

# **Infrastructure in 2023 (and beyond)**

**Presentation to the Customer Review Panel**

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**April 5, 2017**

Seattle  
 Public  
Utilities

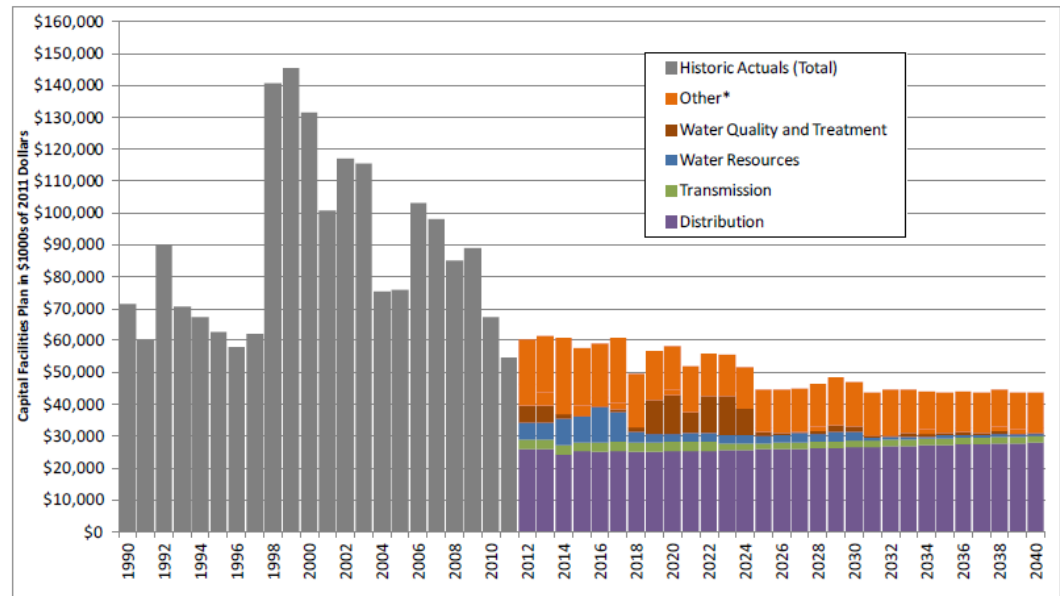
# Agenda

- **How do we plan over the long term?**
- **Water**
  - Future plans
    - Next 6 years
    - Where will we be after that?
- **Drainage & Wastewater**
  - Future plans
    - Next 6 years
    - Where will we be after that?

# CIP Planning

- **Water System Plan, required by regulators**
  - Every 6 years
  - Establishes long-term (decades) CIP spending plan
- **We use “asset management”**
  - A structured way of planning for the long term

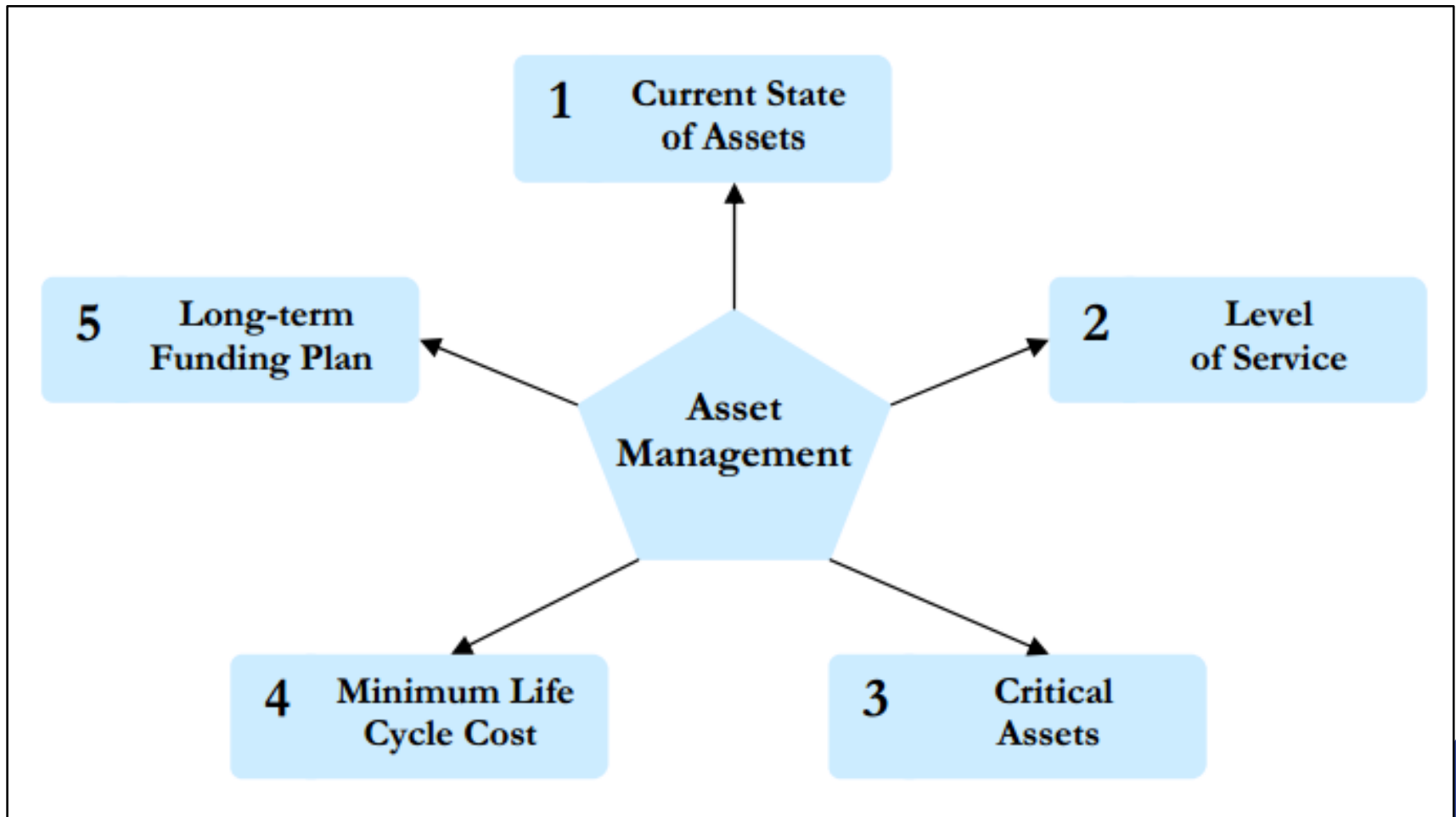
Historic and Proposed Capital Facilities Plan Spending through 2040  
(2012-2017 Adopted CIP, plus 2018 Estimate, in thousands of 2011 dollars)



From 2013  
Water System Plan

\* Other includes Major Watersheds, Fleets, Facilities, Security, Information Technology, SCADA and other miscellaneous projects.

# Asset Management



# Asset Management

- **Discrete assets are easier to manage**
  - Reservoirs, dams, treatment plants, buildings, pump stations
  - Regular inspections provide good data for analysis
- **Distributed assets are much more complex**
  - Water mains of all sizes
  - Hydrants, valves, service lines
  - Not always easy to inspect

# Discrete Assets

Asset	Condition	Certainty	Notes
Cedar Watershed Reservoirs and Dams	Green	Green	
Tolt Watershed Reservoirs and Dams	Green	Green	
Lake Youngs Reservoir and Dams	Yellow	Green	<i>Cascades Dam</i>
Transmission-Area Buildings	Yellow	Green	<i>Older buildings</i>
In-Town Buildings	Yellow	Green	<i>Older buildings</i>
<b>Action Plan 10</b> Buildings	Green	Green	
Water Treatment Plants	Green	Green	
Concrete Reservoirs (Treated Water)	Green	Green	
Steel Water Tanks and Standpipes	Yellow	Green	<i>Coatings, seismic</i>
Water Pump Stations	Green	Green	

# Distributed Assets

Asset	Condition	Certainty	Notes
Cedar Watershed Transportation System	Green	Green	
Tolt Watershed Transportation System	Green	Green	
Water Transmission Pipes and Appurtenances	Yellow	Red	<i>More inspection needed, difficult</i>
Water Distribution Pipes	Yellow	Red	<i>Cannot inspect easily</i>
<b>Action Plan 2 (and refer to next slides)</b>	Yellow	Yellow	<i>More inspection needed, difficult</i>
Water Meters (Wholesale and Retail)	Green	Yellow	<i>Testing frequency</i>
Water Valves	Yellow	Red	<i>Deferred maintenance</i>
Water Hydrants	Yellow	Green	<i>Deferred maintenance</i>

**Action Plan 3**

# Discrete Assets – Treated Water Storage

- **Elevated steel storage – tanks and standpipes**

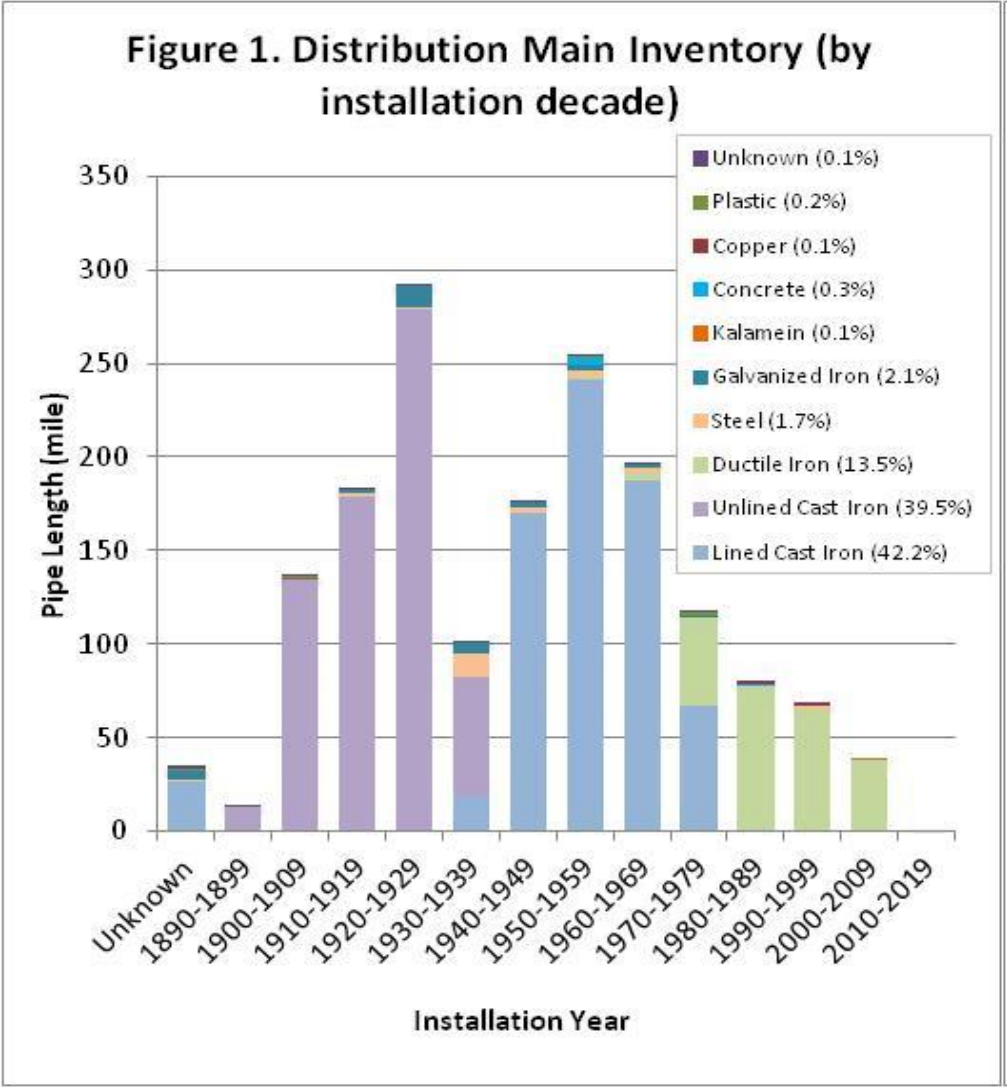


- **Ground level concrete reservoirs**



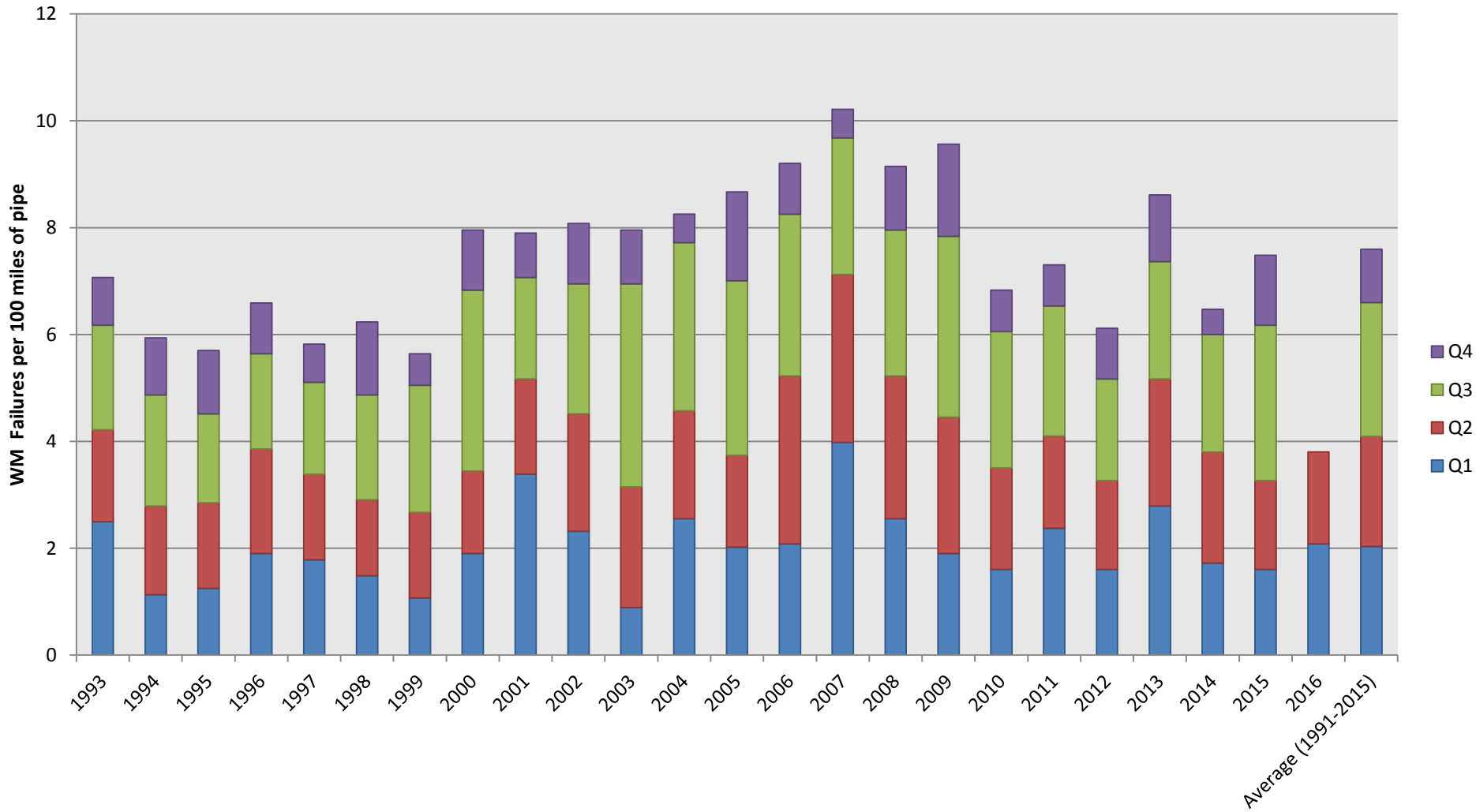


# Distributed Assets - Watermains

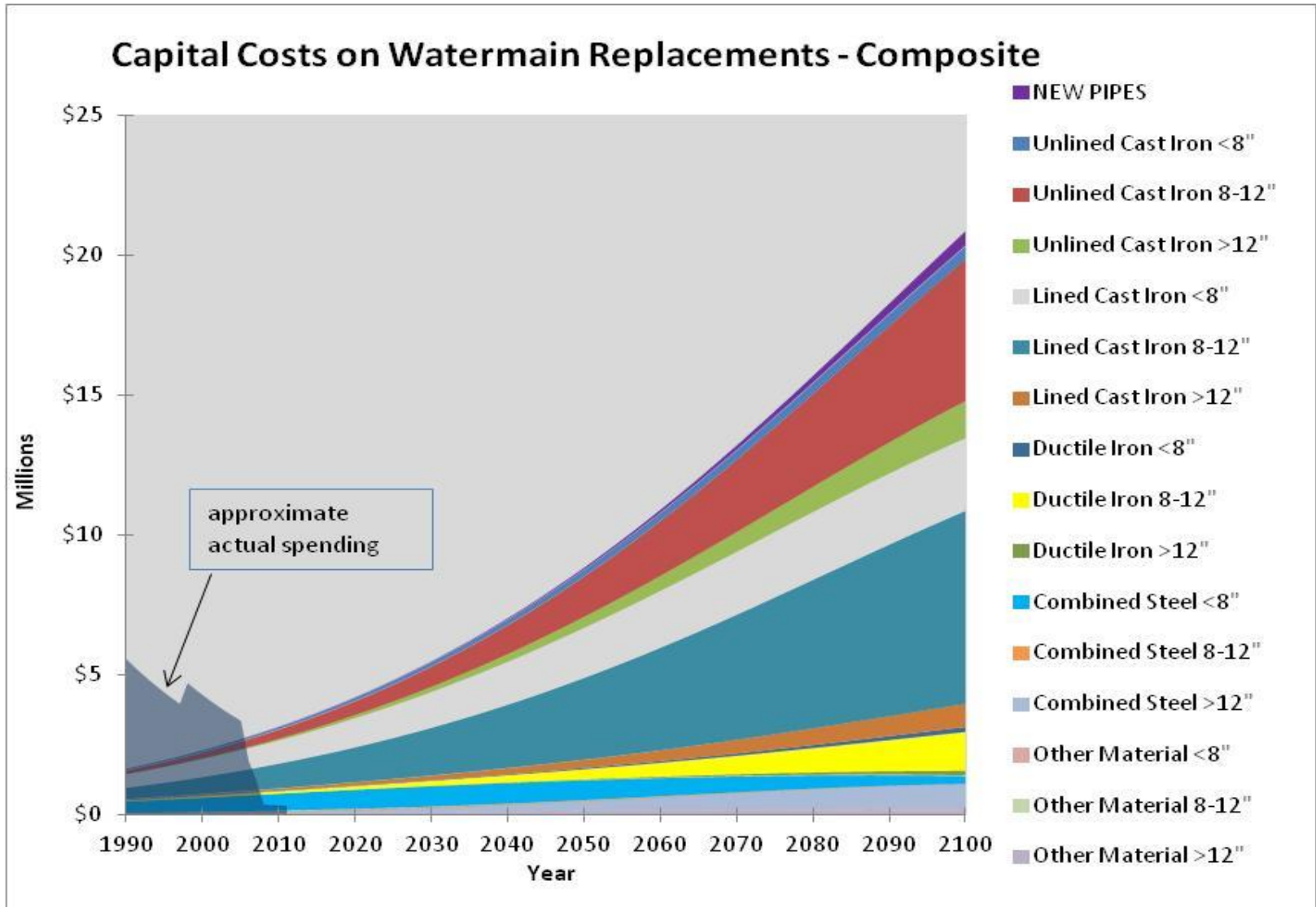


# Data-Driven Decision Making

## Water Main Failures



# Replacement & Renewal Strategy – Long Term



# Other Future Considerations

- **Seismic planning**
- **Climate change / resiliency**
  - Third round of studies underway since 2000

# Next Steps

- **We're working towards a 2019 Water System Plan update**
- **It will contain our CIP projections for the next 20+ years**

# Questions?

# Drainage & Wastewater Assets (1)

Asset Group	Asset Class	Condition	Certainty	Asset Management Plan Status
<b>Wastewater</b>	Wastewater pipe			Updated 2015
	Pump stations and force mains			Updated 2016
	CSO facilities			Starting 2017
	CSO outfalls			Starting 2017
<b>Drainage</b>	Catch basins			Starting 2017
	Stormwater ponds			Starting 2017
	Ditches and culverts			Starting 2017
	GSI, bioretention			Updated 2016
	Stormwater storage & water quality			Not started
	Drainage pipe			Not started

## Drainage & Wastewater Assets (2)

Asset Group	Asset Class	Condition	Certainty	Asset Management Plan Status
<b>Urban Ecosystems</b>	Stream culverts			Started 2017
	Creeks, floodplains and wetlands			Not started
	SPU managed forest areas			Not started
	SPU facility landscapes			Not started
<b>Facilities</b>	Operations complexes, grit and decant facilities			Completed 2016

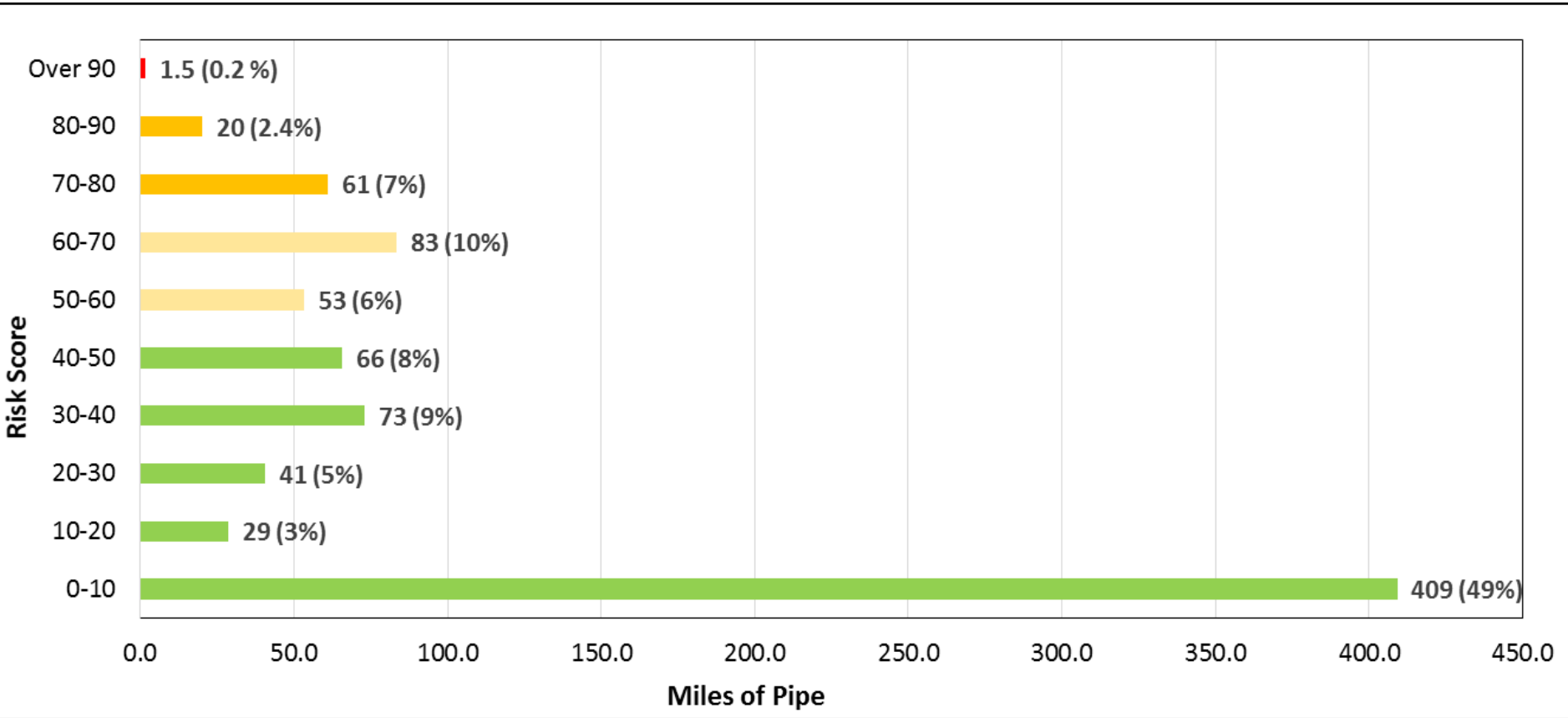


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	Stormwater storage & water quality			Not started
	Drainage pipe			Not started

**Baseline - \$132M**  
**Action Plan 7 - \$26M**

# Wastewater Pipe Risk Profile



In the last 10 years we've inspected about half of the wastewater system (1,400 miles). About 25% of pipes inspected fall into high risk category based on condition as shown above.

# Drainage & Wastewater Assets

Rehabilitation Method	Estimated cost/foot	Pipe rehabilitated with \$1M (ft)
<i>Lining by SPU crew</i>	<\$233	>4,286
Contractor	\$233	4,286
Spot repair by SPU crew	\$5,000	200
Spot repair by Contractor	\$26,667	38
Full line replacement by Contractor	\$1,600	625

**Action Plan 5**

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	Ditches and culverts			Starting 2017
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	Stormwater storage & water quality			Not started
	Drainage pipe			Not started

**Baseline - \$49M**  
**Action Plan 8 - \$10M**

# Drainage & Wastewater Assets (2)

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Urban Ecosystems	Stream culverts			Started 2017
	Creeks, floodplains and wetlands			Not started
	SPU managed forest areas			Not started
	SPU facility landscapes			Not started
Facilities	Operations complexes, grit and decant facilities			Completed 2016

**Action Plan 10**

# Conclusions

By 2023, significant steps forward in the action plan areas, which are our biggest gaps

- Wastewater pipe
- Waster pump stations and force mains
- Facilities

In addition, by 2020, we will have completed Asset Management Plans for all major asset classes, and will have a better sense of any other gaps. New gaps will not be as significant as those above.

# Conclusions

In addition, by 2023 we will have completed

- Wastewater system analysis focused on sewer capacity and sewer overflows
- Drainage system analysis focused on flooding and water quality impacts
- Updated plan for controlling combined sewer overflows

AND an integrated planning effort focused on bringing these elements together for the short (3 year) and long term (50 year). This will include a 10+ year CIP.

# Questions?