DATE: November 12, 2025

TO: Clean Water Services Advisory Commission Members and Interested Parties

FROM: Elizabeth Edwards, Chief of Staff

SUBJECT: **INFORMATION FOR NOVEMBER 12, 2025, CWAC MEETING**

A Clean Water Services Advisory Commission (CWAC) meeting is scheduled for **Wednesday, November 12, 2025.** The meeting will be in a hybrid format at the **CWS Central Building in Beaverton** and on Zoom. The meeting will begin at 6:30 p.m.

Meeting location:

- **In person in the** Central Large Conference Room at the CWS Central Building, 15195 NW Greenbrier Parkway in Beaverton.
- **Online via Zoom.** Zoom offers the option to connect to video, slides, and audio via a device with internet access, or an audio-only connection through any telephone line.
  - Interested parties should register for this meeting by November 10 by following the instructions on the website.
  - Please plan to establish your connection to the meeting 10-15 minutes before the 6:30 p.m. start time to allow the meeting to begin promptly.

Dinner will be served at 5:30 p.m. for CWAC members attending in person. CWAC members should notify Katie Cheney **(**CheneyK@CleanWaterServices.org **503.681.5116)** by Monday, November 10, **if you are unable to attend or if you plan to attend via Zoom** so food is not ordered for you.

The CWAC meeting packet will be emailed to CWAC members and posted to the CWAC section of the Clean Water Services' website.

Enclosures in this packet include:

- November 12, 2025, agenda and other materials
- October 8, 2025, meeting summary

Clean Water Services Advisory Commission

November 12, 2025
AGENDA

6:30 p.m. **Welcome and Introductions**

6:45 p.m. **Design & Construction Standards - Stormwater Revisions**
Staff will describe the proposed plan and timeline for targeted revisions to the Design and Construction Standards, which are needed to align with the updated watershed-based National Pollutant Discharge Elimination System (NPDES) permit issued in December 2022. The updated Permit requires incorporating specific stormwater practices by November 1, 2026. While Clean Water Services maintains comprehensive stormwater management standards for new and redevelopment projects, limited updates are necessary to ensure full permit compliance.

- Damon Reische, Planning & Development Services Division Manager

Requested action: *Informational/discussion item*

7:00 p.m. **NPDES Permit Renewal and Plan**
Staff will provide an overview of how CWS is preparing a renewal application for the NPDES permit and present the Long-Term Regulatory Compliance Strategic Roadmap (copies provided).

- Julia Crown, Water Resources Analyst
- Jamie Hughes, Compliance Operations Manager
- Laura Porter, Business Practice Leader 1
- Peter Schauer, Research and Innovation Services Manager

Requested action: *Informational/discussion item*

8:15 p.m. **Invitation for Public Comment**

8:20 p.m. **Announcements**

8:30 p.m. **Adjourn**

Next meeting: **January 14, 2026**

Design & Construction Standards: Stormwater Revisions

Damon Reische, Planning & Development Services Division Manager

Clean Water Services Advisory Commission
November 12, 2025

Presentation Overview

1. Background and drivers
2. Scope and timeline
3. Anticipated stakeholder interests
4. Board considerations

Watershed-Based Permit and the D&C Standards

1. Municipal Separate Storm Sewer System (MS4)
   a. Stormwater management control measures
   b. Post-construction site runoff for new development and redevelopment
2. Design & Construction Standards
   a. Sanitary and stormwater conveyance
   b. Stormwater management facilities
   c. Vegetated corridors
   d. Erosion control
   e. Pump stations

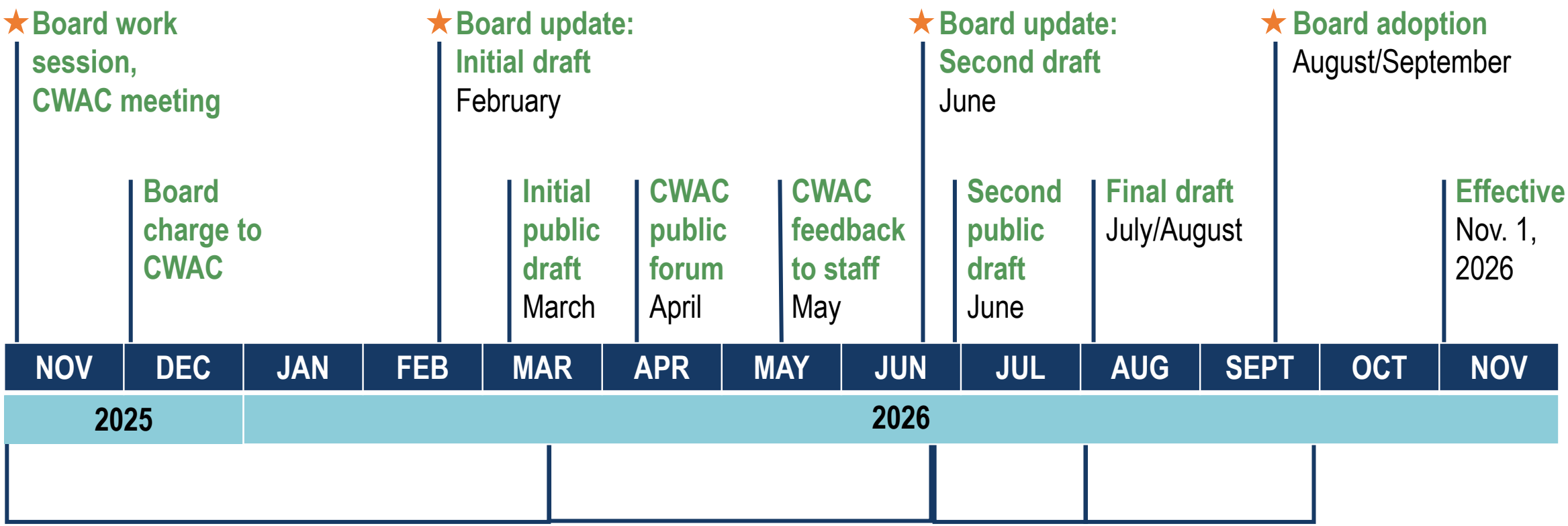
Driver for Revisions

1. Why now?
   a. Align Standards with MS4 permit requirements
   b. Deadline to complete by November 1, 2026
2. Changes needed for compliance
   a. Prioritize onsite retention or local/regional retention of stormwater and pollutant removal including developing design storm
   b. Prioritize green infrastructure before hardscape controls or offset programs (fee-in-lieu)

Proposed Scope of Revisions

1. Focused scope
   a. Limit revisions to changes needed to address updated permit requirements
2. Limited revisions
   a. Chapter 4. Runoff Treatment and Control
   b. Related definitions in Chapter 1
   c. Necessary changes to Stormwater Structure Details in Appendix B

Proposed D&C Revision Schedule



Stakeholders

1. Clean Water Services Advisory Commission
   a. In addition to charge from Board to provide feedback on process
2. Co-implementers
3. Development community
   a. e.g., Home Building Association
4. Environmental community
   a. e.g., Tualatin Riverkeepers
5. Community participation organizations

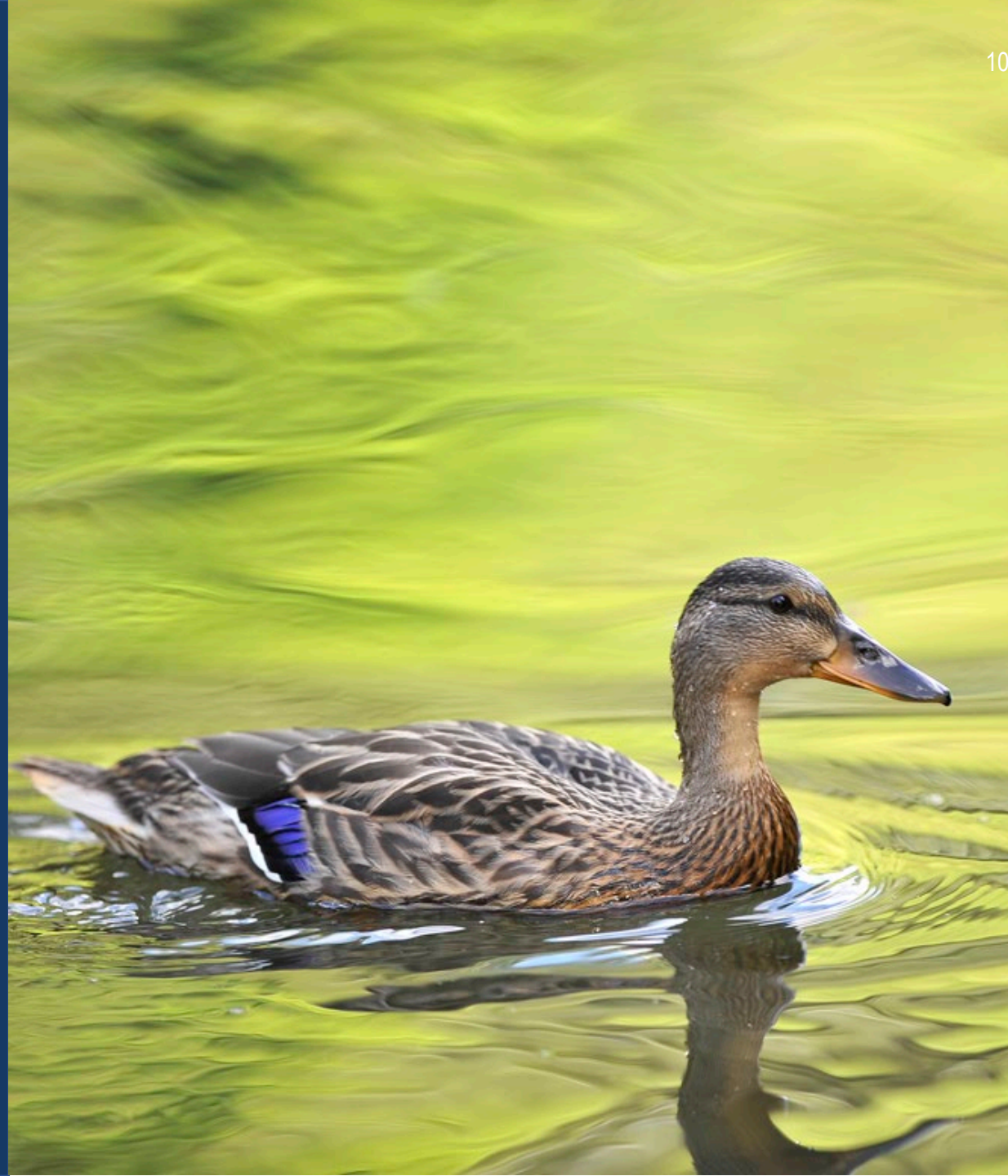
Anticipated Stakeholder Areas of Interest

1. Development community
   a. Adjustments to stormwater fee-in-lieu project size thresholds since fee-in lieu may be further limited
2. Environmental community
   a. How and where fee-in-lieu is used
3. Cities and developers
   a. May prefer grey stormwater management infrastructure rather than prioritizing low impact development approaches

Next Steps

1. Board Agenda item December 2025
   a. Authorize CWS to begin the revision process
   b. Charge Clean Water Services Advisory Commission with holding a stakeholder forum

Questions?



Permit Cycle and Long-Term Regulatory Compliance Roadmap

Julia Crown, Water Resources Analyst | Jamie Hughes, Compliance Operations Manager
Laura Porter, Business Practice Leader | Peter Schauer, R&I Services Manager

Clean Water Services Advisory Commission

November 12, 2025

Overview

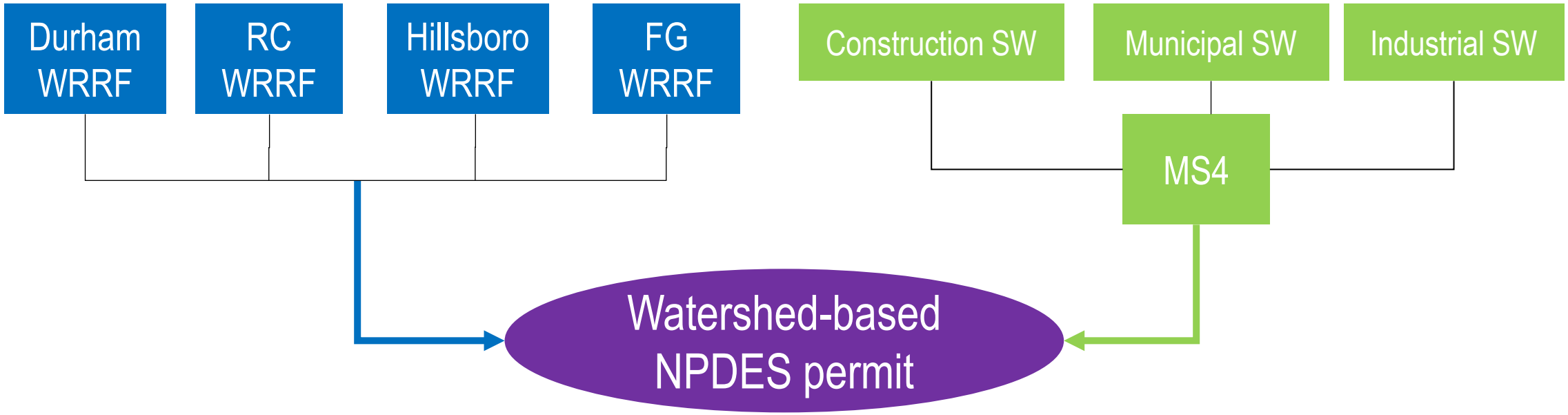
- Permit renewal application
- Long-term regulatory compliance roadmap
- Implementation
- Case study
- What’s next

Permit Renewal Application

- Parts of the permit
- Overall schedule
- Priority topics
- Schedule after application submitted
- Communication and outreach

CWS' Watershed-Based NPDES Permit

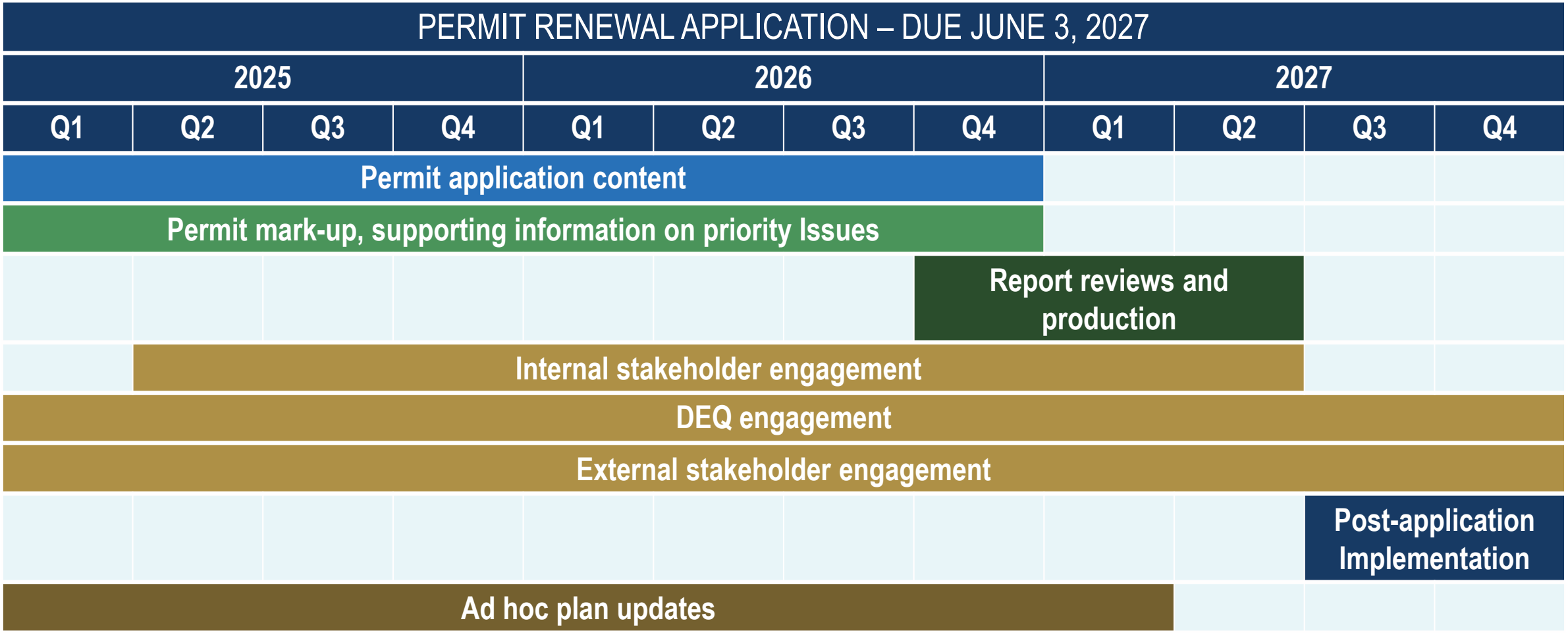
- Integrates permits for four water resource recovery facilities (WRRF) and Municipal Separate Storm Sewer System (MS4 or stormwater) program



Permit Renewal Application

- Environmental Protection Agency (EPA) and Department of Environmental Quality (DEQ) application forms
- Eight required reports
- Permit mark-up
- Technical memos

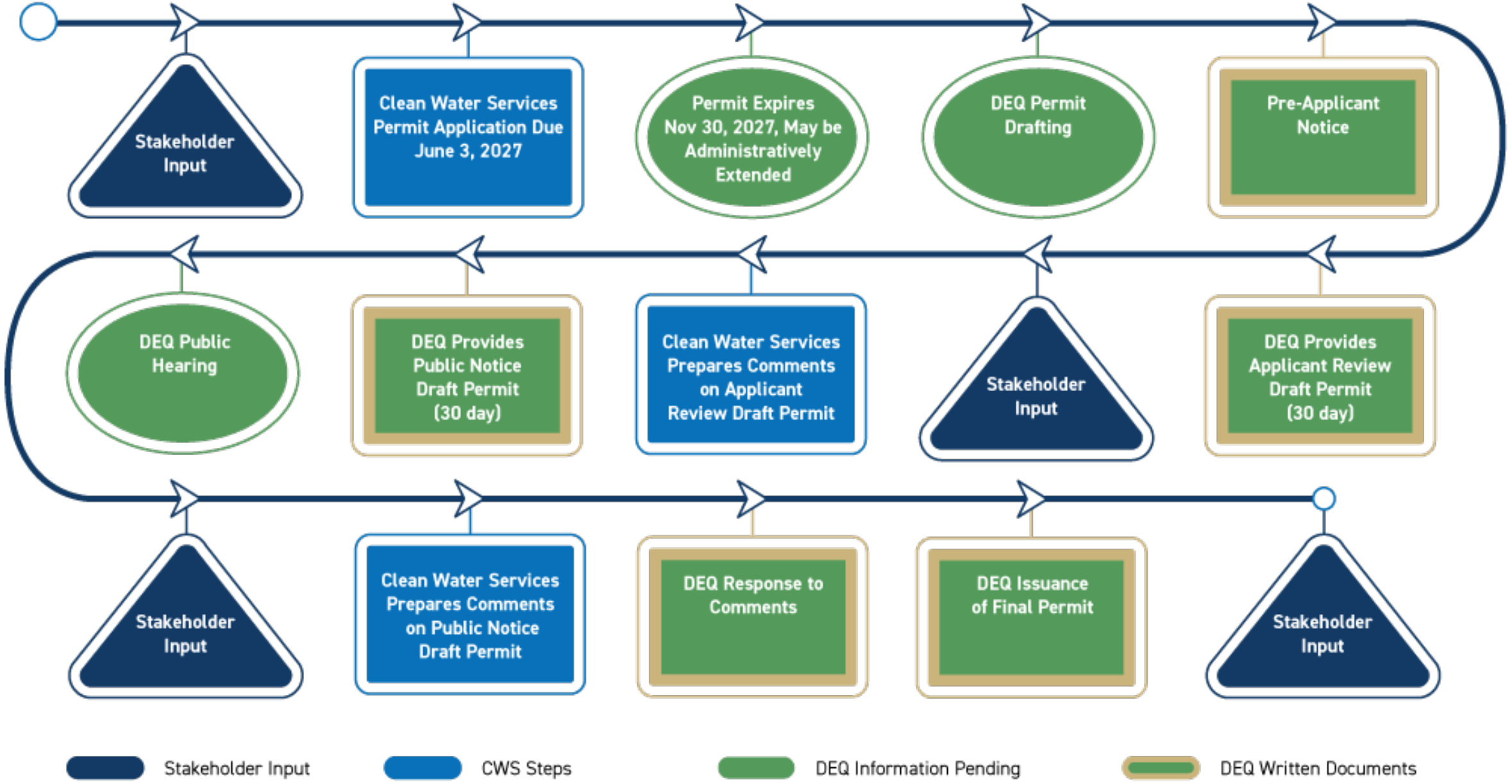
Schedule


PERMIT RENEWAL APPLICATION – DUE JUNE 3, 2027
2025
2026
2027
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
Permit application content
Permit mark-up, supporting information on priority Issues
Report reviews and production
Internal stakeholder engagement
DEQ engagement
External stakeholder engagement
Post-application Implementation
Ad hoc plan updates

Priority Topics for this Permit Renewal: Preparing Now

- Phosphorus and aluminum
- Thermal compliance
- Stormwater
- Reasonable potential analyses
- Reuse and biosolids
- Natural Treatment System
- Electronic reporting

After Application Submittal - DEQ Process



Communications and Outreach

- Communication plan
  - Internal
  - Meetings with DEQ
  - External partners
    - Co-implementers
    - Environmental groups
    - Clean Water Services Advisory Commission
    - Board

Long-Term Regulatory Compliance Roadmap

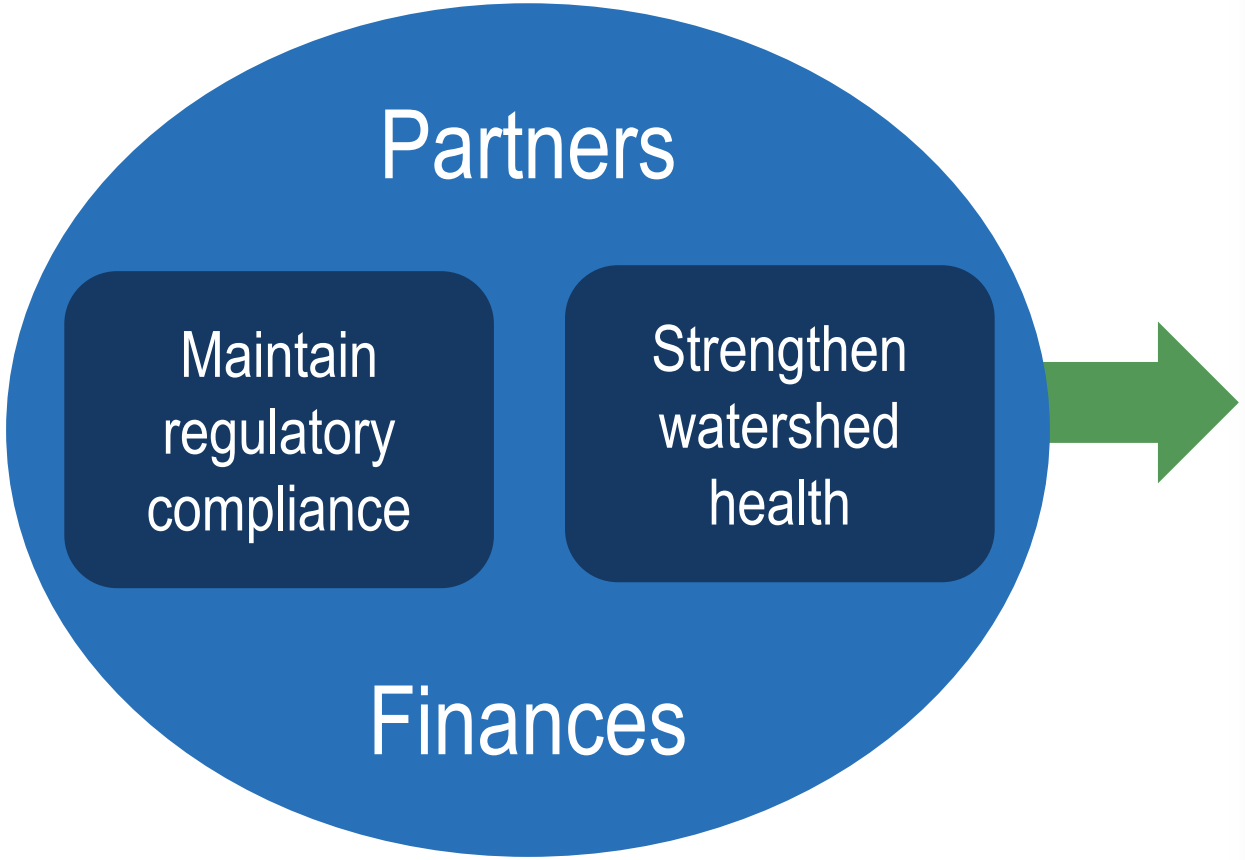
- Documenting the work
- How the roadmap is organized
- What's in the roadmap
- Risk management approach

Tualatin Basin Challenges Increasing

- Growth and pressures on community and industry
- Demand for and discharge to Tualatin River
- Stress on the watershed
- Aging assets
- Regulatory complexity

Documenting the Work: Strategic Roadmap

Organizing the Roadmap: A Holistic Approach



Strategic Roadmap

Long-Term Regulatory Compliance

There is growing complexity across the regulatory landscape, increasingly stringent water quality standards, emergence of new pollutants, and an ongoing need for flexibility and innovation. This strategic roadmap serves as a guide for Clean Water Services (CWS) to meet technical challenges and align the organization with regulatory priorities.

CWS is committed to **maintaining compliance**, taking a **watershed-based approach**, and working with our community to protect public health and the environment. As such, the roadmap is organized under two goals—**regulatory compliance** and **watershed health**—and align with CWS' current and anticipated National Pollutant Discharge Elimination System (NPDES) discharge permit obligations. The roadmap is managed using risk management and project portfolio management principles, and the strategies are focused on one or more of the following:

- Awareness of **upcoming technical challenges** and potential permit requirements
- Recognizing **critical new work** required to meet permit requirements
- Planning for changes that could have a significant **financial impact**
- Considering important **new watershed health components** that enhance foundational ongoing operations that are not already well-established.
- Reducing **identified major risks**

Since CWS' Regulatory Affairs Department manages CWS' NPDES permit, when staff identify potential issues, they will work with Regulatory Affairs to confirm and characterize the issue. CWS staff will develop and plan an operational response, and, as needed, develop financing models to support long-term planning and alternative analysis. This roadmap is a tool to help staff achieve all CWS' Key Strategic Outcomes.

Scope

- Leadership provides policy direction
- Regulatory Affairs Department prioritizes compliance risks
- Directors and managers prioritize and guide work within their departments, divisions, and programs
- Project teams focus on highest priority projects and stakeholder engagement

Value-Added

- Transparent planning and implementation
- Structured framework for decision-making
- Enhanced project prioritization and sequencing
- Systematic review of risks and advance planning
- Catalyst for innovation on priority issues and risks

Advantage

- Executive leadership, Clean Water Services Advisory Commission, and Board engagement
- Strong relationships among CWS employees across departments
- Technically proficient focus area leads and project managers
- Learning culture that supports understanding of regulatory risks and opportunities for innovation
- Organization-wide knowledge of regulatory compliance, watershed health, regional priorities, and partnerships
- Credibility and support from regulatory agencies and co-implementers
- Long-standing partnerships with regional land and water stakeholders
- Reasonable and predictable rates
- Community engagement and data to understand community values, needs, and expectations

Risk Identification: Team Approach

- Cross-departmental identification of risks
- Discussion on likelihood and impact
- Prioritization: high, medium, low
- Identified four top priorities

IMPACT rating

	Disruption to Service, Budget, or Processes	Effect Upon Reputation	Monetary	Legal Consequences	Effect Upon People
5	**Catastrophic** CWS cannot function, very high $$$ impact	National negative publicity, resignations	Very high $ impact $$$$$	Multiple civil and criminal lawsuits, claims or fines	Fatality of 1+ and serious injuries
4	**Major** Serious disruption to CWS, high $$$	National public or press interest	$$$$	Single litigation, claim or fine	Serious injuries to 1+ people
3	**Significant** Some disruption of CWS, medium $$$ impact	Local public or press interest	$$$	Possible litigation, claim or fine	Major injuries to 1+ people
2	**Moderate** Minor disruption, minor $$ impact	Contained within a department or division but known by CWS leadership	$$	Unlikely to result in litigation or claim or fine	Minor injuries to 1+ people
1	**Low** Annoyance, small or minor $ impact	Contained within a department or division	$	No litigation, claim or fine	Minor injury to individual

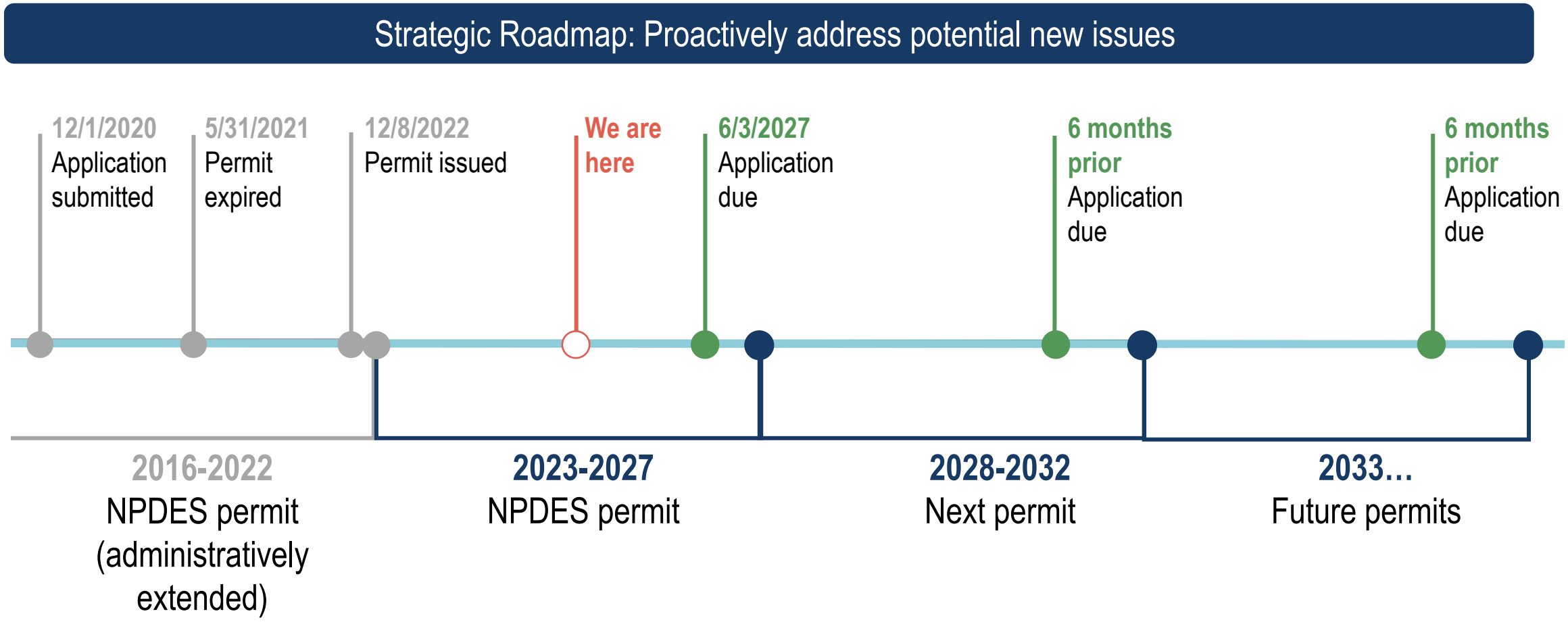
Likelihood Rating

	How Likely?	% of Time	How Often?	Frequency
5	Certain or almost certain	75% or more	Expected to occur	Daily, weekly
4	Likely	50-75%	Will likely occur	Monthly
3	Possible	25-50%	Fairly likely to occur	Once a year
2	Unlikely	4-25%	Could occur	Once in a decade
1	Rare	0-5%	Would rarely occur	10+ years or more

Implementation

- Permit renewal cycle
- Top 4 priorities
- Action plans
- Integrating with departments
- Process to stay ahead of the permit

5-Year Permit Cycles

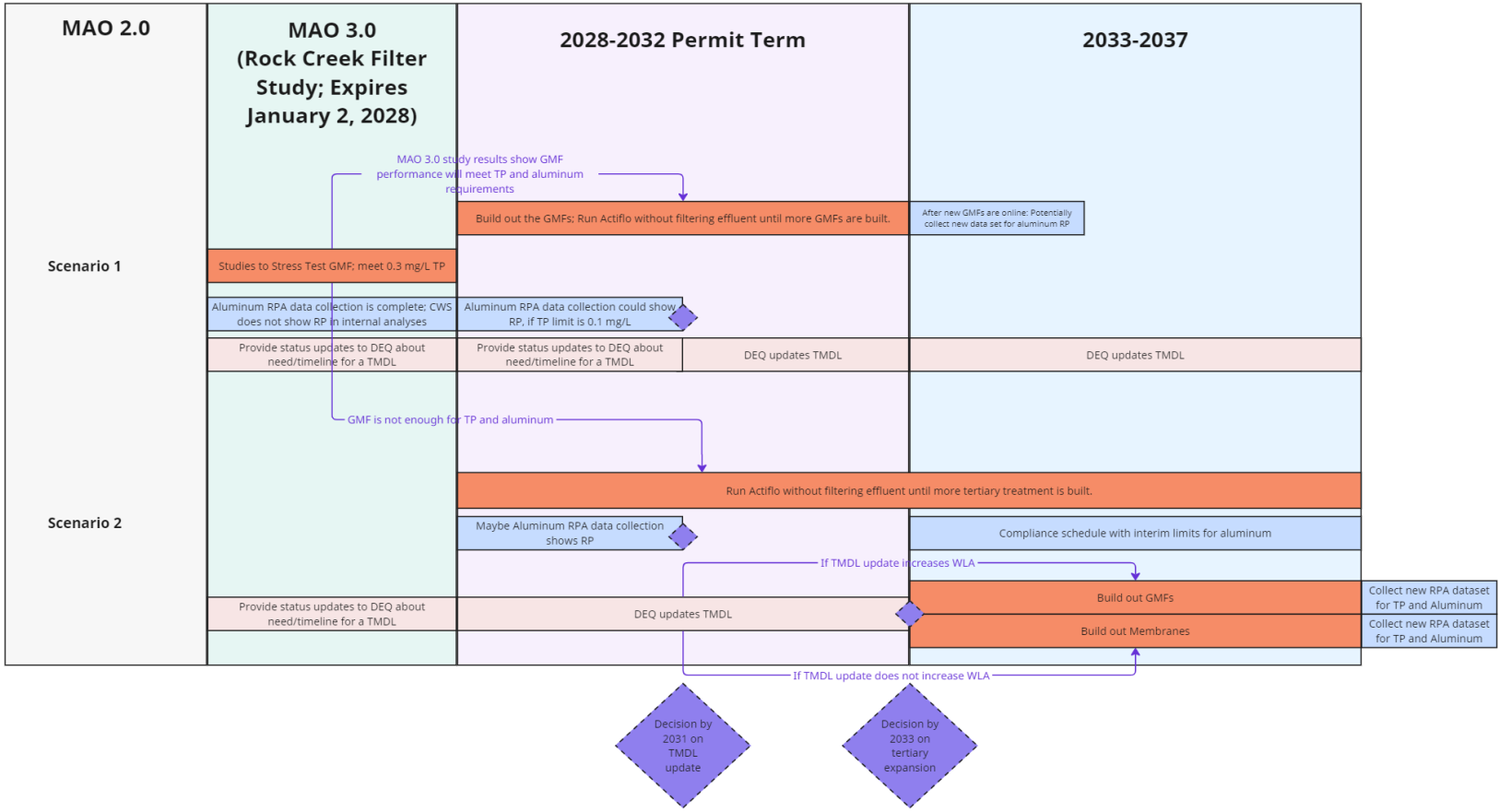


Top 4 Priorities

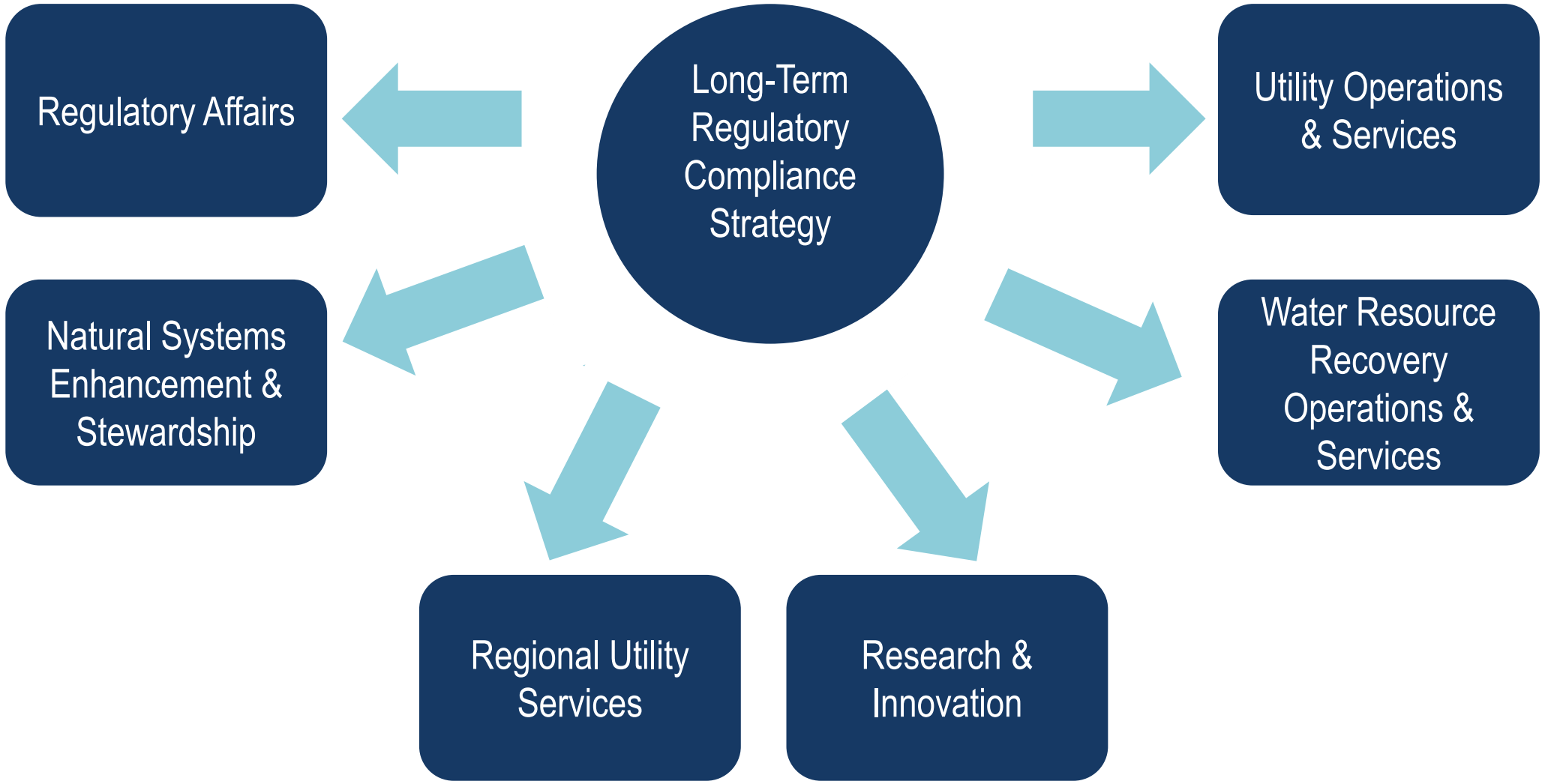
	Likelihood of Permit Driver	Likelihood of Risk	Impact
Thermal compliance	Part of the current permit	Increasing flows and change in source water	Major capital and operating costs (chillers)
Stormwater	Part of the current permit	Increasing as community requirements grow	Requires updates to the management plans and partnering with co-implementers
Phosphorus	New aluminum limits are likely under current phosphorus limits in the permit	Requires costly technology to meet both phosphorus and aluminum limits	Major capital and operating costs (membranes and chemicals)
PFAS (per- and polyfluoroalkyl substances)	Limits created in other states and likely to be implemented more broadly	Could ban biosolids land application and require expensive treatment for our effluent	Major capital and operating costs (reverse osmosis and/or pyrolysis)

Phosphorus

- Implementation activities
  - Evaluate the tradeoff between effluent aluminum and phosphorus
  - Evaluation of phosphorus limit change to the Tualatin River
  - Optimization testing of existing assets
  - Design evaluation based on capacity needs

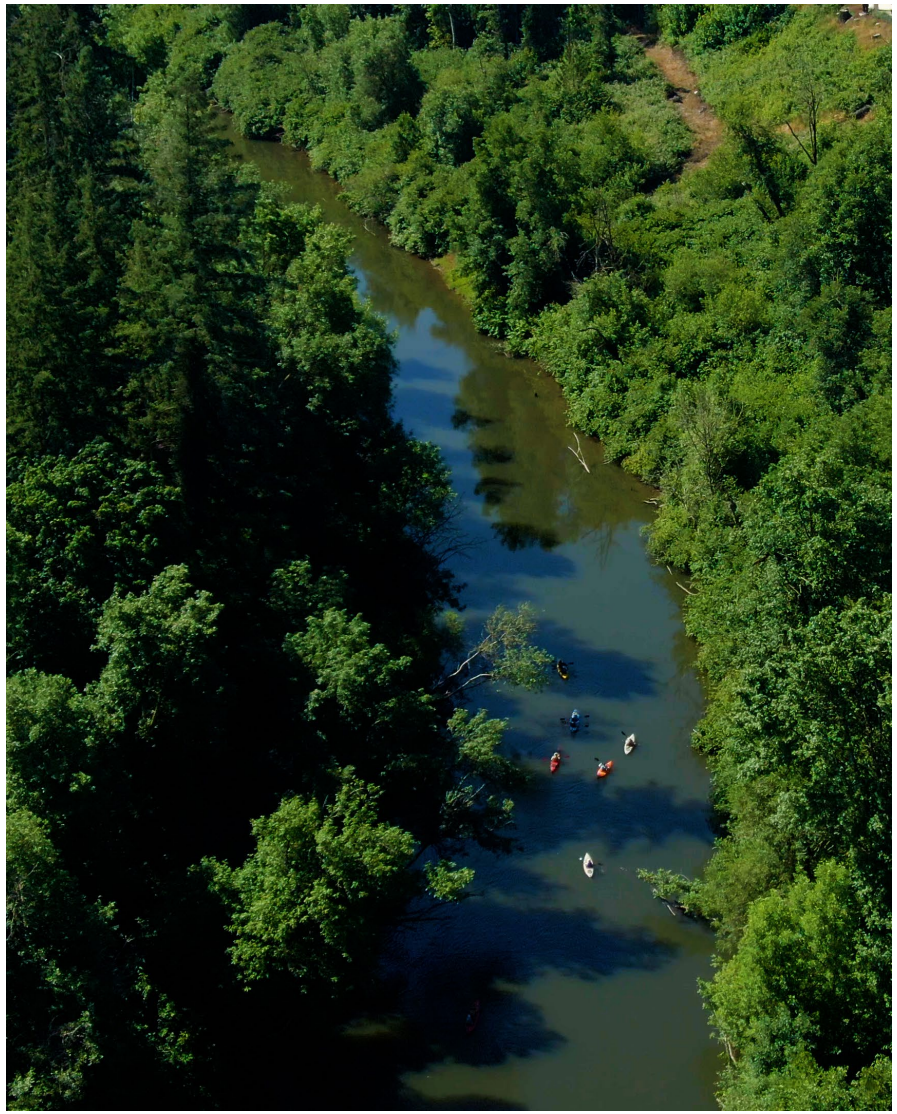


Compliance Playbook: Strategic Roadmap



Implementation Process

- Track pollutants and regulations coming down the pipe
- Evaluate and forecast risk
- Form multidisciplinary teams
- Plan appropriate actions
- Create best solution in a dynamic environment
  - Put the right resources in the right place



Studies for Current and Future Compliance

- Phosphorus TMDL (total maximum daily load)
- Mixing zone
- eDNA (environmental DNA)
- Thermal load management
  - Flow enhancement, shade, reuse, water resource recovery facility upgrades, source control
- Dairy McKay Subbasin restoration
- Source control investigations
  - Nitrates, hydrogen sulfide
- Mercury minimization plan, commercial stormwater program
- MS4 heatmap
- PFAS
- 6PPD-quinone (emerging contaminant)
- Climate change modeling
- Reuse and environmental restoration
- Treatment optimization
- Microplastics

Project Collaboration

- RAD and R&I
- Before there are requirements
- After permit is issued
- Example: phosphorus

Research & Innovation Collaboration with RAD

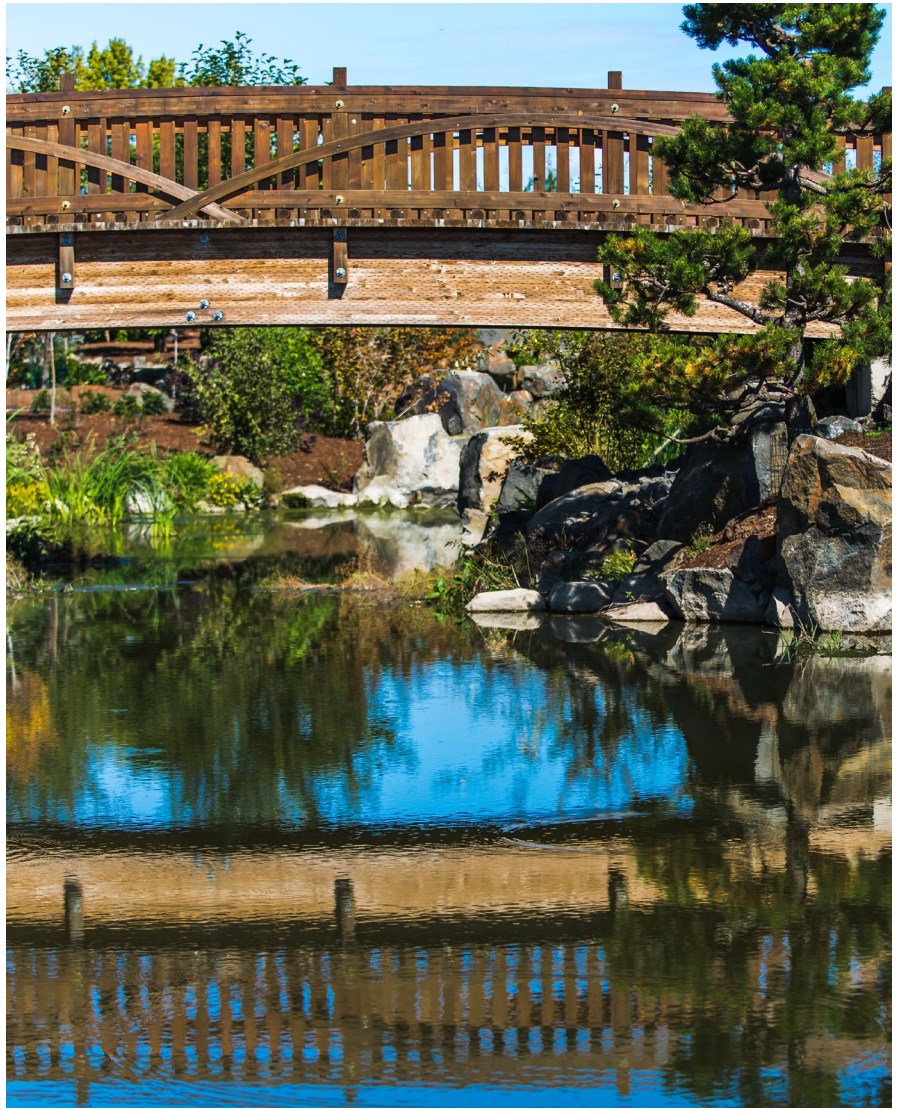
- **R&I purpose**: Develop advanced methods, practical technologies, and data-driven solutions
  - Meet regulatory challenges
  - Optimize operations
  - Improve the quality of our services
- RAD & R&I support long-term regulatory compliance throughout implementation
  - Quantify the risk
    - Water quality analysis, modeling, studies
  - Planning actions
    - Design and testing of alternative strategies
    - Optimize operations to minimize risk and cost
    - Facility planning

Working With DEQ Before There Are Permit Requirements

- Goals: Manage issues, prevent significant expenses, reduce regulatory obligations
  - Disinfection byproducts
    - Used chemistry to control for formation of byproducts and demonstrated control
  - Copper at Forest Grove
    - Incorporating multiple strategies that avoid a copper permit limit
  - Year-round ammonia limits
    - Matching protection to the river versus simplicity of the permit

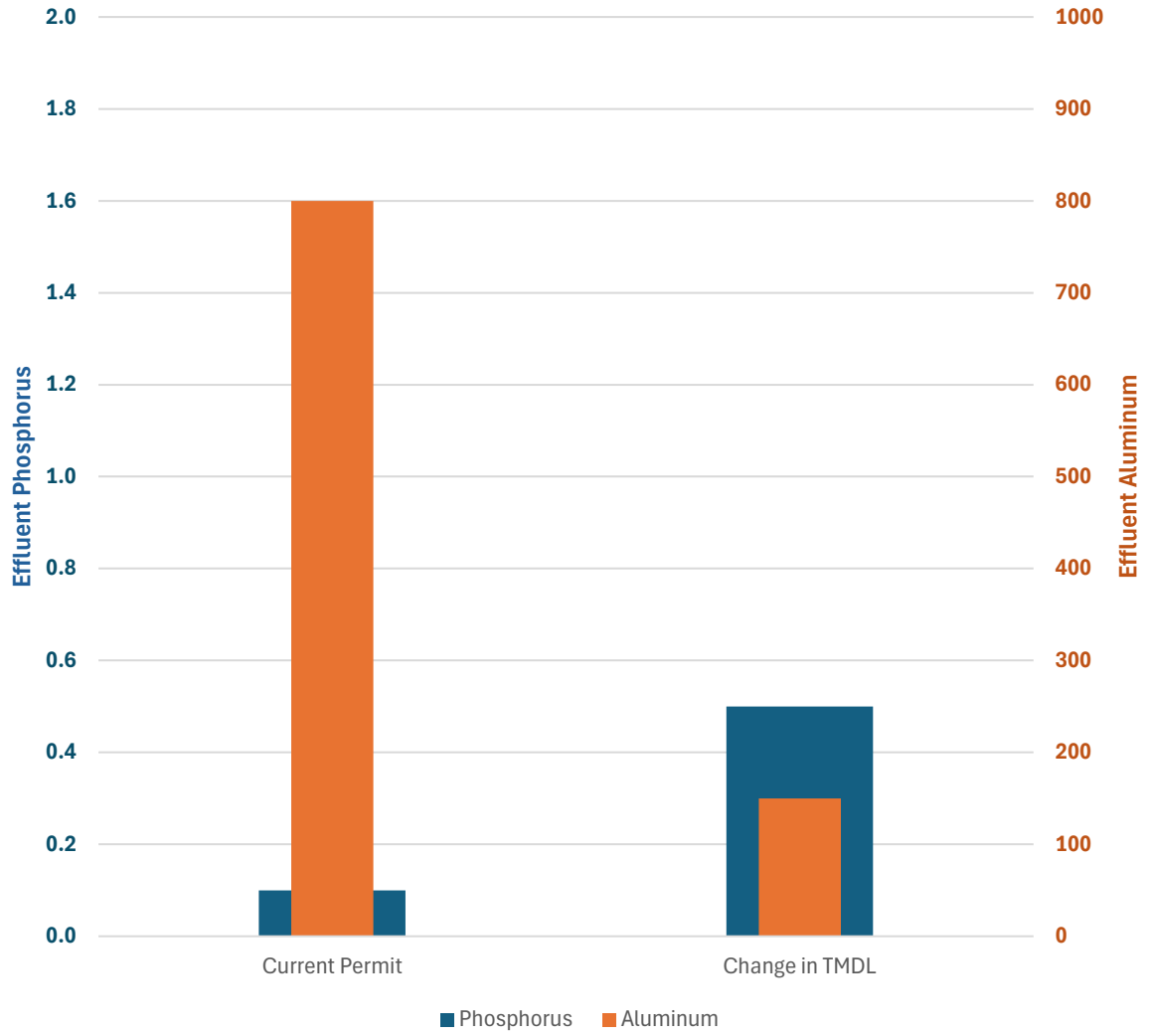
Working With DEQ After There Are Permit Requirements

- Goal: Ongoing operations, foundational excellence
  - Thermal loads at Forest Grove, Natural Treatment System
  - Phosphorus TMDL



Example: Phosphorus TMDL

- The phosphorus TMDL was put in place 35 years ago; *conditions have changed*
- There is a tradeoff between effluent aluminum and phosphorus
- Modeling shows that the river is no longer sensitive to phosphorus



Example: Phosphorus TMDL

- CWS has worked with DEQ to obtain three MAOs (Mutual Agreement and Order) for full-scale testing
  - Demonstrated no negative impact to the river
  - Testing to determine the minimum effluent aluminum while meeting the existing limit
  - Pushing the limits of the treatment processes to define capital expansion possibilities both full-scale and pilot-scale
- Result
  - Demonstrated that Durham will be able to simultaneously meet both limits
  - DEQ will consider updating the phosphorus TMDL based on the data and testing conducted by CWS

Questions

- Does CWAC need additional information regarding the current or next permit?
- Does CWAC have questions about issues raised with respect to long-term planning?

Long-Term Regulatory Compliance

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Strategic Goals

This roadmap is a tool to help staff achieve each of CWS' KSOs as described in more detail below and in the below Objectives (Strategies) and Initiatives (Tactics)

Organizational Excellence: Using a risk-based management approach, identify priorities and build multidisciplinary cross-departmental teams to systematically identify actions, manage, and plan for regulatory compliance, a resilient watershed, and healthy partnerships.

Integrated Water Resource Management & Resilient Watersheds: Enhance the physical, biological, and chemical quality of the watershed, manage urbanization impacts to the environment, and support restoring, maintaining, and enhancing the quality of the Tualatin River Watershed.

Research, Innovation & Resource Recovery: Identify gaps and opportunities to optimize solutions that provide the greatest benefit to the watershed and to the environment, and conduct research to identify regulatory risk factors and develop technological solutions to mitigate those risks.

Catalyzing Transformational Partnerships: Create and sustain partnerships to address compliance and deliver results for the community and watershed health.

Contributing to the Region's Environmental & Economic Vitality: Develop a regulatory framework, implement technologies, and construct green and nature-based infrastructure that delivers unparalleled value to customers.

CWS Values

We're dedicated to the river, our communities, and each other.

We're guided by science.

We make great things happen by working and solving problems together.

Abbreviations

ACWA: Association of Clean Water Agencies
ASR: aquifer storage & recovery
CMOM: capacity management operations and maintenance
DCS: Design and Construction Standards
DEQ: Department of Environmental Quality
eDNA: environmental DNA
EPA: Environmental Protection Agency
GHG: greenhouse gas
GIS: geographic information system
GMF: granular media filtration
IDDE: illicit discharge detection & elimination
IGA: intergovernmental agreement
IMD: internal management directive
IPR: indirect potable reuse
IR: infrared
LTRCS: Long-Term Regulatory Compliance Strategy
MAO: Mutual Agreement and Order
MOA: Memorandum of Agreement
MGD: million gallons per day
MS4: municipal separate storm sewer systems

NPDES: National Pollutant Discharge Elimination System
NTS: natural treatment systems
ODOT: Oregon Department of Transportation
PFAS: per- and polyfluoroalkyl substances
RPA: reasonable potential analysis
SCWO: supercritical water oxidation
SWMP: Stormwater Management Plan
TBL: triple bottom line
TCS: Temperature Compliance Strategy
TFA: Tree for All
TMDL: total maximum daily load
TOP: total oxidizable precursor
TVID: Tualatin Valley Irrigation District
WRRF: water resource recovery facility
YDO: Your DEQ Online

Objectives (Strategies)	Initiative Statements (Tactics)
Maintain Regulatory Compliance (Goal)	
Ensure CWS' permits accurately reflect the needs of the Tualatin River Basin	Participate in policy groups & professional organizations, collaborate with regulators, and engage with advisory groups to proactively **identify and prepare for new permit requirements** & ensure compliance with the Clean Water Act, Clean Air Act, and other regulatory requirements. Research regulations; collect & analyze data; engineer solutions; evaluate & manage risks; & conduct financial analyses.
	Track and engage with each step in the permit development process from new water quality standards through permit limit issuance with partners like DEQ to prevent potential inaccuracies in future permits.
Strengthen CWS' systems to maintain permit compliance	Evolve & develop **data management practices**. Implement automated data management tools to meet permit requirements efficiently & accurately. Enhance data collection, formatting & reporting processes to reduce human error, increase transparency, & improve accountability. Ensure timely data review to identify & address potential issues early, preventing permit violations & maintaining compliance.
	Establish clear communication protocols, such as intergovernmental agreements, with co-implementers, to prevent inefficiencies & misunderstandings that could lead to exceeding permit limits or violations.
	Coordinate regionally with partners and co-implementers to implement sanitary and stormwater programs, including the Design & Construction Standards, Stormwater Management Plan, performance standards, resilient streams, & ensure permit compliance. Collaborate with co-implementers to develop alternatives that meet design standards & NPDES permit requirements. Document permitting, inspection, & maintenance data with co-implementing cities to demonstrate compliance with performance standards & the stormwater management plan. Strengthen CMOM programs & improve reporting mechanisms to increase communication tools between partners.
	Enhance the regional **record mapping system** for sanitary & stormwater systems to ensure accurate data & support CWS programs. Provide GIS analysis services to enhance decision-making & operational efficiency. Coordinate internally & with co-implementers to keep a comprehensive regional GIS database for sanitary & stormwater systems & related features.

Objectives (Strategies)	Initiative Statements (Tactics)
Develop and advance new tools, technologies and management strategies	Manage compliance at **NTS** by implementing ongoing adaptive management practices, investing in ongoing research to better understand its dynamics & learning from implementing innovative technologies. Proactively address challenges, continue contributing to science-based regulations for NTS, optimize NTS performance & sustain its beneficial impacts on water quality & ecosystem health.
	Utilize the Industrial **Pretreatment Program**'s diverse tools to advance early efforts that mitigate PFAS, copper, & other pollutants of concern from entering waste streams, ensuring regulatory compliance & protecting infrastructure in advance of regulatory requirements. Safeguard water quality & preserve watershed health by engaging with emerging issues.
	Use **stormwater management** practices to reduce pollutants from contaminating the Tualatin River & support a healthy aquatic ecosystem. Continue to research practices that improve CWS' ability to meet regulatory requirements & need to be documented for regulatory approval. Monitor stormwater & develop sampling plans as needed to ensure focused efforts on maintaining the river's health & meeting existing & anticipated regulatory requirements. Communicate clearly with partners about NPDES permit obligations to facilitate successful collaborative stormwater management.
	Evaluate the potential for enhancing biosolids quality to increase land application opportunities, ensuring flexibility & sustainability in waste management practices to proactively address new regulatory requirements.
	Develop & implement a comprehensive **Temperature Compliance Strategy** to meet effluent thermal load permit limits & protect fish in the Tualatin River. Use innovative methods such as treatment plant technology upgrades, water reuse, stored water releases, riparian planting & instream restoration to mitigate thermal load. Collaborate with partners to identify & implement strategies. Ensure compliance with DEQ's TMDL requirements to support the health & survival of cold-water fish species.
	Develop & implement a Tualatin River **flow management strategy** to ensure sufficient summer flow to meet long-term regulatory requirements, such as phosphorus, dissolved oxygen and thermal management. Evaluate additional options to increase river low flows, including reservoir management and transferring, exchanging, or protecting water rights. Proactively address drought risks to protect water quality & aquatic life in the Tualatin River.
	Collect & analyze **air quality** data. Enhance understanding & quantification of air pollution & GHG emissions to mitigate associated risks. Use data-driven approaches to identify strategies for minimizing environmental impact & ensure compliance with regulatory standards.
Strengthen Watershed Resiliency (Goal)	
Support CWS efforts to mitigate & adapt to climate change & watershed stressors	Prepare for **climate change** by focusing on mitigating emissions and adapting to impacts of climate change. The pace and scale of climate change impacts are likely to shorten the useful life of many CWS assets and facilities, jeopardize service reliability, and increase capital and operational budgets. Investing in climate action can help CWS safeguard assets and infrastructure, ensure reliable services, and enhance watershed health while reducing long-term liability and meeting or exceeding regulatory compliance thresholds.
	Identify & address both known and potential **stressors to natural systems** to mitigate ongoing & future costs of management and prevent the loss of shade credit critical for meeting existing and future permit requirements. Develop science-based strategies to anticipate & respond to future landscape conditions, incorporating resilient planting approaches tested over time for continuous improvement. Ensure clear planning by linking necessary information with technology program development, enabling effective decision-making & prioritizing for landscape issues like invasive pests, heat, drought, disease, & pathogens.

Objectives (Strategies)	Initiative Statements (Tactics)
Catalyze collective capacity to achieve a healthy watershed	**Identify opportunities with partners** to achieve solutions to regulatory and environmental challenges that we could not accomplish on our own. Build trust and nurture deep relationships that inspire innovation & collaboration, leverage resources, & enable impact on a regional scale.
	Encourage the community's care for its natural and built environment by connecting people to nature and their local infrastructure through implementation of the permit-required **Public Education & Outreach Strategy** as described in the SWMP.
	Continue to support **collective impact organizing efforts**, such as development of Tree for All, with clear goals, roles & responsibilities, enhancing partnership cohesion & mutual benefits. Develop a strategic partnership plan that aligns with partners' shared objectives, broadening goals & identifying new funding sources & supporters to bolster the program's impact in meeting permitting requirements and providing ecological uplift.

Appendix

As part of implementing the long-term regulatory compliance strategic roadmap a risk assessment was conducted of potential long-term regulatory compliance issues. From that analysis, the following four potential compliance issues were identified as high-priority: PFAS, phosphorus/aluminum, stormwater, and temperature. Cross-departmental teams have been formed to address these issues and develop work plans. The work plans are shown below.

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	Next permit cycle (2028-2032)	Future permit cycles (2033+)
PFAS			
Understand PFAS Occurrence, Risk, and Treatment Options at WRRFs	Conduct influent/effluent/biosolids regular monitoring to understand spatial and temporal trends, understand regulatory risk, identify sources, etc		
	Study PFAS occurrence and fate within the WRRFs to identify hot-spots, understand transformations, and guide treatment options		
	Conduct TOP assays on influent, effluent & biosolids to get a larger picture of precursors, transformations, etc.		
	Track treatment technology developments		
	Conduct one or more PFAS treatment technology pilots for effluent and biosolids (e.g., pyrolysis, foam fractionation, SCWO, etc)		
Identify, quantify, and address sources of PFAS in the sewershed and watershed	Conduct regular & targeted industrial PFAS monitoring to identify/quantify sources, document & measure reductions & guide outreach & source control actions		
	Track additional sources of PFAS through the collection system to identify hotspots		
	Conduct commercial and domestic monitoring of single land use sewersheds as well as targeted commercial businesses		
	Conduct targeted stormwater sampling of targeted commercial businesses		
	Conduct monitoring of MS4 for PFAS to understand sources, spatial, and temporal trends and guide strategy		
	Conduct 1200-Z sampling for PFAS		
	Create PFAS Management Plans for all industries		
	Work with specific industries identified as large loads to WRRFs to mitigate		
	Develop materials and conduct outreach and education to industries, homes, and businesses about ways to reduce PFAS use and exposure		

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	**Next permit cycle (2028-2032)**	**Future permit cycles (2033+)**
Understand fate and implications of PFAS in our effluent, reuse, and biosolids	Conduct 'background' monitoring of groundwater and soils to understand context of CWS results	Sample rainwater, aerial deposition, and other diffuse sources of PFAS to understand our results in context	
	Monitor soils from biosolids-amended fields to provide data to defend land application and educate		
	Monitor soils, groundwater, and vegetation from reuse land application sites to help develop as new beneficial use for reuse with DEQ		
	Monitor ambient and urban creeks for PFAS, work upstream to identify non-effluent, urban sources (Complete)		
	Construct mesocosms (planter boxes) to enable more controlled, targeted research on land application	Conduct experiments in mesocosms with local crops in local soils to provide data for farmers, regulators, and public on safety of reuse and biosolids	Expand types of crops, soils, etc. as needed governed by regulations and public/ farmer interest
Apply knowledge to develop PFAS Compliance Strategy, prepare coming regulations, help provide datasets for regulators and others, share findings, and build partnerships		Develop treatment strategy for PFAS	
		Develop stormwater management strategy for PFAS	
	Develop PFAS local limits		
		Conduct RPAs for PFAS	
	Participate in state and national collaborations on PFAS to help guide regulations and policy, stay abreast of developments, and prepare for coming regulations		
	Publish and present PFAS findings for key strategic groups to help educate and guide policy development		
	Track state and national legislative and regulatory developments, provide comments, etc.		

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	**Next permit cycle (2028-2032)**	**Future permit cycles (2033+)**
Develop ability to measure PFAS and other compounds in-house	Develop EPA standard method 1633 for PFAS in-house for effluent, influent, biosolids, soils, industrial discharges (Complete)		
	Develop method for measuring PFAS in vegetation (no standard method)		
	Develop TOP Assay in-house		
	Test and improve sampling methods, fine tune methodology, add additional PFAS compounds as they become available, etc.		
	Develop database and visualization improvements		
		Develop infrastructure and methodology needed to analyze samples from other entities	
Phosphorus/Aluminum			
Determine and track regulatory pathways	Acquire DEQ agreement to update phosphorus TMDL		
	Provide Technical Memos to update Phosphorus TMDL - 2/3/2025-6/3/2027	Provide Technical Memos to update Phosphorus TMDL - 2028-2032	
	Obtain and Sign MAO 3.0 - 4/18/2025		
	Implement MAO 3.0 - 3/14/2025-12/31/2027. Requirements for Stress Test Study and Annual Reports		
		Decision to Build GMFs and/or membranes to meet aluminum limits - 12/31/2027	
		Develop a compliance schedule for Rock Creek to provide TMDL appendices in the next permit - 12/31/2027	

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	Next permit cycle (2028-2032)	Future permit cycles (2033+)
Stormwater			
Stormwater Management Plan	SWMP 1.5: Potentially update the SWMP to include consultant comments and correct minor errors. This is NOT a permit requirement		
	Adaptive management update of the SWMP (referred to as SWMP 2.0): Updating metrics & tracking measures in the SWMP to adaptively manage the stormwater program. This is NOT a permit requirement. This work can be done in phases depending on co-implementer issues/interest & can be spread over Phase 1 & 2 if needed		
	Migrate reporting process for MS4 Annual Report to DEQ's electronic YDO system		
Performance standards	Update the Performance Standards. This is NOT a permit requirement. This work can be done in phases depending on co-implementers issues/interest and can be spread out over Phase 1 and 2 if needed		
Education & outreach	Develop metrics for SWMP that are more reflective of education and outreach effects on stormwater program		
Public involvement & participation	Development of stewardship opportunities. Include public engagement opportunities during SWMP, Performance Standards, and Design & Construction Standard updates		
Illicit discharge detection & elimination	Develop more robust enforcement response plan for IDDE system program. Develop decision matrix for responding to illicit discharges and an IDDE training for the co-implementers		
Construction site runoff control	Work with DEQ to update agent memorandum of agreement for 1200-C permit, ensuring alignment with MS4 permit requirements for sediment and erosion control program		

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	Next permit cycle (2028-2032)	Future permit cycles (2033+)
Post-construction site runoff control	Update Fee-in-Lieu policy/procedure: develop methodology for tracking, mapping, and implementing. Reevaluate rates for fee in lieu		
	Update Post-Construction Runoff Control section of the DCS by permit deadline of Nov 1, 2026		
	Update remaining sections of the DCS depending on co-implementer issues/interest. This is NOT a permit requirement and this work could be spread over Phase 1 and 2 if needed		
Industrial & commercial facilities	Work with DEQ to update agent memorandum of agreement for 1200-Z permit, ensuring alignment with MS4 permit requirements for industrial stormwater permitting		
	Enhance commercial stormwater program to include monitoring and outreach to select commercial business sectors and for targeted pollutants, such as PFAS and 6-ppd quinone		
Infrastructure retrofit and hydromodification assessment update	Draft and submit assessment report of any outcomes related to the Hydromodification Assessment and Stormwater Retrofit Strategy reports, including the status of the Subbasin Strategies by permit deadline of Nov. 1, 2025		
	Update Retrofit Strategy by permit deadline of Nov 1, 2025		
	Implement retrofit plan for water quality and hydromodification including resilient stream corridor approaches		
	Develop, plan, and implement hydromodification work, including subbasin strategies and resilient stream corridor approaches		

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	**Next permit cycle (2028-2032)**	**Future permit cycles (2033+)**
Intergovernmental agreements	Update IGAs with the remaining cities and the County by permit deadline of Nov 1, 2026		
	Update IGAs with Lake Oswego, Portland, and ODOT. This is NOT a permit requirement and can be spread over Phase 1 and 2 if needed		
Temperature Compliance Strategy			
Identify targets for future conditions	Project future effluent flows, climate, regulatory conditions	Update future thermal loads and targets for next TCS update	
	Conduct mixing zone studies		
	Analysis of thermal plume projections using 1. DEQ conservative screening, 2. Volumetric (25%), 3. Geometric approach (CORMIX, eDNA, IR, etc)		
	Determine metrics for evaluation for the potential actions		
	Calculate future thermal loads		
	Negotiations with DEQ over Thermal Plume Approach		
	Get downscaled climate results and develop approach for accounting for climate change in model/tool		
	Calculate future targets for thermal loads/credits		
Develop list of potential actions to address temperature	Inventory of existing, previously identified, and new potential actions/initiatives to meet future temperature challenges (Complete)	Update the list with any new strategies developed in last 5 years	
Narrow down list of potential actions based on input from the group	Review the list of potential strategies and select ones for current vs future analysis (Complete)	Revisit potential strategies not included in previous TCS development	

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	Next permit cycle (2028-2032)	Future permit cycles (2033+)
For each potential action, develop a fact sheet that identifies: Method for thermal benefit quantification, cost, TBL benefits/values, assumptions/ limitations, DEQ acceptability, regulatory certainty, and ties to other efforts in the LTRCS	**REUSE ACTIONS**		
	Complete Reuse Master Plan and Reuse Valuation Tool	Evaluate the feasibility of industrial reuse, poplar farms, and IPR with planning level costs and benefits for future Temperature Compliance Strategy update	
	Evaluate feasibility of industrial reuse applications		
	Work with DEQ to update reuse IMD and regs (through specified ACWA committee)		
	Work with DEQ to establish urban wetland irrigation as a new beneficial use (e.g., Thomas Dairy)		
	Evaluate and quantify planning-level costs and feasibility of 10 MGD TVID Exchange		
	Discuss/negotiate with TVID for 10 MGD exchange		
	EFFLUENT TEMPERATURE REDUCTION ACTIONS		
	Influent temperature reduction study (source water to influent) via consultant	Evaluate other temperature reduction strategies not included in previous TCS development	
	Update costs and effectiveness of cooling towers, chillers, and heat pump from previous TCS development tool		
	Quantify thermal loads from industries and evaluate potential thermal effects of local limits and/or targeted source control	Evaluate effectiveness of local limits for temperature	
	Pretreatment plan update		
	Develop planning level costs and benefits for all selected effluent temperature reduction actions not already covered to create fact sheets		
	OPERATIONAL ADJUSTMENT ACTIONS		
	Evaluate effectiveness of temporary storage for meeting thermal plume regulations		

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	Next permit cycle (2028-2032)	Future permit cycles (2033+)
For each potential action, develop a fact sheet that identifies: Method for thermal benefit quantification, cost, TBL benefits/values, assumptions/ limitations, DEQ acceptability, regulatory certainty, and ties to other efforts in the LTRCS	Create and utilize NTS model to optimize operations for temperature		
	Model effectiveness of changes in various operations on thermal compliance (e.g., Hillsboro NTS, covering clarifiers, surge basins, wet weather outfalls, outfall modifications, heat-sink industries)		
	Discuss/negotiate potential operational strategies with DEQ in permit renewal		
	Model effectiveness of strategic transfers for meeting thermal loads and thermal plume regulations		
	Create planning-level costs and benefits of each potential action to create fact sheets		
	SHADE AND STREAM RESTORATION ACTIONS		
	Project future shade generation rates and costs to adjust from linear assumption in current tool		
	Work with DEQ, ACWA, and others to develop method for getting thermal credit for stream enhancement and wetland restoration		Update Temperature Management Plan with credit for stream activities
	Complete study on Dairy Creek Watershed for effectiveness of shade and stream restoration		
	Create triple-bottom-line and other inputs for the fact sheets not already covered in projections		
	FLOW ENHANCEMENT ACTIONS		
	Machine learning study for Hagg Lake Optimization and Tool		
	Complete the ASR Feasibility Study		
	Tualatin River Flow Optimization Strategy Development		

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	**Next permit cycle (2028-2032)**	**Future permit cycles (2033+)**
Step 4: For each potential action, develop a fact sheet that identifies: Method for thermal benefit quantification, cost, TBL benefits/values, assumptions/ limitations, DEQ acceptability, regulatory certainty, and ties to other efforts in the LTRCS	Update costs of potential water purchases from previous tool (Lake Oswego, TVID, etc.)	Discussions/negotiations around water rights exchanges	
	Create planning-level costs and benefits of each potential action for flow enhancement to create fact sheets	Discussions/negotiations around rule curve adjustments to improve reliability of fill	
	Evaluate previous CE-QUAL-W2 modeling for quantifying thermal benefits from flow enhancement and update if needed	Update the CE-QUAL-W2 model of Hagg/Tualatin with more recent years (2021-2027)	
	Current and potential water rights evaluation		
	REGULATORY UPDATE ACTIONS		
	Pull together info for DEQ to get approval of demonstrative approach for thermal plume	Work with DEQ to update the Temperature TMDL	
	Develop regulatory mechanism to get thermal credits outside July/August to meet non-TMDL temperature regulations in other summer months		
	Develop fact sheets for regulatory update actions	Evaluate need for and potential pathway for thermal variance, if needed	
Develop tool to rapidly examine many different portfolios of actions towards meeting targets into the future	Develop common list of assumptions, methods, inputs, etc for use in fact sheets and the tool	Update the tool with most recent data/methods	
	Create the spreadsheet and infrastructure, inputs, regressions, etc for the tool		
	Build in the results from the fact sheets		
	Test and finalize the tool		
Run thousands of scenarios to select the 'best' combinations of actions to meet targets. Review and select top one.	Identify the ranges of scenarios and combinations	Update for next TCS update	
	Develop automated tool for running all of them and outputting scores and run the scenarios		
	Evaluate, compare, and select best strategy		

Objectives (Strategies)	Initiative Statements (Tactics)		
	Current permit cycle (now-2027)	Next permit cycle (2028-2032)	Future permit cycles (2033+)
Write the Temperature Compliance Strategy with plan in 5-year increments through 2040 and plan to update the TCS every 5 years to adaptively manage	Document the development of the tool, the scenarios, the evaluation process, and create 5-year increment timeline of the temperature strategy	Update the TCS every 5 years	

Clean Water Services Advisory Commission Meeting Summary

Date: October 8, 2025

Location: CWS Administrative Building Complex and on Zoom

CWAC MEMBERS PRESENT

- Terry Song (District 3/Snider), CWAC chair
- Glenn Fee (Environment 1), CWAC vice chair
- Drake Butsch (Builder/Developer 2)
- Marc Farrar (Builder/Developer 1)
- Ashley Farrell (Business 1) – remote
- Nisha George (At-Large District/Harrington)
- Andy Haugen (District 4/Willey)
- Alan Jesse (Agriculture 2)
- Ramesh Krishnamurthy (District 2/Treece)
- Elaine Stewart (Environment 2)
- Lakshmi Tata (Agriculture 1)

CWAC MEMBERS ABSENT

- Rebecca Shell Kanarek (District 1/Fai)
- Stu Peterson (Business 2)
- Sherilyn Lombos (Cities/nonvoting)
- Rick Shanley (CWS/nonvoting)

MEMBERS OF THE PUBLIC

- Isaac Ambruso, Home Building Association
- Dale Feik, Chair of Washington County Citizen Action Network

CWS STAFF

- Elizabeth Edwards, Chief of Staff
- Kathy Leader, Chief Financial Officer
- Tracy Rainey, Government Relations Manager
- John Goetz III, Water Resources Analyst
- Joe Gall, Chief Utility Relations Officer - remote
- Shannon Huggins, Public Involvement Coordinator
- Jody Newcomer, Technical Editor
- Katie Cheney, Executive Assistant
- Josh Bernier, Senior Information Technology Technician

1. CALL TO ORDER

The meeting was called to order at 6:30 p.m.

2. WELCOME AND INTRODUCTIONS ..... 00:00 on recording

3. NOMINATE, CONFIRM BUDGET COMMITTEE MEMBERS ..... 02:56 on recording

- Kathy Leader, Chief Financial Officer

Clean Water Services' Budget Committee is made up of the five members of the CWS Board of Directors and five representatives from CWAC who reside in Washington County. The CWAC representatives serve three-year, staggered terms. Two terms expired in September 2025 (Elaine Stewart and Ramesh Krishnamurthy). Andy Haugen, Terry Song, and Alan Jesse hold the other three positions. Haugen's term expires in 2026; Song and Jesse's terms expire in 2027. The Budget Committee is scheduled to meet on Friday, May 8, 2026.

➢ CWAC recommended **Elaine Stewart** and **Nisha George** to the Board for appointments to the Budget Committee. The terms will expire in September 2028.

4. SCOGGINS DAM SAFETY PROJECT UPDATE ..... 11:44 on recording

- Tracy Rainey, Government Relations Manager

The Bureau of Reclamation recently notified Clean Water Services and other regional partners of a revised approach to advance seismic modifications for Scoggins Dam. Rainey updated CWAC on Reclamation's recent decisions and provided information on anticipated next steps, including local partner coordination and federal delegation outreach.

Issues Discussed

- Impact of potential reservoir restrictions on releases from Hagg Lake for CWS and other stakeholders. (CWS uses water releases for thermal management.)
- The Willamette Water Supply project.
- Interest in receiving email notifcation when there are significant updates on the project.
- Other proposed positions that CWS considered (opposing reservoir restrictions, support for Reclamation to advance structural modifications, etc.).

5. WANTS FROM WASTES: DEVELOPING A COMPOSTING PROGRAM AT CWS ..... 50:11 on recording

- John Goetz III, Water Resources Analyst, Water Engineering & Technology

CWS collects organic material from street sweeping, the leaf disposal program, and regular maintenance of water quality facilities. A portion of street sweeping material is screened for reuse as a soil amendment. However, most of the material is stored temporarily at CWS facilities, then disposed of within landfills, where it contributes to landfill methane emissions

and resource depletion. Goetz shared details about developing and piloting a composting program.

Issues Discussed

- Partnering with local waste companies.
- Financial analysis in terms of labor, effort, and expansion. Request to report back to CWAC.
- What happens to residential food and yard waste.
- Why and where CWS sweeps streets.
- The process and projected time frame to get the pilot approved.
- What is in the leaf debris.
- What material is collected in street sweepings, and what happens to street sweepings in the winter when there's additional debris, such as gravel.
- CWAC is a great resource to provide feedback to develop a pilot plan.

6. INVITATION FOR PUBLIC COMMENT..... 1:34:31 on recording

- Dale Feik commented on Scoggins Dam, the impact that reservoir restrictions could have on development, and the Board's engagement with the budget.

7. ANNOUNCEMENTS, QUESTIONS, COMMENTS..... 1:37:27 on recording

- The next CWAC meeting is scheduled for November 12 at Central. There is no meeting in December.
- On Oct. 7, the Board appointed Rick Shanley as the Interim Chief Executive Officer/General Manager. A recruiter has been hired to lead the search for a permanent leader.

8. MEETING ADJOURNED at 8:09 pm