

# King County Clean Water Plan

## MWPAAC Monthly Briefing



October 28, 2020

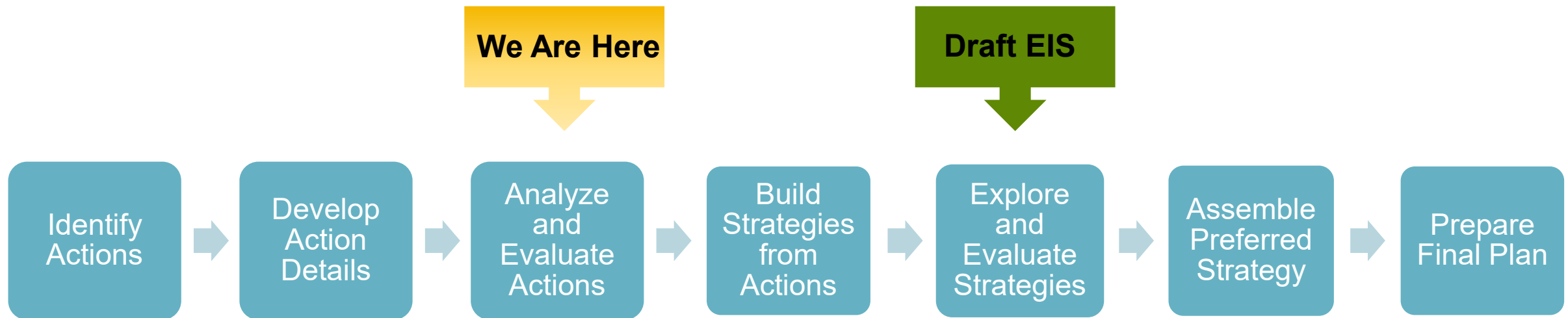
**Clean Water Plan**  
Making the right investments at the right time

 **King County**  
Department of Natural Resources and Parks  
Wastewater Treatment Division

## 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?*

## Planning Process



## October Briefing Topics

- **Initial action evaluation findings**
  - Asset management
  - Conveyance
- **Building Strategies from Actions**
- **MWPAAC Clean Water Plan Technical Advisory Taskforce Report by Gary Schimek, City of Redmond**

# Action Analysis: Overview of Preliminary Findings

## Today's Briefing:

- **Asset Management, Resiliency, and Redundancy**
- **Wastewater Conveyance**

### Decision Area: Wastewater Treatment

#### Actions for Exploration:

- Status Quo Treatment
- Nutrients – Individual Discharge Permits
- Nutrients – Single Bubble Permit Across Discharges
- Nutrient Trading – Multiple Source Discharge Management
- Advanced Treatment for WTD Treatment Plants
- Decentralized Satellite Treatment Plants
- Building Scale Decentralized Treatment
- Decentralized Combined CSO/Wastewater Treatment
- Status Quo Onsite Septic System Program
- Expanded Onsite Septic System Program

### Decision Area: Wet Weather Management

#### Actions for Exploration:

- Status Quo CSO Program
- Modified Approaches to CSO Control
- Expanded Stormwater Treatment at Existing Facilities
- Stormwater Treatment at New Facilities
- Stormwater Retrofit Fund – Regional Collaboration

### Decision Area: Pollution Source Control/ Product Stewardship

#### Actions for Exploration:

- Status Quo Source Control Program
- Expanded Pollution Elimination and Control Focus
- State/Federal Requirements Source Control Approach

### Decision Area: Asset Management, Resiliency, and Redundancy

#### Actions for Exploration:

- Run to Failure Asset Management
- Low Level Asset Management Investment
- Medium Level Asset Management Investment
- High Level Asset Management Investment
- Adaptive Sea Level Rise

### Decision Area: Resource Recovery

#### Actions for Exploration:

- Status Quo Biosolids and Energy Program
- Enhanced Biosolids and Energy Program
- Advanced Biosolids and Energy Program

### Decision Area: Wastewater Conveyance

#### Actions for Exploration:

- Status Quo Conveyance
- 5-year Conveyance Level of Service
- Inflow and Infiltration – Point of Sale Inspections
- Inflow and Infiltration – Peak Flow Standards
- Smart Utility – Data Driven, Real Time Control

### Decision Area: Legacy Pollution

#### Actions for Exploration:

- Status Quo Sediment Management
- Far Reaching Legacy Pollution Program
- Accelerated Sediment Management

## Wastewater Treatment

Discharge Permits  
Multiple Permit Across Discharges  
Multiple Source Discharge Management  
To Reduce Effluent Discharge  
Treatment Plants  
Centralized Treatment  
Advanced CSO/Wastewater Treatment  
Automated System Program  
Advanced System Program

## Weather Management

Program  
To CSO Control  
Treatment at Existing Facilities  
at New Facilities  
and – Regional Collaboration

## Point Source Control/ Product

Control Program  
Elimination and Control Focus  
Advanced Source Control Approach

### Decision Area: Asset Management, Resiliency, and Redundancy

#### Actions for Exploration:

- High Level Asset Management Investment
- Medium Level Asset Management Investment
- Low Level Asset Management Investment
- Run to Failure Asset Management
- Adaptive Sea Level Rise

### Decision Area: Resource Recovery

#### Actions for Exploration:

- Status Quo Biosolids and Energy Program
- Enhanced Biosolids and Energy Program

### Decision Area: Wastewater Conveyance

#### Actions for Exploration:

- Status quo conveyance (20-year level of service)
- Five-year conveyance level of service (reduced investment)
- Inflow and Infiltration – Point of Sale Inspections
- Inflow and Infiltration – Peak Flow Standards
- Smart Utility – Data Driven, Real Time Control

### Decision Area: Legacy Pollution

#### Actions for Exploration:

- Status Quo Sediment Management
- Far Reaching Legacy Pollution Program
- Accelerated Sediment Management

## Decision Area: Asset Management, Resiliency, and Redundancy

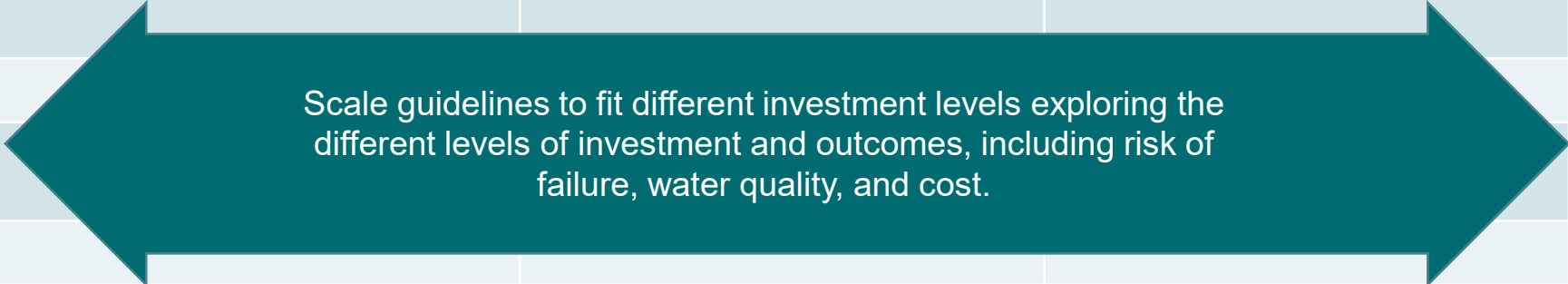
Under this decision area, five actions are being evaluated. Today, we will focus on three actions:

- High Level Asset Management Investment
- ★ Medium Level Asset Management Investment
- ★ Low Level Asset Management Investment
- ★ Run to Failure Asset Management
- Adaptive Sea Level Rise

## Asset Management, Resiliency, and Redundancy: Asset Management Actions Discussed Today

Asset management refers to the maintenance and care of facilities and infrastructure. These maintenance and care activities are essential to avoid system failures. There are an estimated 55,000 assets in the asset registry for the regional wastewater system. These assets comprise the major facilities.

- 3 regional and 2 community wastewater treatment facilities
- 4 Wet Weather Treatment Facilities
- 400 miles of pipe; 48 pump stations; 25 regulator stations

Guideline	Medium Level of Asset Management Investment	Low Level of Asset Management Investment	Run to Failure Asset Management
Annual Maintenance Spending	 <p>Scale guidelines to fit different investment levels exploring the different levels of investment and outcomes, including risk of failure, water quality, and cost.</p>		
Renewal Investment Rate			
Percent Proactive and Break in Work			
Maintenance Backlog			

# Initial Findings

Asset Management, Resiliency, and Redundancy

Evaluation Category		Low Level Investment	Medium Level Investment	Run to Failure
Water Quality	Short Term Impacts	Isolated, geographically dispersed	Isolated, geographically dispersed	Isolated, geographically dispersed
	Long Term Impacts	Under Development	Under Development	Under Development
Cost	Capital	Under Development	Under Development	Under Development
	Lifecycle	Under Development	Under Development	Increasing
Mgmt & Ops	Failures & Associated Overflows	Infrequent, increasing occurrence	Infrequent, steady or decreasing occurrence	Increasing occurrence trending towards frequent
	Earthquake Resiliency*	Medium risk	Least risk	Most risk
Community		Isolated, negatively impactful for households affected	Isolated, negatively impactful for households affected	Isolated, negatively impactful for households affected
Sustainability		N/A <1% Total Energy Use	N/A <1% Total Energy Use	N/A <1% Total Energy Use

### Wastewater Treatment

Discharge Permits  
Multiple Permit Across Discharges  
Multiple Source Discharge Management  
To Reduce Effluent Discharge  
Treatment Plants  
Centralized Treatment  
Advanced CSO/Wastewater Treatment  
Automated System Program  
Sewer System Program

### Weather Management

Program  
To CSO Control  
Treatment at Existing Facilities  
at New Facilities  
and – Regional Collaboration

### Point Source Control/ Product

Control Program  
Elimination and Control Focus  
Sewer System Source Control Approach

### Decision Area: Asset Management, Resiliency, and Redundancy

Actions for Exploration:

- High Level Asset Management Investment
- Medium Level Asset Management Investment
- Low Level Asset Management Investment
- Run to Failure Asset Management
- Adaptive Sea Level Rise

### Decision Area: Resource Recovery

Actions for Exploration:

- Status Quo Biosolids and Energy Program
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### Decision Area: Wastewater Conveyance

Actions for Exploration:

- Status quo conveyance (20-year level of service)
- Five-year conveyance level of service (reduced investment)
- Inflow and Infiltration – Point of Sale Inspections
- Inflow and Infiltration – Peak Flow Standards
- Smart Utility – Data Driven, Real Time Control

### Decision Area: Legacy Pollution

Actions for Exploration:

- Status Quo Sediment Management
- Far Reaching Legacy Pollution Program
- Accelerated Sediment Management

## Decision Area: Wastewater Conveyance

Under this decision area, five actions are being evaluated. Today, we will focus on two actions:



- Status Quo Conveyance (20-year level of service)
- 5-year Conveyance Level of Service (reduced level of service)
- Inflow and Infiltration – Point of Sale Inspections
- Inflow and Infiltration – Peak Flow Standards
- Smart Utility – Data Driven, Real Time Control



## Wastewater Conveyance: Conveyance Actions Discussed Today

The regional wastewater conveyance system is comprised of more than 350 miles of pipe and 40 pump stations. The conveyance system transports wastewater produced at homes and businesses in WTD's separated sewer area to treatment plants for proper treatment. Without the conveyance system, wastewater would be on the ground and in local surface waters, threatening public health and the environment.

### 20 year peak flow capacity level of service (status quo)

- ▶ The regional wastewater system improvements that King County carries out result in a system that is sized to accommodate a 20 year peak flow.
- ▶ The 20 year peak flow has a 5% chance of occurring in any given year.
- ▶ Accommodating a 20 year peak flow is one of the highest design standards for sewer capacity in the nation.

### 5 year peak flow capacity level of service (reduced level of service)

- ▶ Explores a lower sewer capacity standard that would result in a system sized to accommodate a 5 year peak flow.
- ▶ The 5 year peak flow has a 20% chance of occurring in any given year.

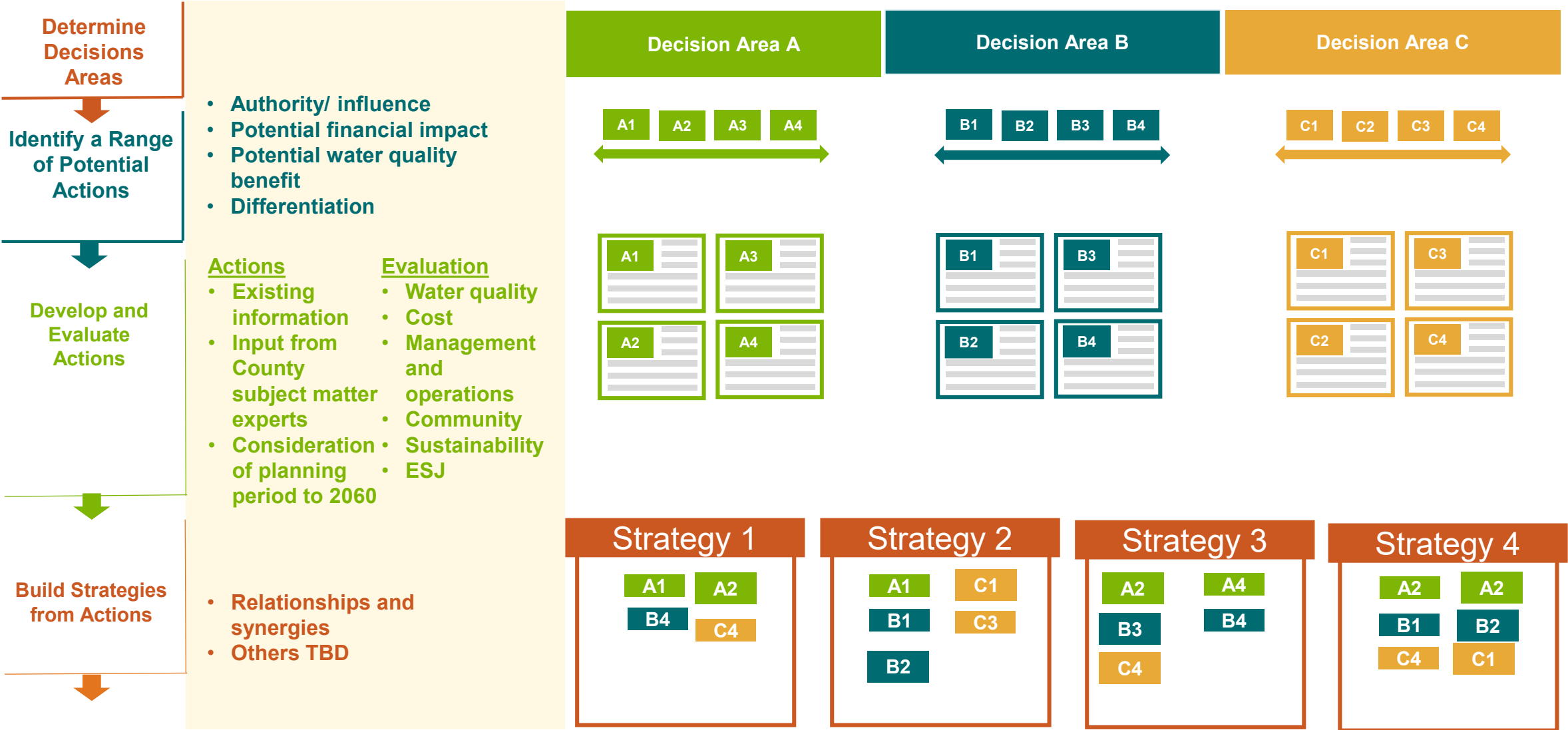
# Initial Findings

## Wastewater Conveyance

Evaluation Category		20 Year Level of Service	5 Year Level of Service
Water Quality	Short Term Impacts	<b>Isolated, geographically dispersed</b>	<b>Isolated, geographically dispersed</b>
	Long Term Impacts	Under Development	Under Development
Cost	Capital	<b>\$1.5 to \$5.5 billion through 2060</b>	<b>\$600 to \$2.3 billion through 2060</b>
	Lifecycle	Under Development	Under Development
Mgmt & Ops	Failures & Associated Overflows	<b>Infrequent, 5% chance any given year</b>	<b>Infrequent, 20% chance any given year</b>
	<b>Community*</b>	<b>Isolated, negatively impactful for households affected</b>	<b>Isolated, negatively impactful for households affected</b>
	<b>Sustainability*</b>	<b>Higher Energy Use</b>	<b>Lower Energy Use</b>

# Building Strategies from Actions

## Overview of Conceptual Flow & Planning Considerations



## Strategy Exploration

Features currently under consideration by the Clean Water Plan Team for each strategy include the following:

- “Complete package” of investments (programs, projects, and policies)
- Range of the decision areas
- Distinctive from each other
- Account for existing and anticipated future obligations (e.g., regulations)
- Reveal the water quality performance (including type, magnitude, location, and timing)
- Reveal ecosystem and sustainability benefits
- Provide contribution to addressing Equity and Social Justice determinants
- Programmatic financial resource needs and time period
- Policy considerations (e.g., enhanced regional collaboration, alterations to current policy, etc.).

## MWPAAC Clean Water Plan Technical Advisory Taskforce Report

**Last Meeting:** October 7

**Next Meeting:** December (date TBD)

**Members:**

Jack Broyles, Woodinville Water District

Mike Johnson, Cross Valley Water District

Josh Pantzke, City of Kirkland

Gary Schimek, City of Redmond

Leslie Webster, Seattle Public Utilities

Kyle Wong, Sammamish Plateau Water

# MWPAAC Clean Water Plan Technical Advisory Taskforce Report

## •Meeting Format

- The Taskforce did not have any required technical review “homework” assignments prior to the meeting; we were in listening mode and commented directly during the discussion

## •Brief Review of Previous Sessions

- Summary of Taskforce Input on Actions
- Actions Development Context (i.e. what is included on the one-pager)
- Project schedule

## •Presentation and Discussion

- Actions Development Status Report
- Actions Preliminary Findings (Wastewater Treatment and Asset Management Decision Areas)

## • Looking Forward

- Building Strategies from the Actions – Generalized Concept

## MWPAAC Clean Water Plan Technical Advisory Taskforce Report

### • **Asset Management, Resiliency and Redundancy Decision Area - - Initial Findings**

- Focused on 3/5 actions (medium level approach, low level approach, and run to failure approach)
- Reviewed WQ short term impacts, M&O, and community/sustainability findings.
- All findings were qualitative at this point; no information on cost was ready to share.

### • **Wet Weather Decision Area - - Initial findings**

- Focused on 2/5 actions (expanded stormwater treatment (existing) and stormwater treatment (new))
- Presented the action development, water bodies, and sustainability findings.
- All findings were qualitative; no information on cost or pollutant loading.

### • **Wastewater Treatment Decision Area - - Initial findings**

- Focused on 3/10 actions (Nutrients - individual & bubble permit and Advanced Treatment)
- Presented the action development, water quality pollutant removal, and sustainability findings.
- Gross loading data was shared for WQ; no information on cost was ready to share.

## MWPAAC Clean Water Plan Technical Advisory Taskforce Report

- **Next meeting is in December**
- **Focus will be a continuation of preliminary findings from action analysis and updated approach to building strategies**
- **Taskforce expects “homework” assignments to ramp up when detailed results are ready for actions and for comparison of strategies vs strategies.**
- **Questions for your Taskforce Members?**



# Discussion

Thank you!

Steve Tolzman, Program/Project Manager, 206.477.5459 or [steve.tolzman@kingcounty.gov](mailto:steve.tolzman@kingcounty.gov)



*Clean Water Plan*

Making the right investments at the right time



**King County**

Department of Natural Resources and Parks  
Wastewater Treatment Division