



Our Columbia Waters
Integrated Management Plan
Wastewater & Stormwater

Our Columbia Waters

An Integrated Management Plan to Address Wastewater and Stormwater Issues

COLUMBIA CITY COUNCIL WORK SESSION

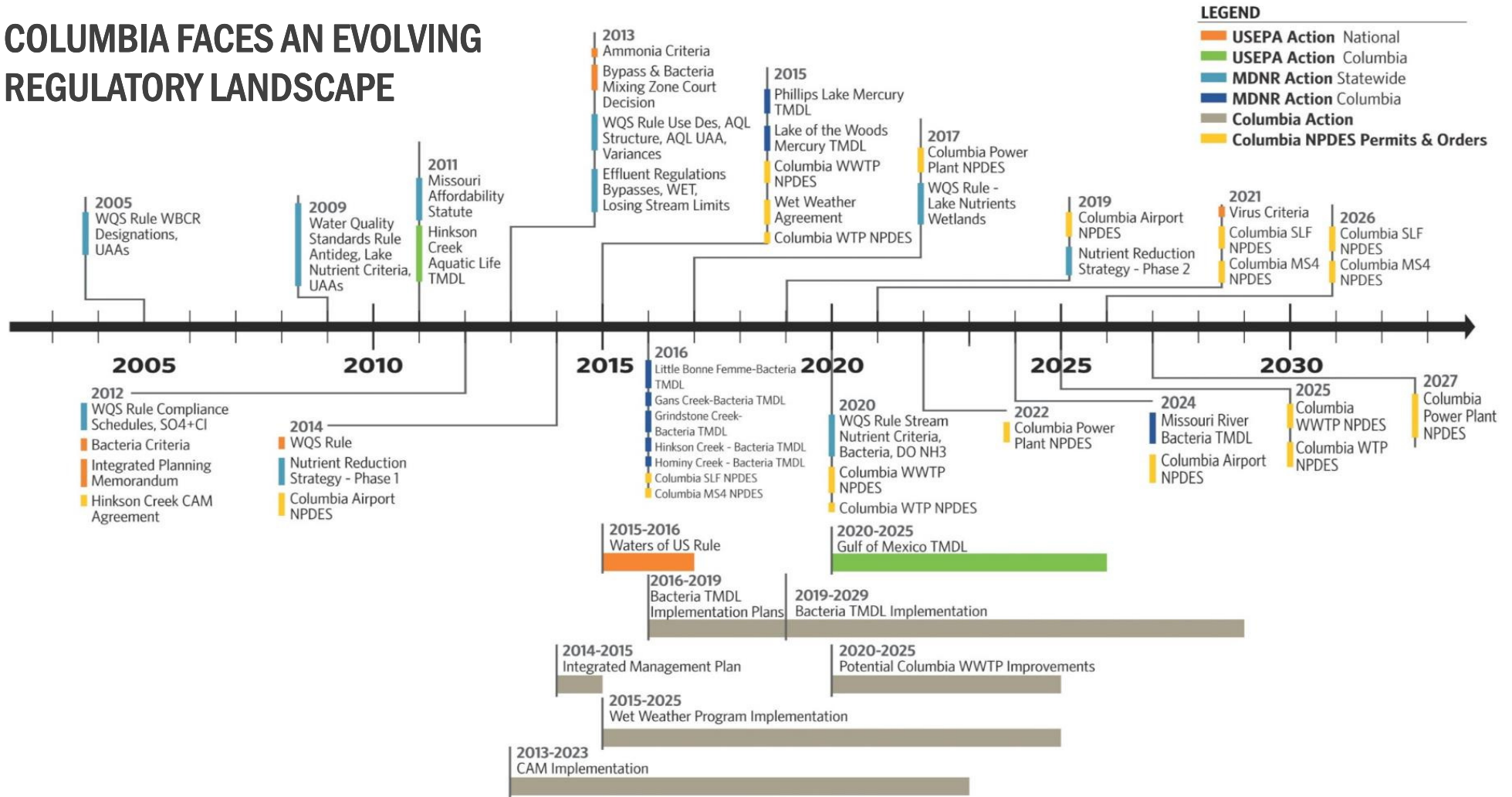
AUGUST 7, 2017

www.ourcolumbiawaters.com

HOW DO THE WATER RESOURCES PLAN AND INTEGRATED MANAGEMENT PLAN COMPARE?

Project	Water Resources Plan	Integrated Mgmt. Plan
Goal	Determine best combination of strategies for ensuring a sustainable water supply.	Develop roadmap for long-term infrastructure investment planning and Clean Water Act compliance.
Issues	<ul style="list-style-type: none"> • Increase raw water supply? • Reclaim and reuse water? • Implement more water conservation and efficiency measures? 	<ul style="list-style-type: none"> • What does the City need to do to be a sustainable utility? • What are the highest priority water quality and regulatory issues? • How do we schedule investments to maintain affordable rates? • What tools does the City need to inform long-term investments?
Result	A plan that reflects community values and sustainably addresses water supply and demand issues.	An adaptive and flexible plan that provides regulatory certainty and prioritizes affordable investments.

COLUMBIA FACES AN EVOLVING REGULATORY LANDSCAPE



INTEGRATED MANAGEMENT PLANNING PROCESS



WHAT IS AN INTEGRATED MANAGEMENT PLAN?

- Meet multiple demands with limited resources
- Align investments with community priorities
- Ensure effective wastewater & stormwater operations
- Improve water quality and meet regulatory requirements



Wastewater Treatment

- Biosolids Improvements
- Pump Station & Effluent Conveyance Capacity
- Regulatory Drivers

Wastewater Collection

- Sanitary Sewer Overflows
- Basement Backups
- I/I Reduction
- Repair & Rehabilitation
- Asset Management
- Operation & Maintenance
- Infrastructure Demands

Stormwater Management

- Repair & Rehabilitation
- Asset Management
- Operation & Maintenance
- Infrastructure Demands
- Water Quality Improvement Measures

COLUMBIA'S SYSTEM CHALLENGES



Aging
Infrastructure



Sewage
Overflows



Sewage
Backups



Erosion



Flooding



Road Failures

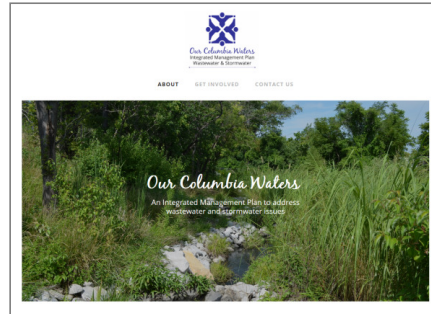


Stormwater
Pollution



Regional
Treatment

IMP COMMUNITY ENGAGEMENT PROGRAM



Community Survey
162 Responses

WEDNESDAY
OCT 12 2016
WORKSHOP #1
5:30 P.M.

WEDNESDAY
OCT 26 2016
WORKSHOP #2
5:30 P.M.

MONDAY
NOV 14 2016
WORKSHOP #3
5:30 P.M.

WEDNESDAY
JUNE 28 2017
FINAL WORKSHOP
5:30 P.M.

ESTABLISHING COMMUNITY PRIORITIES

- Discussed Existing System Challenges
- Presented Sewer and Stormwater Infrastructure Alternatives
- Identified Community Priorities
- Used Community Input to Evaluate Benefits of Potential Alternatives



IDENTIFYING INTEGRATED PLANNING ALTERNATIVES

WASTEWATER COLLECTION

- Sewer Overflows
- System Renewal
- Private Collectors
- Building Backups
- Regional Service
- Maintenance

WASTEWATER TREATMENT

- Constructed Wetlands Improvements
- Wet Weather Improvements
- Nitrification Capacity
- Nutrient Removal
- Chemical Disinfection
- Biosolids Improvements

STORMWATER MANAGEMENT

- System Renewal
- System Assessment
- Flood Control
- Runoff Treatment
- Stream Erosion
- MS4 Programs

POTENTIAL FUNDING LEVELS FOR EACH PROJECT CATEGORY

- **Level 1 Funding** – Funding needed to meet minimum level of service based on community-wide expectations and meet existing regulatory requirements over 20-year planning period
- **Level 2 Funding** – Funding needed to exceed minimum level of service based upon community-wide expectations and more proactively meet existing regulatory requirements
- **Level 3 Funding** – Funding needed to address all forecasted infrastructure needs and evolving regulatory issues within 20-year planning period

WASTEWATER COLLECTION SYSTEM EXAMPLE SYSTEM RENEWAL & PUBLIC I/I REDUCTION

- Existing – \$2.7 Million/Year Currently Funded through 2019
- Level 1 – Continue Existing Funding to Address 75% of Projected Renewal Needs in 20 Years
- Level 2 – \$3.7 Million/Year to Address 100% of Projected Renewal Needs in 20 Years
- Level 3 – \$4.7 Million/Year to Address 100% of Projected Renewal Needs in 15 Years



WASTEWATER COLLECTION SYSTEM EXAMPLE BUILDING BACKUP PROGRAM

- Existing – None
- Level 1 – \$500,000 for Backflow Preventer Program
- Level 2 – \$5 Million for Low Pressure Sewers and Limited Buyouts
- Level 3 – \$40 Million for Extensive Buyouts



STORMWATER MANAGEMENT SYSTEM EXAMPLE

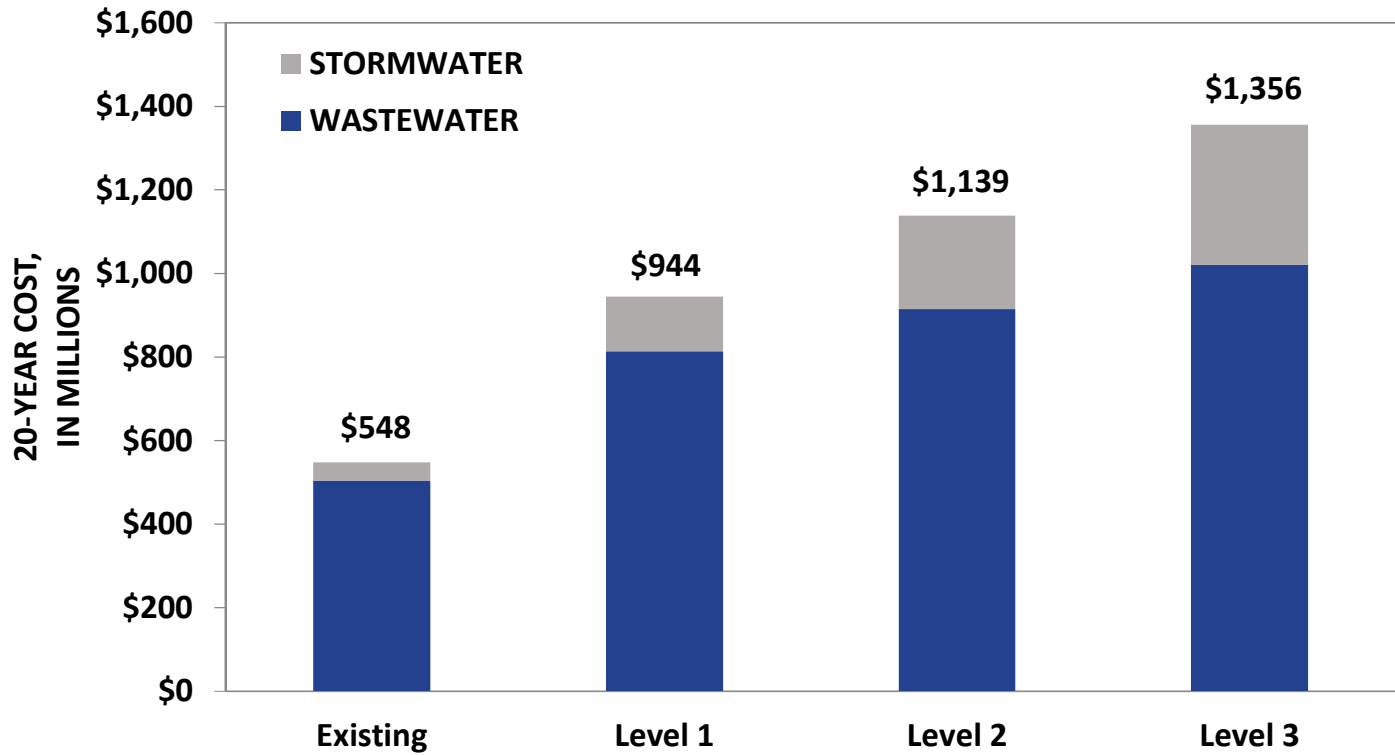
FLOOD REDUCTION

- Existing – Emergency Repairs
- Level 1 – Complete Identified Projects (\$23 Million) by 2036
- Level 2 – Complete Identified (\$23 Million) and Unidentified (\$7 Million) Projects by 2036
- Level 3 – Complete Identified (\$23 Million) and Unidentified (\$14 Million) Projects by 2036



WASTEWATER AND STORMWATER COST ESTIMATES

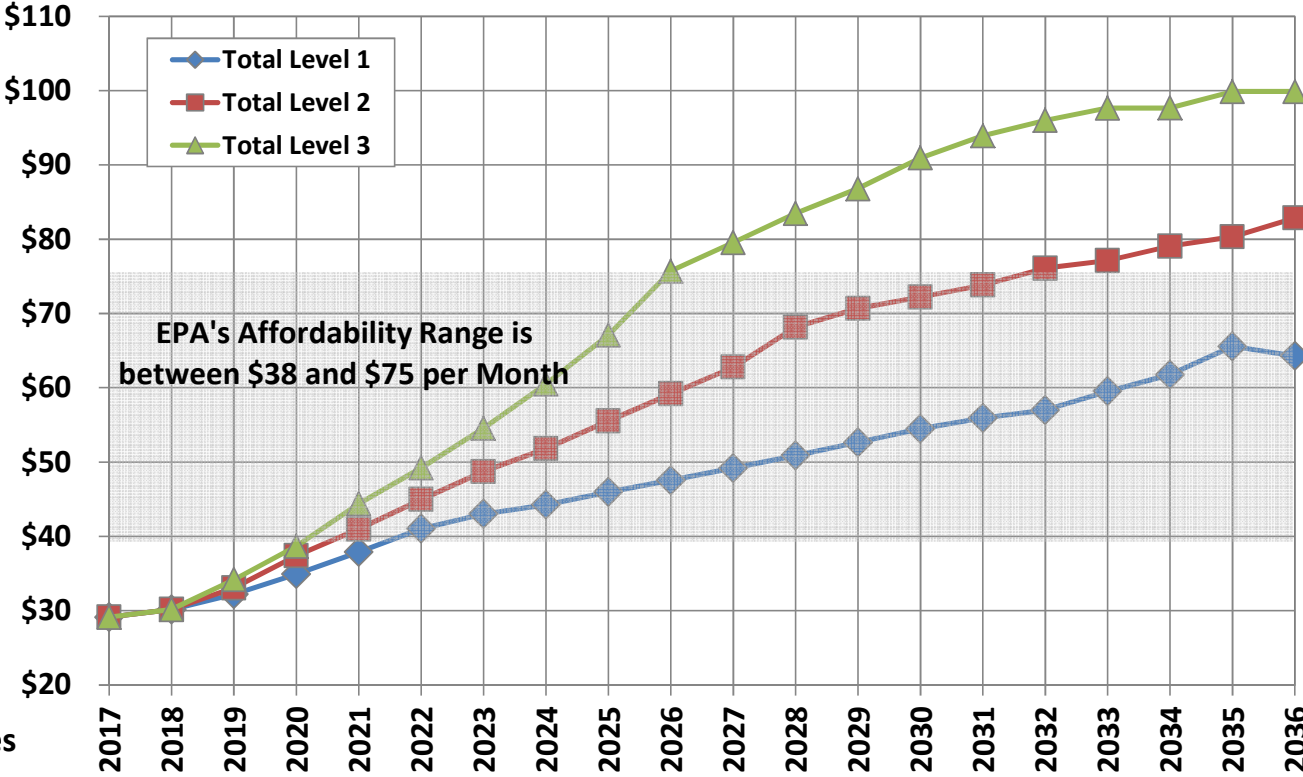
WASTEWATER & STORMWATER
TOTAL 20-YEAR PLANNING COSTS IN 2017 DOLLARS



WASTEWATER AND STORMWATER BILL PROJECTIONS*

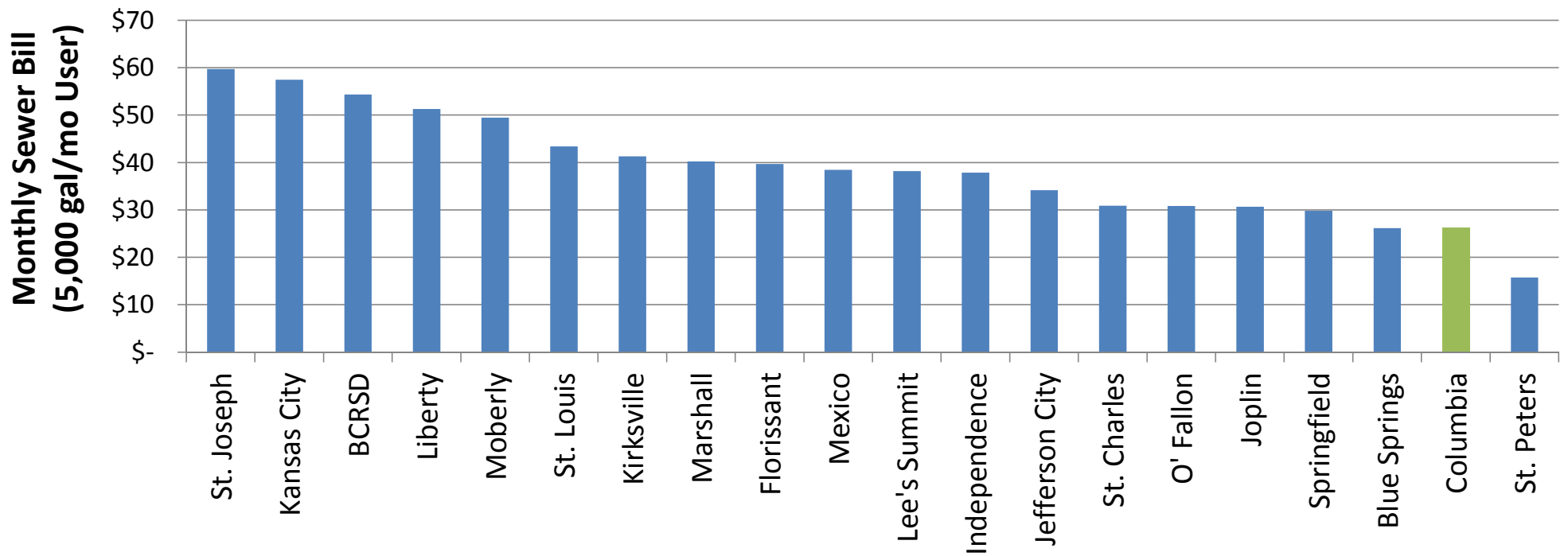
TODAY'S DOLLARS

Total Monthly Residential Sewer & Stormwater Bills
in 2017 Dollars



*Projections assume no change to stormwater rates until after 2020 and sewer until after 2018.

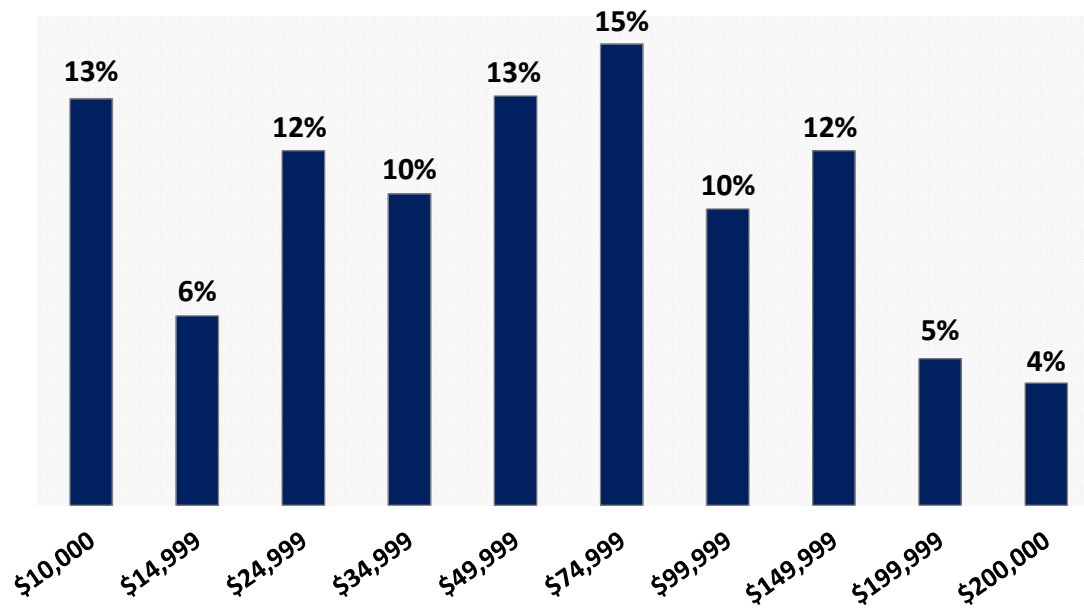
COLUMBIA CURRENTLY PAYS LESS IN WASTEWATER BILLS THAN MOST MISSOURIANS



Adapted from 2016 Missouri Public Utilities Alliance Rate Survey

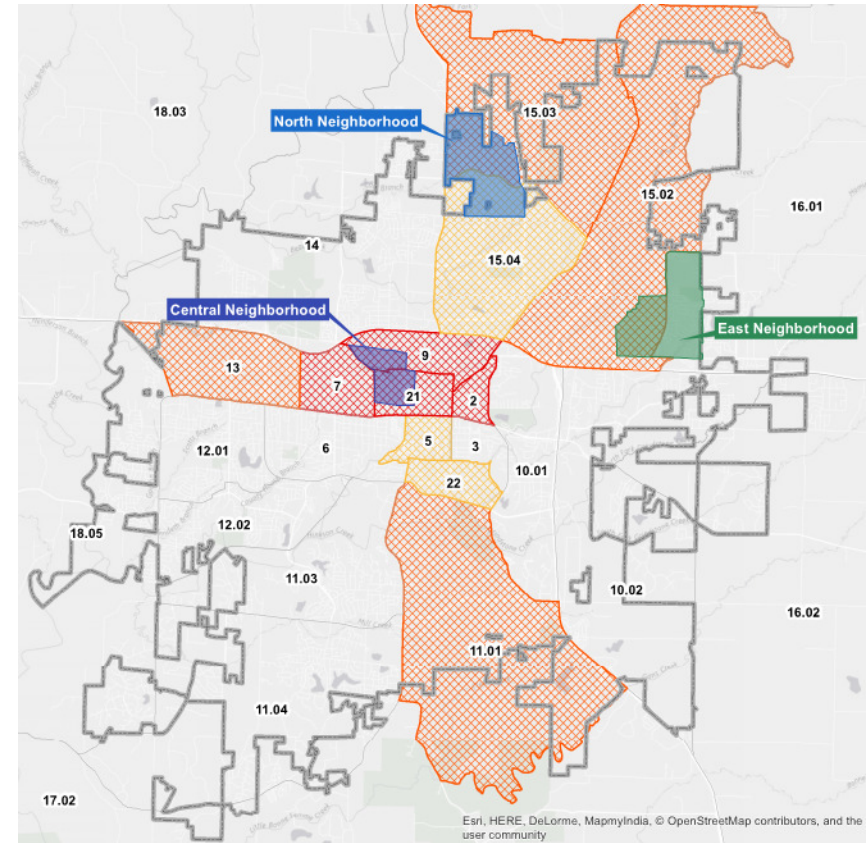
MEASURING AFFORDABILITY IMPACTS ACROSS COLUMBIA

Citywide Income Distribution



Median Household Income

\$45,000



COMMUNITY PRIORITIES BASED ON STAKEHOLDER ENGAGEMENT

SOCIAL

- Improve Public Health and Safety
- Improve Quality of Life

ECONOMIC

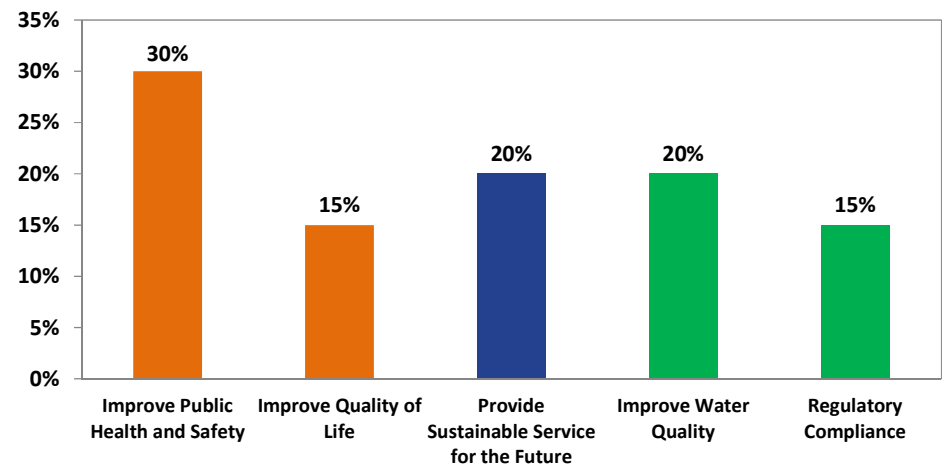
- Provide Sustainable Services for the Future

ENVIRONMENTAL

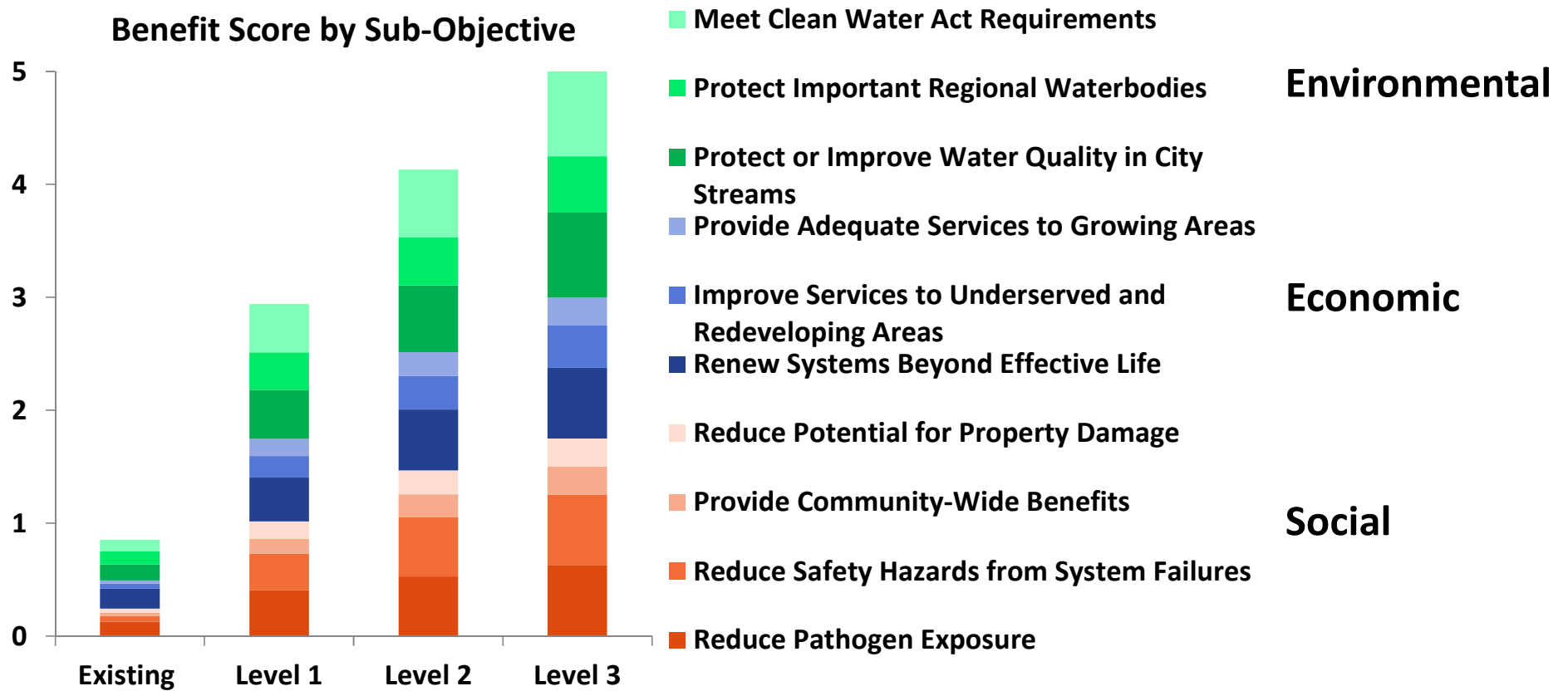
- Improve Water Quality
- Regulatory Compliance



WEIGHTED COMMUNITY IMP OBJECTIVES



COMMUNITY BENEFITS FOR OUR INVESTMENTS



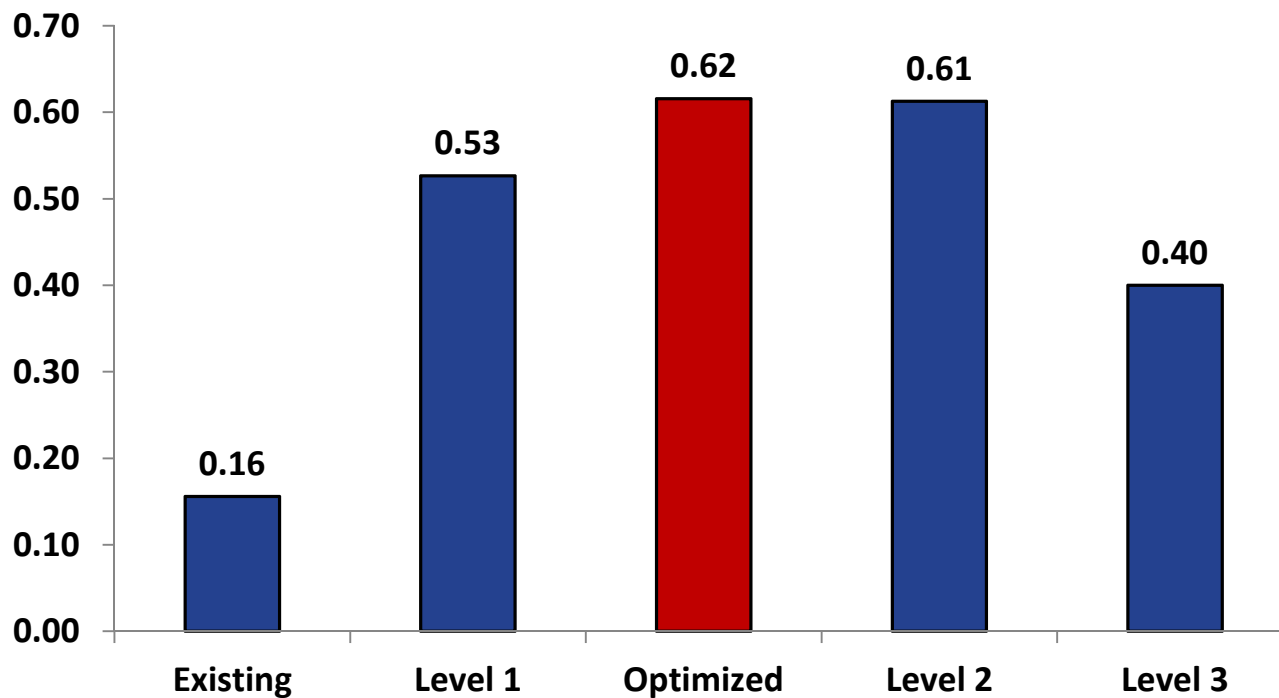
OPTIMIZED INVESTMENT PROVIDES BIGGEST BANG FOR THE BUCK

Wastewater			
Project Category	Level 1	Level 2	Level 3
System Capacity		✓	
System Renewal	✓		
Private Collectors	✓		
Building Backups	✓		
Regional Service	✓		
Maintenance	✓		
Planning	✓		
Nitirification Capacity	✓		
Nutrient Removal	✓		
Chemical Disinfection	✓		
Constructed Wetland		✓	
Biosolids Improvements	✓		
Wet Weather Improvements		✓	

Stormwater Management			
Project Category	Level 1	Level 2	Level 3
System Renewal		✓	
System Assessment		✓	
Flood Control		✓	
Runoff Treatment		✓	
Stream Erosion		✓	
MS4 Program	✓		
Planning	✓		

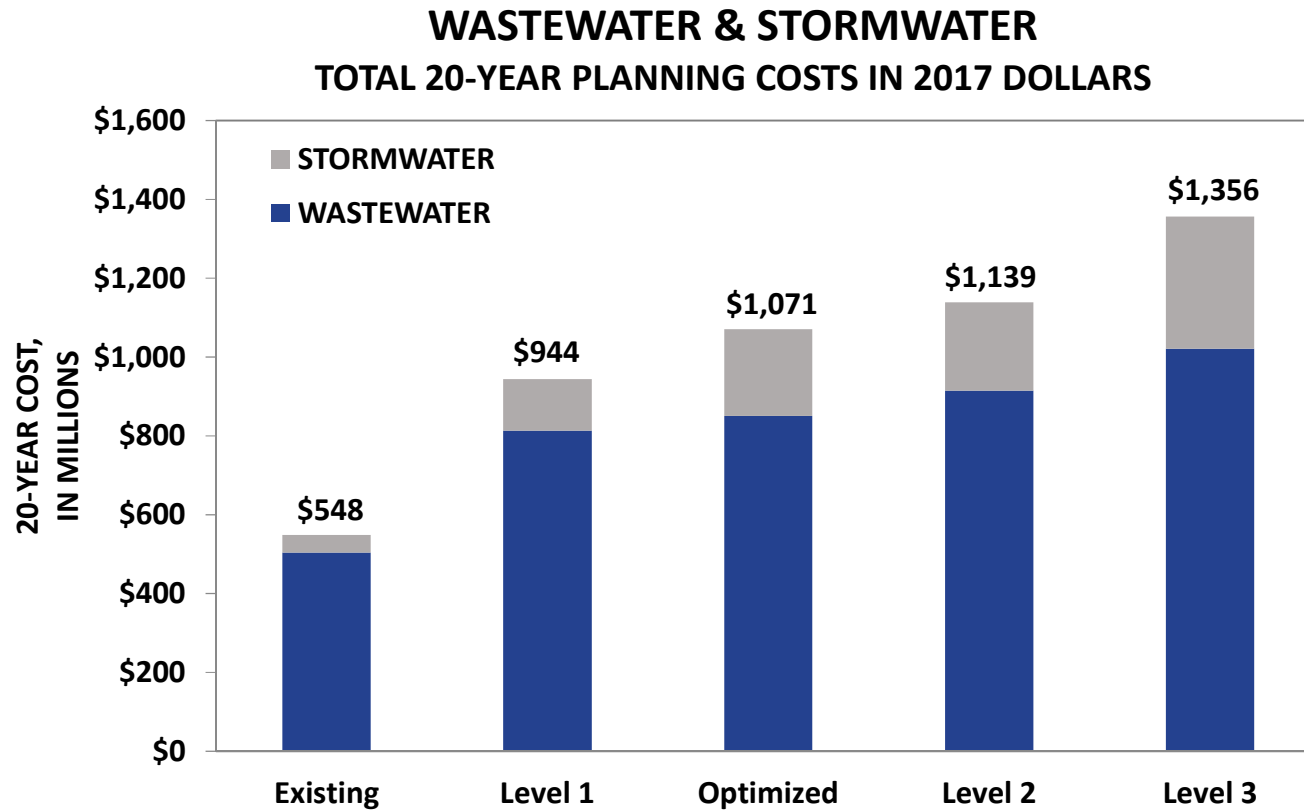
OPTIMIZED INVESTMENT PROVIDES BIGGEST BANG FOR THE BUCK

Benefit Score per \$100M Investment



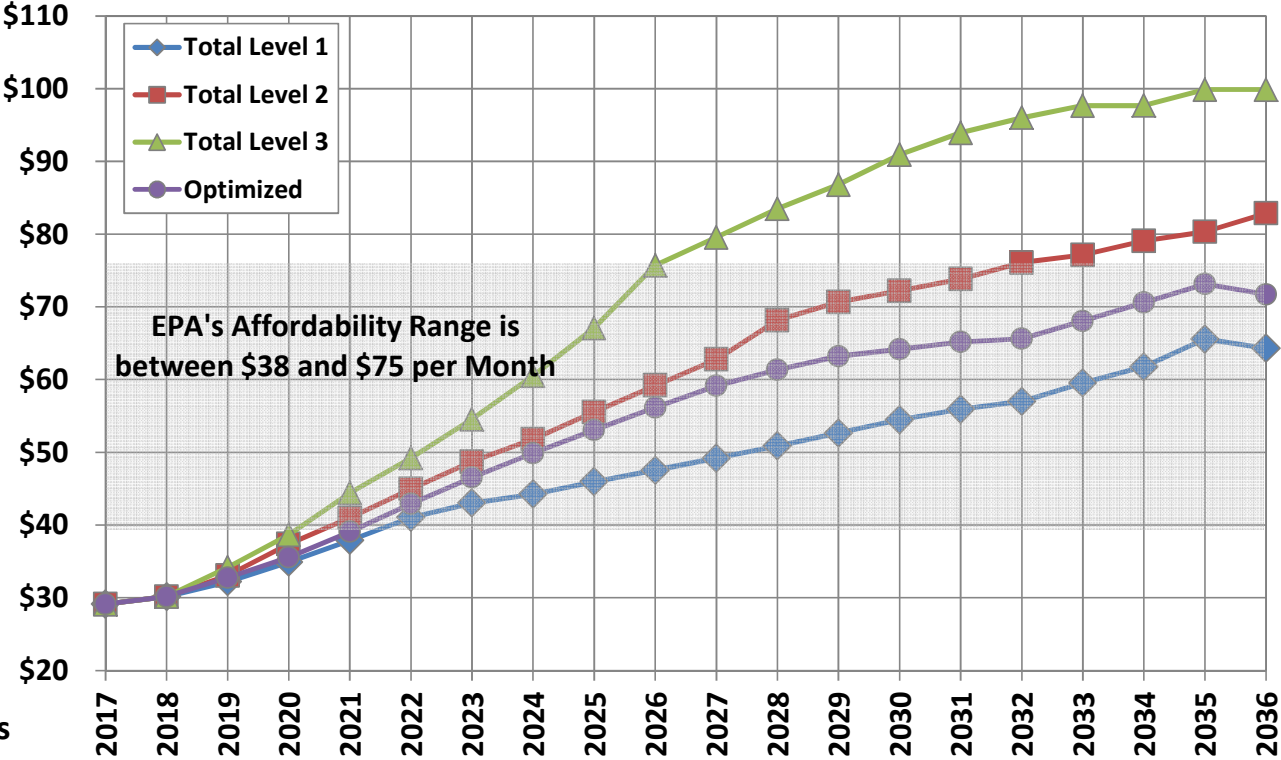
- Balanced
- Prioritized
- Implementable
- Affordable

OPTIMIZED WASTEWATER AND STORMWATER COST ESTIMATES



OPTIMIZED WASTEWATER AND STORMWATER BILL PROJECTIONS* TODAY'S DOLLARS

Total Monthly Residential Sewer & Stormwater Bills
in 2017 Dollars



*Projections assume no change to stormwater rates until after 2020 and sewer until after 2018.

IMP 5 - YEAR ACTION PLAN

WASTEWATER COLLECTION

- Continue System Renewal
- Enhance PCCE Program
- Building Backup Program
- Capacity Assessment
- Funded System Expansion
- Asset Management Program
- Cleaning Enhancement

WASTEWATER TREATMENT

- Interim Wet Weather Improvements
- Biosolids Rehabilitation
- Constructed Wetlands Improvements

STORMWATER MANAGEMENT

- System Assessment
- Master Planning
- Funded System Renewal
- Funded Flood Control
- Stream Erosion in Critical Watersheds
- MS4 Program Enhancement