

# Clean Water Plan

*Making the Right Investments at the Right Time*

Regional Water Quality Committee

March 3, 2021

Presenters:

Tiffany Knapp, King County Wastewater Treatment Division

Steve Tolzman, King County Wastewater Treatment Division

Elizabeth Lowell, HDR



**Clean Water Plan**

Making the right investments at the right time



**King County**

Department of Natural Resources and Parks  
Wastewater Treatment Division

# Why the Clean Water Plan?



Threats to  
regional water quality



Capacity needs due to  
growing population



Aging infrastructure



Current and expected  
regulations  
(CSO, nitrogen)



Utility rate affordability



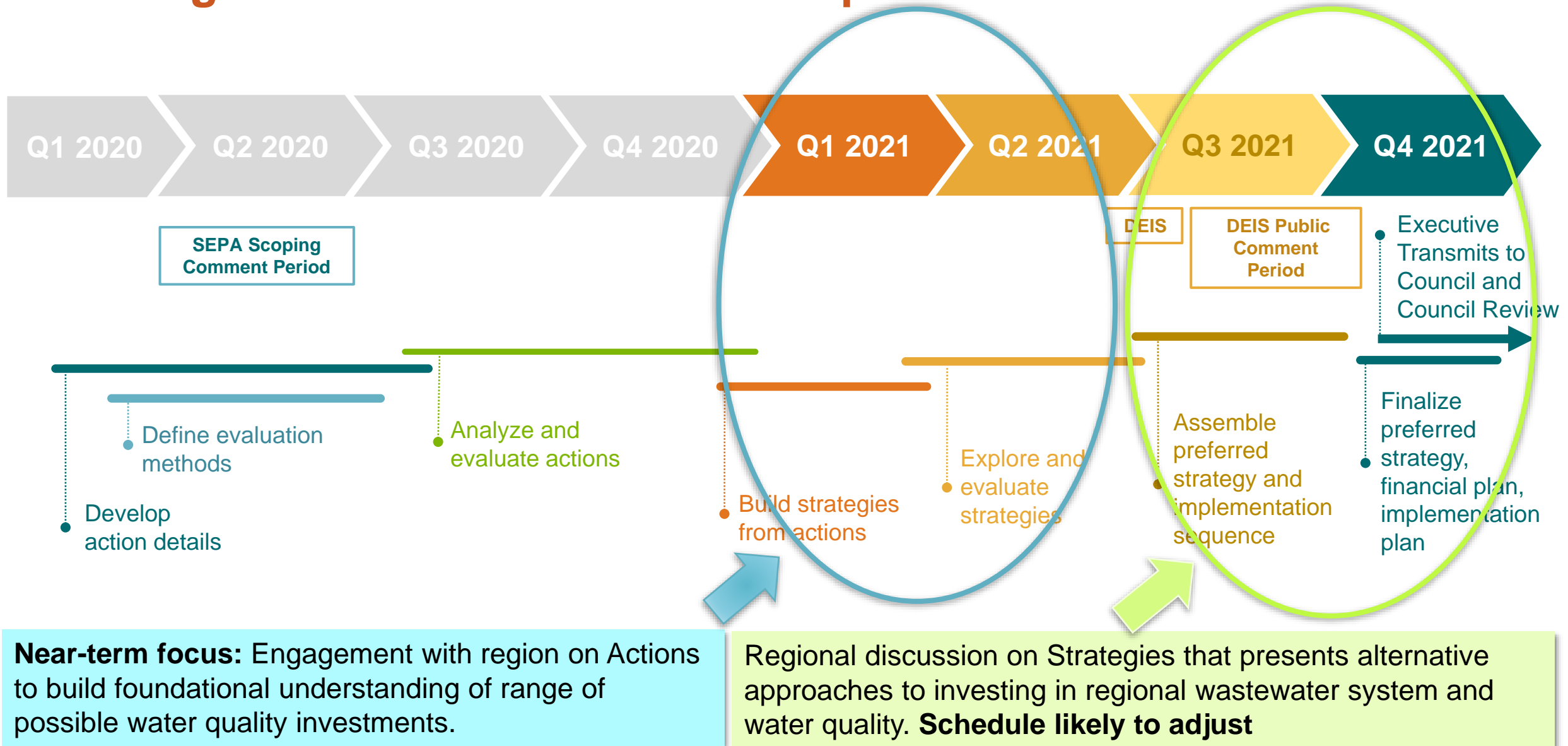
Resiliency  
(climate change,  
natural hazards)

**Core Planning Question:** *What is the most appropriate path to ensure we direct the right public investments to the right actions at the right time for the best water quality outcomes?*

# Clean Water Plan Planning Process Overview



# Planning Process – Timeline and Steps Overview



# **Asset Management, Resiliency, and Redundancy**

## **Introduction and Policy Considerations**

# Our region's large and aging sewer treatment system

**3** REGIONAL  
TREATMENT  
PLANTS



Built in **1965**,  
**1966**, and **2011**

**400** MILES  
OF SEWER PIPES



...enough  
miles for a trip  
to Portland  
and back

Average age: **45 yrs**  
Oldest: **100 yrs**

**47** PUMP  
STATIONS



Average age: **38 yrs**  
Oldest: **86 yrs**

**25** REGULATOR  
STATIONS



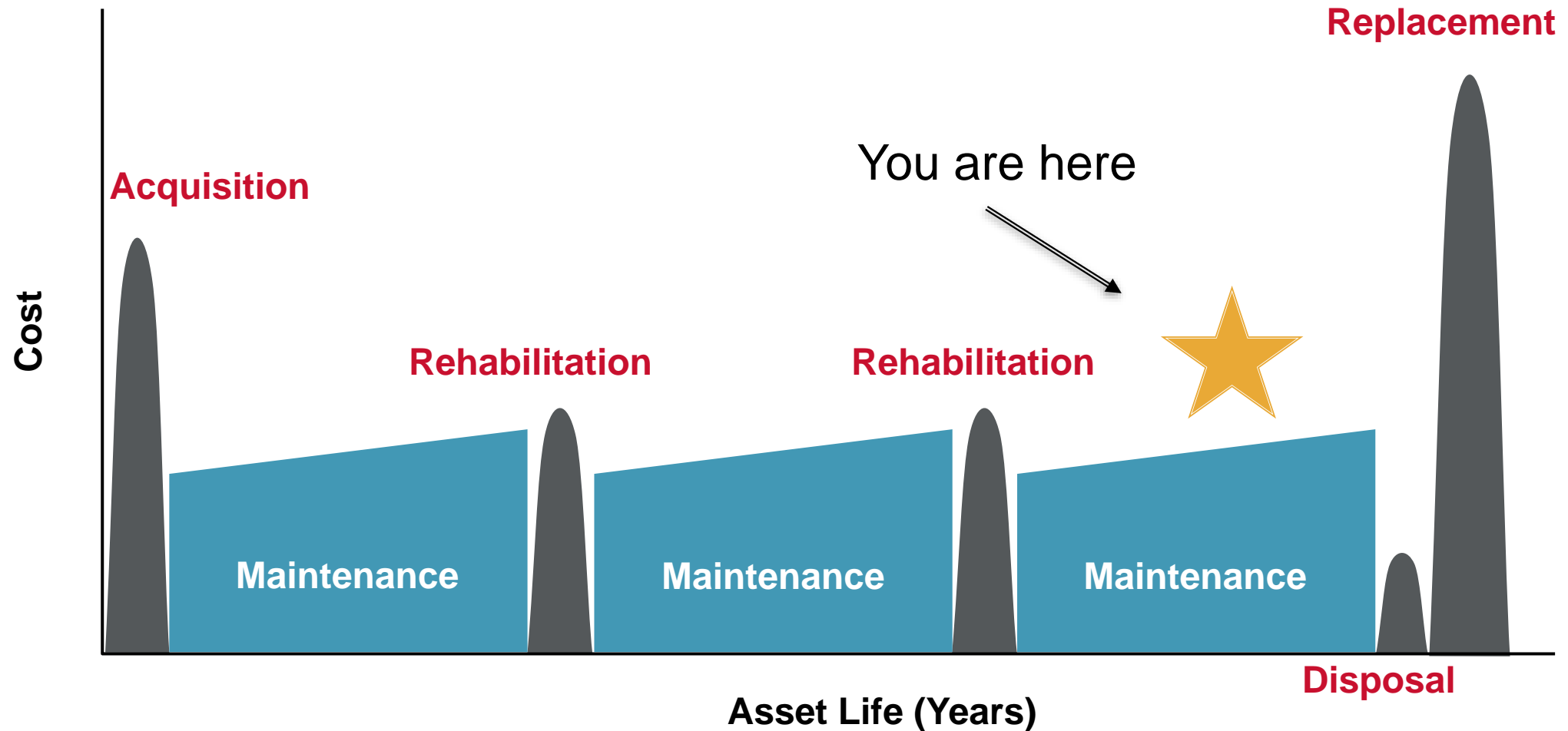
Average age: **40 yrs**  
Oldest: **55 yrs**

**4** WET  
WEATHER  
TREATMENT  
PLANTS




Average age: **35 yrs**  
Oldest: **55 yrs**

# Many of our assets are far along in the management cycle



# Existing Policies

## Metropolitan Functions - King County Code 28.86

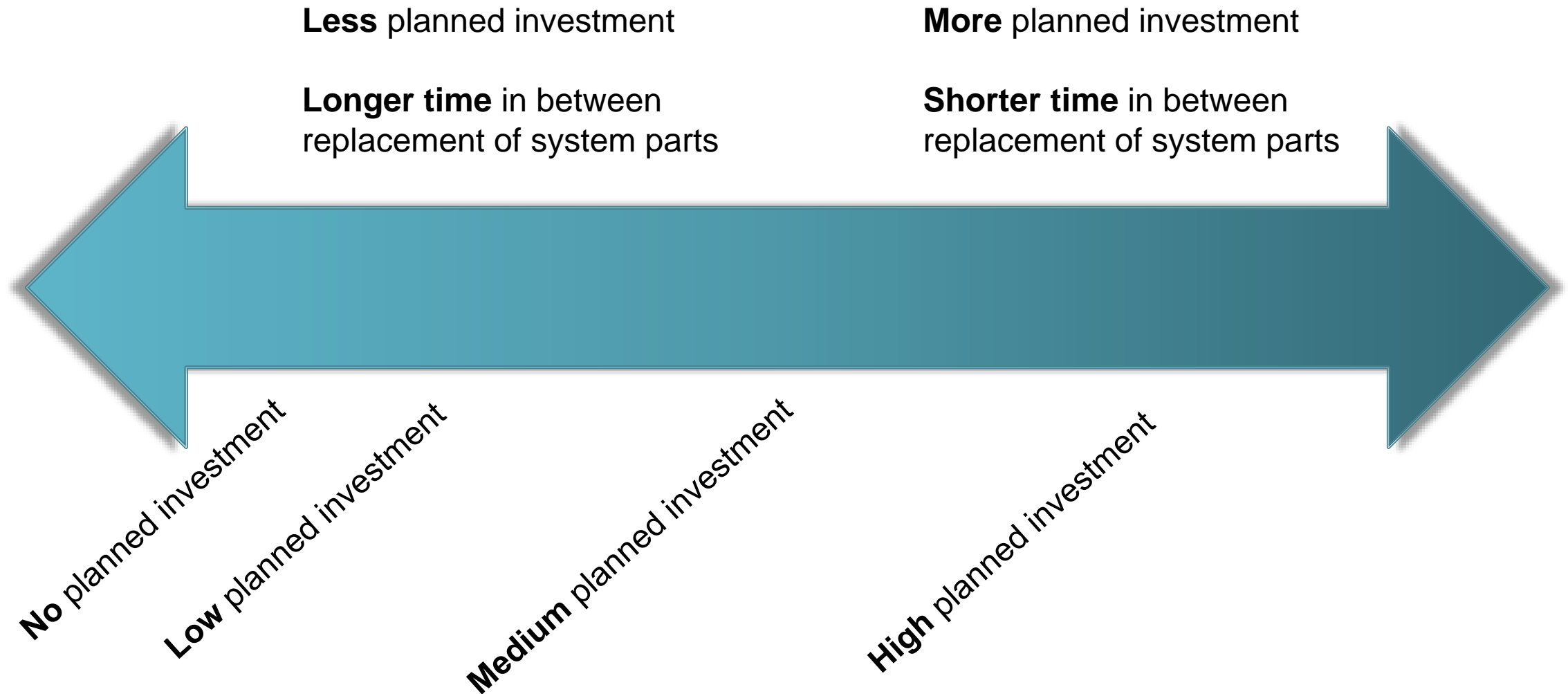
- **Wastewater Treatment**
    - Treatment plant policies (TPP).
    - Conveyance policies (CP).
    - I/I policies (I/IP).
    - Combined sewer overflow control policies (CSOCP).
    - Biosolids policies (BP).
    - Water reuse policies (WRP).
    - **Wastewater services policies (WWSP).**
    - Water quality protection policies (WQPP).
    - Wastewater planning policies (WWPP).
    - Environmental mitigation policies (EMP).
    - Public involvement policies (PIP).
    - Financial policies (FP).
    - Reporting policies.
- 

### Asset Management References

- **WWSP-9:** To ensure the region's multibillion-dollar investment in wastewater facilities, an asset management program shall be established.... to reflect the long-term useful life of wastewater facilities as identified by the asset management program
- **WWSP-10:** The asset management program shall establish a wastewater facilities assets management plan, updated annually, establishing replacement of worn, inefficient and/or depreciated capital assets to ensure continued reliability of the wastewater infrastructure.



# Clean Water Plan is evaluating four re-investment scenarios

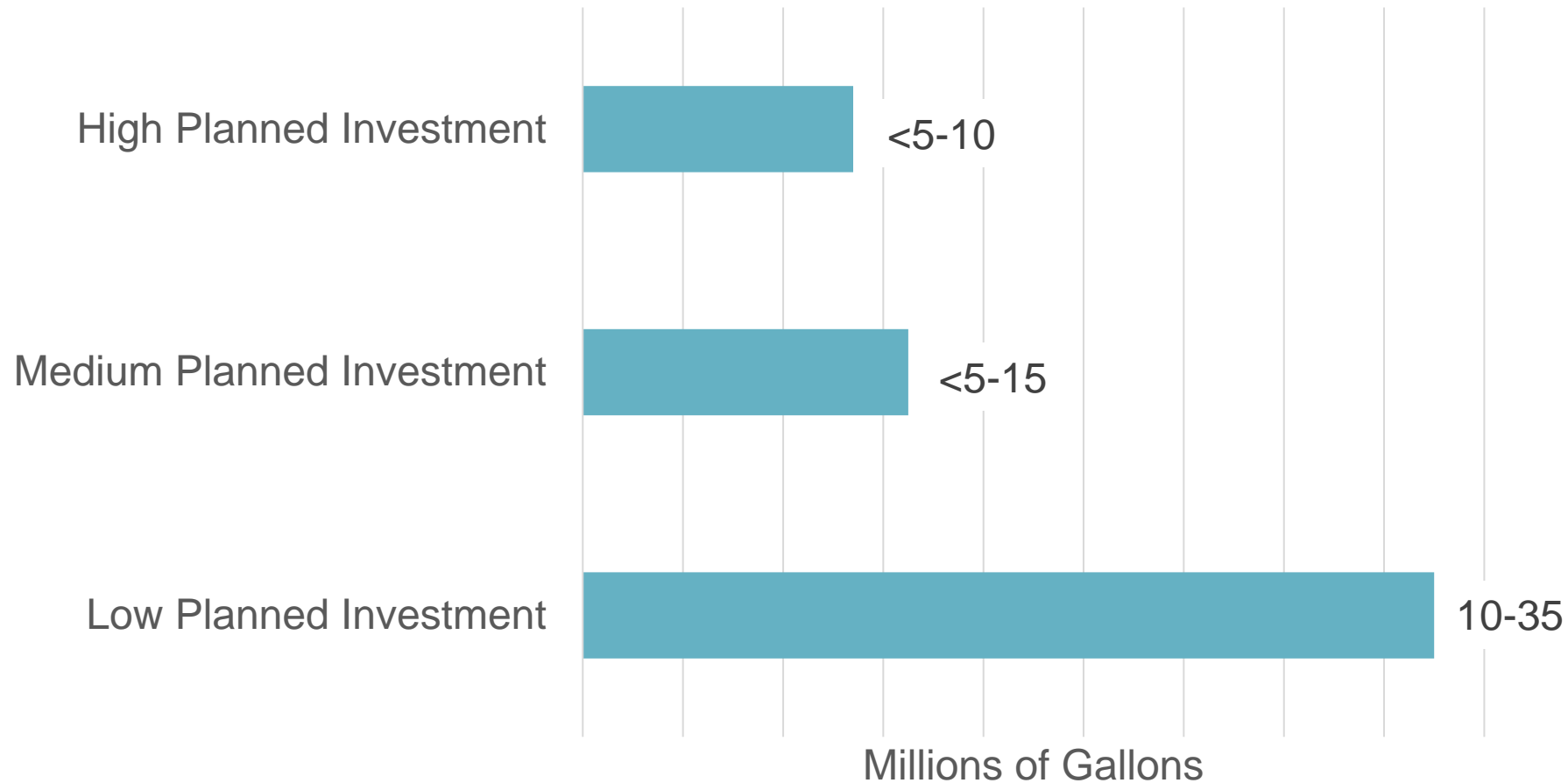


## Assessment of how an action performs under these guidelines and metrics informs policy discussion and decisions

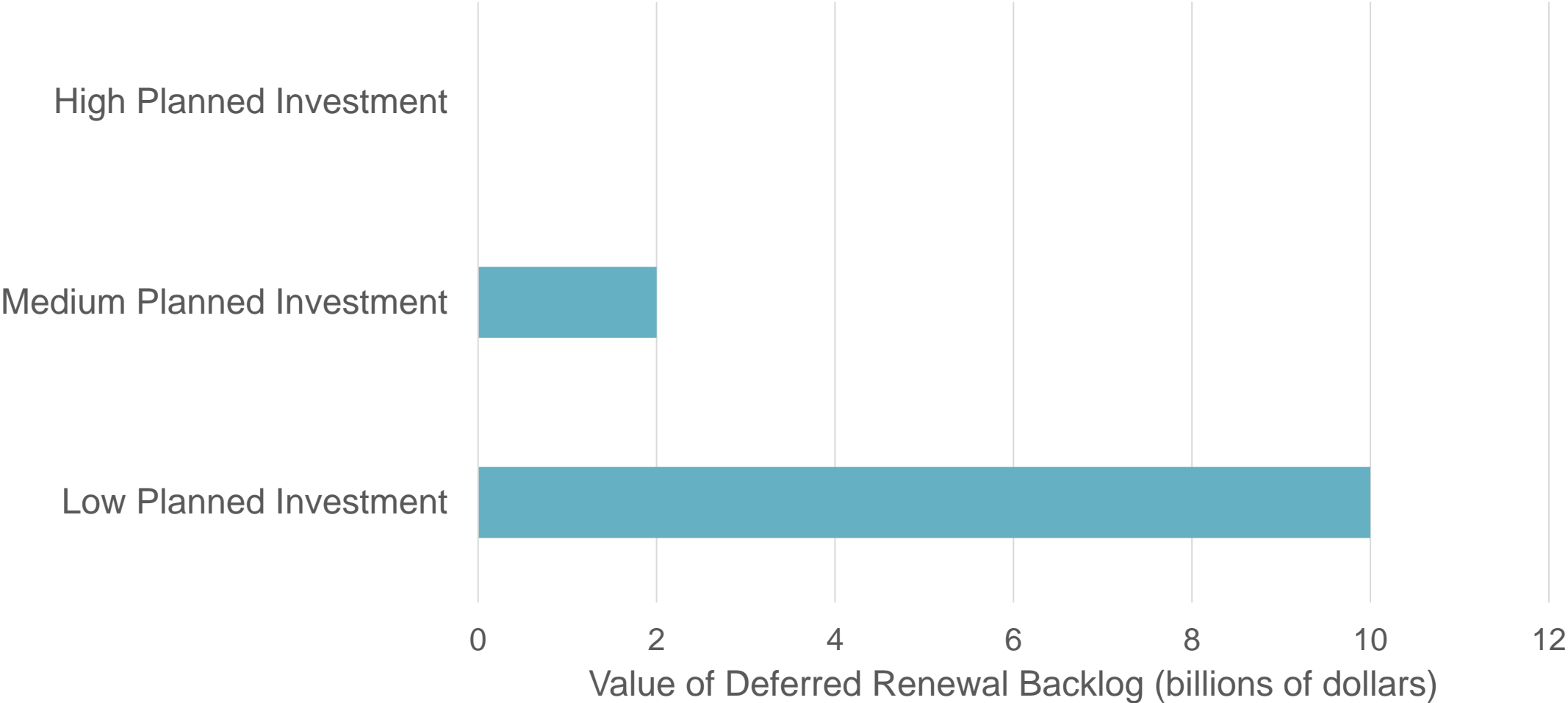
	Planned Investment Rate	Backlog of Need by 2060	Planned vs. Reactive (e.g., 20:80)	Investment Timeline	System Performance	Seismic Performance
No planned infrastructure investment	N/A	\$15B	Maintenance: 20:80 Extra costs due to emergency work: \$15B	No planned spending occurs	Major increases in spills of untreated wastewater	No retrofits to increase resiliency
Low planned infrastructure investment	Up to 1% of total system value	\$10B	Maintenance: 55:45 Extra costs due to emergency work: \$3B	Total value of system re-invested in 140-150 years through planned spending	Increases in spills of untreated wastewater	Retrofits only in combination with other replacements
Medium planned infrastructure investment	Up to 2% of total system value	\$2B	Maintenance: 70:30 Extra costs due to emergency work: \$100M	Total value of system re-invested in 50-60 years through planned spending	Spills of untreated wastewater stay the same	All critical infrastructure retrofitted by 2045
High planned infrastructure investment	Over 2% of total system value	\$0	Maintenance: 80:20 Extra costs due to emergency work: \$20M	Total value of system re-invested in 46-50 years through planned spending	Spills of untreated wastewater go down	All critical infrastructure retrofitted by 2035

# Spill volumes impact water quality – the greater the spill volumes, the more pollution

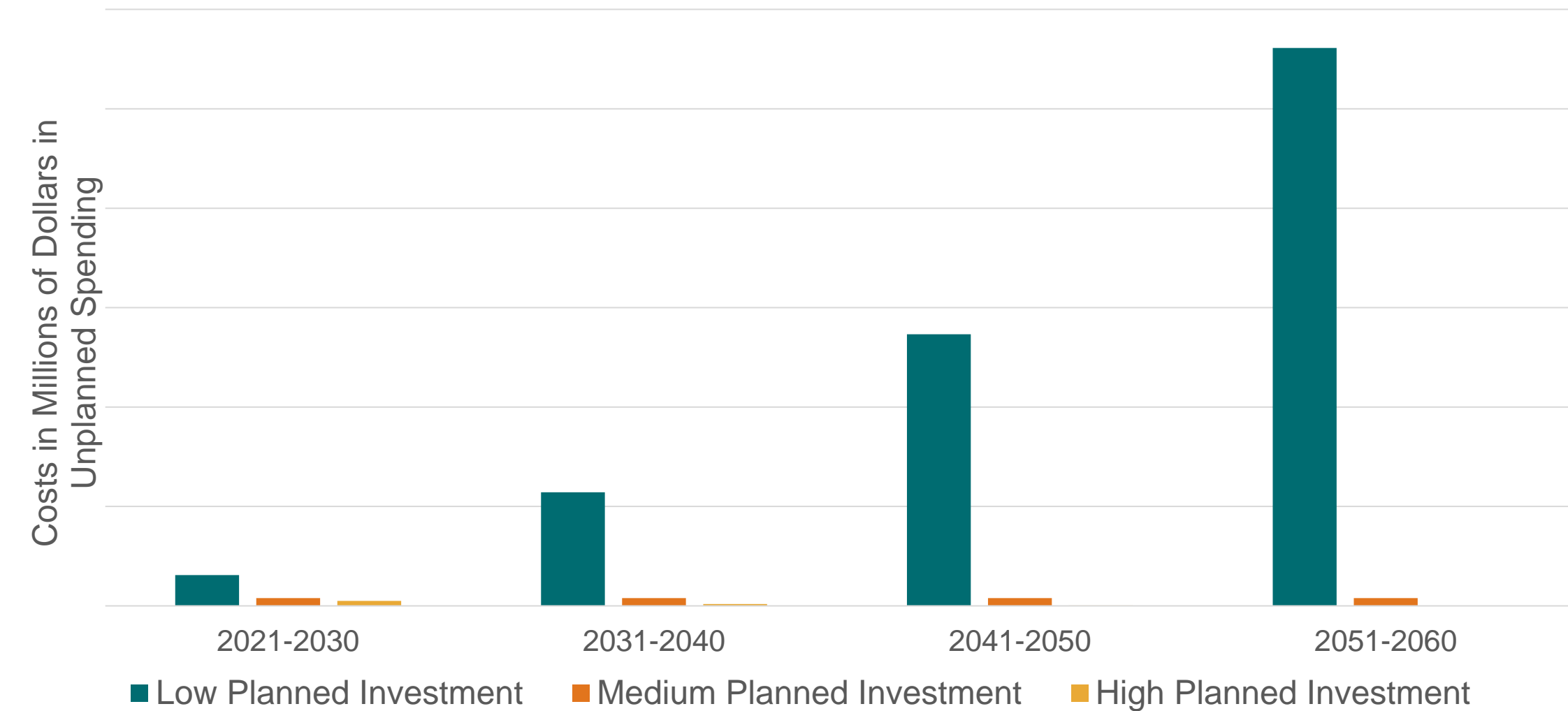
Projected Spill Volumes per Year



# Cost Over Time: With less planned investment, backlog of deferred renewal grows over time



# Cost Over Time: With less planned investment, *unplanned* spending goes up over time



# Re-investment helps us manage risk



# How can re-investment be made more equitable?



**Where are we re-investing?  
Which communities will be impacted?**



**In which communities do we re-invest  
first?**



# We have identified the following equity outcomes for different levels of system re-investment:

- Water quality
- Resilience
- Community

SALTWATER				Duwamish River	Elliott Bay	Puget Sound in King County
Chum Salmon Dog's Salmon, Keta	Pink Salmon Humpie, Humpback Salmon	Coho Salmon Dog's Salmon, Keta	Sockeye Salmon/Kokanee Red Salmon, Silver Trout			
BOTTOM FLATFISH INCLUDE:						
Starry Flounder	Rock Sole	English Sole				
<b>Fish Consumption Advice</b> Healthy to eat, 8-12 meals per month Limit to 1-4 meals per month DO NOT EAT due to high levels of toxic chemicals <b>One Serving (Meal) Size</b> Adult  Child <small>* May be found here</small>						
Pacific Herring	Blackmouth Salmon Resident Chinook caught during winter					
Dungeness Crab	Red Rock Crab					
Mussels	Clams					
	Chinook Salmon King, Type					
	Shiner Perch					
	Rockfish					
	Spot Prawns					
	Squid					

Duwamish Program's  
**FUN TO CATCH,  
TOXIC TO EAT**

Public Health-Seattle & King County  
Environmental Health  
Services Division  
401 5th Avenue, Suite 1100  
Seattle, WA 98104  
206-263-0906  
duwamish@kingcounty.gov

[www.kingcounty.gov/duwamish-fishing](http://www.kingcounty.gov/duwamish-fishing)

**FUN TO CATCH  
TOXIC TO EAT**

THE ONLY DUWAMISH SEAFOOD SAFE TO EAT IS SALMON  
Loại hải sản an toàn nhất để ăn từ sông Duwamish là cá hồi  
El único pescado del río Duwamish que es seguro para comer es el salmón



# Clean Water Plan Asset Management Policy Considerations

## Anticipated policy discussions:

- Updates to policies to reflect the established asset management program
- Level of investment in redundancy (e.g., back-up power systems) and resiliency (e.g., facility seismic protection)
- Guidance on acceptable level of service and risk of failure and resulting consequences (e.g., sewage overflow), and acceptable balance between planned and emergency spending

# Questions?

# Upcoming Opportunities to Engage in the Clean Water Plan

# 2021 Activities Include

- **Monthly RWQC Discussion**
- **Elected Officials Workshops (scheduling in progress)**
- **Technical Workshops on Actions (April and May)**
  - **Wastewater Treatment**
  - **Wastewater System Operations and Health**
  - **Wet Weather Management**
- **Technical Document on the Actions (April)**
- **Development, evaluation, and regional discussion of Strategies (policy considerations and program direction alternatives)**
  - **Engagement opportunities through workshops and other methods**
  - **SEPA Review – Draft Environmental Impact Statement**

# Planned 2021 RWQC Discussions

- **April 7 Meeting: Wastewater Treatment Actions**
- **May 5 Meeting: Wet Weather Management Actions**
- **June 2 Meeting: Wastewater Conveyance, Resource Recovery, Legacy Pollution, and Pollution Source Control Actions**
- **July – December: TBD**

# Thank you!

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King County Wastewater Treatment Division  
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# Clean Water Plan Process Refresher

# Clean Water Plan Planning Process Overview





# Actions are Building Blocks for Strategies



**A specific program or set of projects that addresses one of the Decision Areas.**

Actions are not standalone solutions but building blocks that will be shaped and combined in different ways to form Strategies.

**Today's Discussion**



**A group of multiple Actions.**

Each strategy reflects a complete water quality investment approach the County could take for water quality and the regional wastewater system.