending
OPTION 2 – 1.5x BASELINE
$3M / 0.6% PER YEAR
$150M TOTAL
OPTION 3 – 2x BASELINE
$4M / 0.8% PER YEAR
$200M TOTAL
OPTION 4
$6.4M / 1.2% PER YEAR
$320M TOTAL

%SP IN 2060

Baseline Spending

Option 4 Spending

YEAR

COST ($MILLION 2018)
OPTION 5
$7.8M / 1.4% PER YEAR
$390M TOTAL

YEAR
2030 2040 2050 2060 2070 2080
COST ($MILLION 2018)
$0 $100 $200 $300 $400 $500 $600

%SP IN 2060
0 2 4 6 8 10 12 14 16 18 20
7.3%

Baseline Spending
Option 5 Spending
2% 5% 10%

SPENDING
OPTION 6
$9.6M / 1.8% PER YEAR
$480M TOTAL

YEAR
2030 2040 2050 2060 2070 2080
COST ($MILLION 2018)
$0 $100 $200 $300 $400 $500 $600

Option 6 Spending
Baseline Spending

%SP IN 2060
0 2 4 6 8 10 12 14 16 18 20

4% Surv 10% Surv Option 1 20% Surv
OPTION 7
$10.2M / 1.9% PER YEAR
$510M TOTAL
FUNDING OVERVIEW
Agenda

01 Funding 101 Review
02 General Funding Example
03 Funding Options
04 Funding Applied to Spending
05 Review Matrix Handout
FUNDING 101

Develop Funding Strategy for Water Main Replacement:

1. Financial sufficiency
   - Generates adequate revenues for labor, Operations & Maintenance (O&M), and planned capital costs
   - Operating costs will also increase over time

2. Evaluate benefits and impacts with debt-financing
   - Level of capital funding
   - Impacts to reserves
   - Net income for debt coverage
   - Identify total increase needed

3. Funding strategy should compliment District’s Mission
   - Responsible management of capital assets
FINANCIAL PLAN DEVELOPMENT

Revenue
- Operating
- Non-Operating

Expenses
- O&M
- Planned Capital

Financial Policies
- Water Main Funding
- Debt vs PAYGO
- Operating Reserve

Revenue Adjustment Schedule
Multi-year Funding Strategy

Funding Summary
GENERAL FUNDING EXAMPLE

### Revenue Adjustment and Debt Coverage
- **Blue** bars: Proposed Revenue Adjustment
- **Red** line: Target Debt Coverage 1.25x (right axis)
- **Dotted green** line: Projected Debt Coverage
- **Red** dot: Alert Debt Coverage Below Target

### WW Rev Adjustments and Debt Coverage
- FY 2018: 9%
- FY 2019: 9%
- FY 2020: 4%
- FY 2021: 4%
- FY 2022: 4%
- FY 2023: 4%

### WW Operating Financial Plan

### CIP and Funding Sources
- **PAYGO CIP**
- **Grants Funded CIP**
- **Debt Funded CIP**
- **Total CIP**
Lower Increases; Requires Reduction in CIP
GENERAL FUNDING EXAMPLE

Lower Increases with Debt

Same Reduced Revenue Adjustments

Projects fully funded through PAYGO and Debt
Three Primary Funding Options

- Prefund: Start FY20
- PAYGO
- Debt
• All Funding Options includes a PAYGO Component
  • Can’t prefund entire project before 2030
  • 100% debt funding is not possible
FUNDING OPTIONS SCENARIOS

• Funding Variations
  1. No Prefunding; No Debt
  2. Prefunding; No Debt
  3. No Prefunding with Debt
  4. Prefunding with Debt
### SPENDING AND FUNDING

<table>
<thead>
<tr>
<th>Spending</th>
<th>PAYGO</th>
<th>Prefunding</th>
<th>Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100M; $2M / Yr</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$150M; $3M / Yr</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$200M; $4M / Yr</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$320M; $6.4M / Yr</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$390M; $7.8M / Yr</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$480M; $9.6M / Yr</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$510M; $10.2M / Yr</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Generates 21 different spending / funding options
SPENDING/FUNDING ALTERNATIVES
**ALTERNATIVE 1: BASELINE**

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$100M</td>
<td>18%</td>
<td>less than 1%</td>
<td>3.58%</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- Reflects current investment.
- Replaces 18% of water mains by 2080.
- Generates low survivability with inherent high risk.
No Prefunding requires higher revenue adjustments in FY 2030-39.

Revenue adjustments fluctuate due to ramping up in early years.

Replaces 28% of water mains by 2080.

Survival probability low, generating a high relative risk.
• Prefunding reduces higher revenue adjustments between FY 2030-39.
• Overall average annual revenue adjustments reduced to 3.60% from 3.71%.
• Replaces 28% of water mains by 2080.
• Survival probability low, generating a high relative risk.
No prefunding requires a spike in revenue adjustments between 2030-2039.

9% increases in FY 2030, FY 2031 and FY 2032.

Revenue adjustments fluctuate due to ramping up in early years of project.

Approximately 20% more water main replacement when compared to Baseline.

Survival probability is low with level of reinvestment, generating a high relative risk.

### ALTERNATIVE 3.1: $200M – 2X BASELINE

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$200M</td>
<td>37%</td>
<td>1.4%</td>
<td>3.66%</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

![Graph showing revenue adjustments and annual rev increases over years 2020-2080]
Prefunding smooths out required revenue adjustments between 2030-2039.
Revenue adjustments are also more leveled throughout project.
Approximately 20% more water main replacement when compared to Baseline.
Survival probability is low with level of reinvestment, generating a high relative risk.
### ALTERNATIVE 4.1: $320M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$320M</td>
<td>59%</td>
<td>2.10%</td>
<td>4.03%</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Project 2030

**Water Main Replacement**

- **Baseline**
  - Total Cost: $320M
  - Water Main % Replaced: 59%
  - 2080 Survival Probability: 2.10%
  - Annual Rev Increase: 4.03%
  - Debt: No
  - Prefund: No

#### PayGO Option

- **Spending Option**
  - PAYGO 100%

#### Graph

- **Revenue Adjustments**
  - 2020-29: 3.70%
  - 2030-39: 6.80%
  - 2040-49: 3.25%
  - 2050-59: 3.60%
  - 2060-69: 3.20%
  - 2070-80: 3.65%

#### Key Points

- No prefunding requires higher revenue adjustments between 2030-2039.
- 50% increase revenue required in FY 2030 to meet spending needs.
- Future revenue increases from FY 2040 and beyond average 3.43% due to the ramp up in revenue during the first 10 years of construction.
- Revenue needs generate inter-generational inequity.
- Revenue adjustments fluctuate due to ramping up in early years of project.
- More than 50% of water mains replaced.
Prefunding smooths out revenue adjustments during first 10 years of project.

Annual revenue adjustments equal 5.10% for next 20 years.

Future revenue increases from FY 2040 and beyond average 3.24% due to the ramp up in revenue during the first 20 years of planning period.

Revenue needs generate inter-generational inequity.

More than 50% of water mains replaced.
**ALTERNATIVE 4.3: $320M**

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$320M</td>
<td>59%</td>
<td>2.10%</td>
<td>3.60%</td>
<td>8%</td>
<td>No</td>
</tr>
</tbody>
</table>

- Debt represents 8% of funding.
- Slight reduced revenue needs during first 10 years of project when compared to Option 4.1.
- Interest on bonds adds $78M to project cost assuming no early redemption on bonds.
- More than 50% of water mains replaced.
Average annual revenue increase is slightly higher than Alternative 4.3, but interest reduced by $30M.

Revenue needs in first 10 years of project reduced by prefunding.

No significant revenue spikes in a specific year.

Interest on bonds adds $48M to project cost assuming no early redemption on bonds.

More than 50% of water mains replaced.
### ALTERNATIVE 5.1: $390M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$390M</td>
<td>72%</td>
<td>3.10%</td>
<td>4.02%</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

- No prefunding requires higher revenue adjustments between 2030-2039.
- 30% increase in revenue required in FY 2030 followed by 20% increase in FY 2031.
- Revenue needs generate inter-generational inequity with existing customers primarily impacted.
- Revenue adjustments significantly fluctuate due to need to ramp up in early years of project.
- Approximately 72% of water mains replaced.
**ALTERNATIVE 5.2: $390M**

- Prefunding smooths out revenue adjustments during first 10 years of project.
- Eliminates significant revenue increases in FY 2030 and FY 2031 identified in Option 5.1.
- Annual average revenue adjustments equal 3.95% over project completion.
- Future revenue increases from FY 2040 and beyond average 3.18% due to the ramp up in revenue during the first 20 years of planning period.
- Approximately 72% of water mains replaced.
### ALTERNATIVE 5.3: $390M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$390M</td>
<td>72%</td>
<td>3.10%</td>
<td>3.93%</td>
<td>10%</td>
<td>No</td>
</tr>
</tbody>
</table>

- Inclusion of debt eliminates revenue spikes in FY 2030 and FY 2031 as shown in Option 5.1.
- Debt represents 10% of funding.
- Interest on bonds adds $122M to project cost assuming no early redemption on bonds.
- Approximately 72% of water mains replaced.
PROJECT 2030
WATER MAIN REPLACEMENT

ALTERNATIVE 5.4: $390M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$390M</td>
<td>72%</td>
<td>3.10%</td>
<td>3.99%</td>
<td>4%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Average annual revenue increase is slightly higher than Option 5.3, but interest reduced by $74M.
- Revenue needs in first 10 years of project reduced by prefunding.
- No significant revenue spikes in a specific year.
- Interest on bonds adds $48M to project cost assuming no early redemption on bonds.
- Approximately 72% of water mains replaced.
ALTERNATIVE 6.1: $480M

- No prefunding requires higher revenue adjustments between 2030-2039.
- 30% revenue increase required in FY 2030 and FY 2031.
- Revenue adjustments significantly fluctuate due to need to ramp up in early years of project.
- Revenue needs generate inter-generational inequity with existing customers primarily impacted.
- Approximately 89% of water mains replaced.
**ALTERNATIVE 6.2: $480M**

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$480M</td>
<td>89%</td>
<td>10%</td>
<td>4.09%</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Prefunding smooths out revenue adjustments during first 10 years of project.
- Eliminates significant revenue increases in FY 2030 and FY 2031 identified in Option 6.1.
- Annual average revenue adjustments equal 4.09% over project completion.
- Future revenue increases from FY 2040 and beyond average 3.34% due to the ramp up in revenue during the first 20 years of planning period.
- Approximately 89% of water mains replaced.
### ALTERNATIVE 6.3: $480M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$480M</td>
<td>89%</td>
<td>10%</td>
<td>4.00%</td>
<td>6%</td>
<td>No</td>
</tr>
</tbody>
</table>

- Inclusion of debt eliminates revenue spikes in FY 2030 and FY 2031 as shown in Option 6.1.
- Revenue adjustments are still high for first 10 years due to no Prefunding.
- Debt represents 6% of funding.
- Interest on bonds adds $96M to project cost but extends over 34 years.
- Approximately 89% of water mains replaced.
### ALTERNATIVE 6.4: $480M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$480M</td>
<td>89%</td>
<td>10%</td>
<td>3.97%</td>
<td>9%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- First 20 years, average annual revenue increase limited to 6%.
- Future years, average annual revenue increase limited to 3%.
- Revenue needs in first 10 years of project reduced by prefunding.
- No significant revenue spikes in a specific year.
- Interest on bonds adds $132M to project cost but extends over 72 years.
- Approximately 89% of water mains replaced.

**PROJECT 2030**

**WATER MAIN REPLACEMENT**

**PAYGO**

91%

**Spending Option**

<table>
<thead>
<tr>
<th>Prefund Start FY20</th>
<th>$29.4M</th>
</tr>
</thead>
</table>

**Debt**

9%

**Annual Monthly (Δ)**

$5.15

2020-2030
### ALTERNATIVE 7.1: $510M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$510M</td>
<td>94%</td>
<td>16.50%</td>
<td>4.20%</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Key Points
- No prefunding requires significant revenue adjustments between 2030-2039.
- 35% revenue increase required in FY 2030 followed by 20% increase in FY 2031.
- Revenue needs generate inter-generational inequity with existing customers primarily impacted.
- Revenue adjustments significantly fluctuate due to need to ramp up in early years of project.
- Approximately 94% of water mains replaced.
### ALTERNATIVE 7.2: $510M

<table>
<thead>
<tr>
<th>Spending</th>
<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$510M</td>
<td>94%</td>
<td>16.50%</td>
<td>4.21%</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Prefunding smooths out revenue adjustments during first 10 years of project.
- Eliminates significant revenue increases in FY 2030 and FY 2031 identified in Option 7.1.
- Revenue needs front loaded during first 20 years.
- Future revenue increases from FY 2040 and beyond average 3.36% due to the ramp up in revenue during the first 20 years of planning period.
- Approximately 94% of water mains replaced.

**Graph:**
- **Revenue Adjustments:**
  - 2020-29: 6.50%
  - 2030-39: 5.30%
  - 2040-49: 3.00%
  - 2050-59: 2.85%
  - 2060-69: 3.80%
  - 2070-80: 3.80%
- **Avg Annual Rev Adj**

**Spending Option:**
- Prefund Start FY20: $36.3M
- PAYGO: 100%

**Annual Monthly (Δ):**
- $5.70
### ALTERNATIVE 7.3: $510M

<table>
<thead>
<tr>
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<th>Total Cost</th>
<th>Water Main % Replaced</th>
<th>2080 Survival Probability</th>
<th>Annual Rev Increase</th>
<th>Debt</th>
<th>Prefund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>$510M</td>
<td>94%</td>
<td>16.50%</td>
<td>4.13%</td>
<td>6%</td>
<td>No</td>
</tr>
</tbody>
</table>

- Inclusion of debt eliminates revenue spikes in FY 2030 and FY 2031 as shown in Option 7.1.
- Debt represents 6% of funding.
- Interest on bonds adds $96M to project cost but extends over 34 years.
- Approximately 94% of water mains replaced.
ALTERNATIVE 7.4: $510M

- First 20 years, average annual revenue increase limited to 5.7%.
- Future years, average annual revenue increase limited to 3.25%.
- Revenue needs in first 10 years of project reduced by prefunding.
- No significant revenue spikes in a specific year.
- Interest on bonds adds $249M to project cost but extends over 74 years.
- Approximately 94% of water mains replaced.
Q & A ACTIVITY
BREAK
ANSWER QUESTIONS
TOPICS FOR MEETING 5

• Review the Key Considerations for each Spending/Funding Alternative

• Narrow down Spending/Funding Alternatives to 2-3 Alternatives

• Market Research on the 2-3 Alternatives
MEETING 5

Next Meeting: Tuesday, February 26th, 2019

**Time:** 6:30 pm – 9:15 pm

**Location:** Citrus Heights Community Center, Hall A
VISIT THE CAC WEBPAGE

chwd.org/customer-advisory-committee/
PARTICIPANT TAKE-AWAY’S
CLOSING