

# Lifecycle of an Asset Bellevue Utilities

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INFORMATION BRIEFING

ENVIRONMENTAL SERVICES COMMISSION

MAY 6, 2021

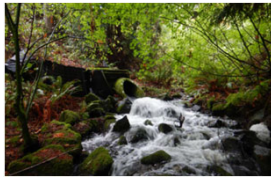
Linda De Boldt, Assistant Director, Engineering  
Tony Marcum, Operations & Maintenance Manager  
Brian Landau, Planning Manager  
Debbie Harris, Project Management Manager  
Ryan Shelton, Construction Manager

# Agenda and Goals

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- ❖ Background and Purpose of Presentation
- ❖ Utilities Services and Infrastructure Assets
- ❖ Life Cycle of an Asset
- ❖ Components of the Life Cycle
- ❖ Pike's Peak Reservoir Update
- ❖ Discussion and Q&A





# Background and Purpose

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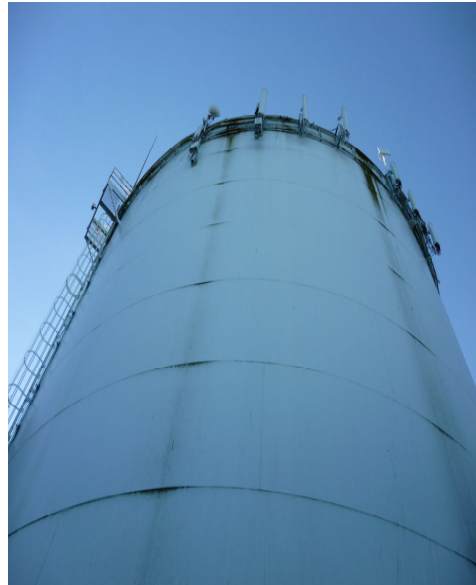
- Bellevue Utilities provides water, sewer and stormwater services that are critical to our community's quality of life
- We own a \$3.5 billion infrastructure system that is crucial for delivering these utility services
- This is an informational briefing about the life cycle of this multi-faceted infrastructure system

# Utilities Water Infrastructure Assets

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## System

- 40,000+ water connections
- 606 miles of water main pipes
- 24 water reservoirs
- 22 pump stations
- 63 pressure zones
- 5,800+ fire hydrant



# Utilities Sewer Infrastructure Assets

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## System

- 13,000+ maintenance holes
- 516 miles of mainline pipes
- 120 miles of lateral pipes
- 47 pump and flush stations
- 34 major connections to King County wastewater system





# Utilities Stormwater Infrastructure Assets

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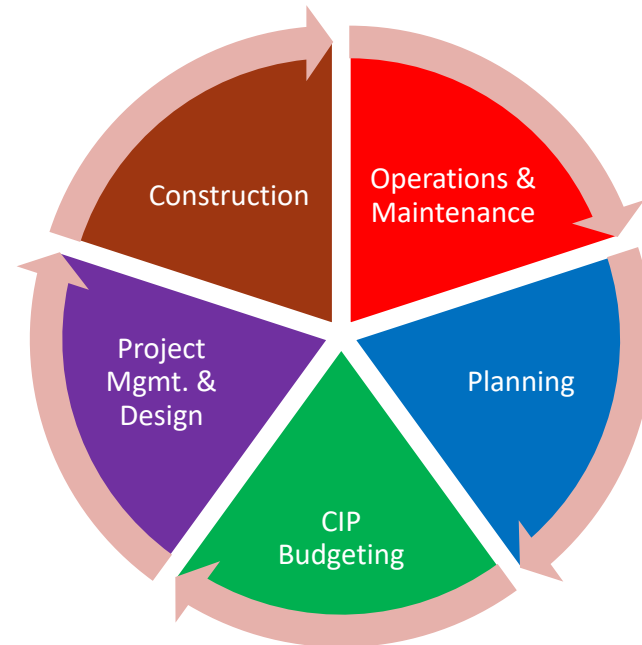
## System

- 81 miles of open streams
- 864 acres of protected wetlands
- 21,385 public storm drains
- 408 miles of pipes
- 86 miles of open ditches
- 11 regional detention facilities
- 350+ residential detention facilities
- 900+ privately-owned facilities



# Life Cycle of an Infrastructure Asset

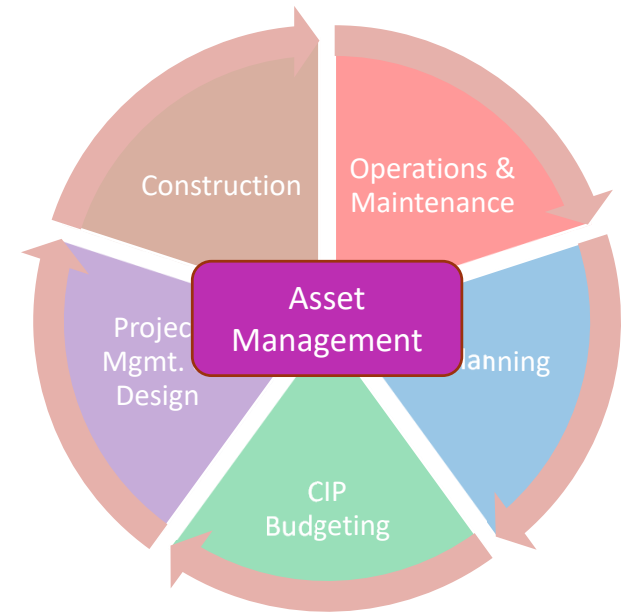
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# Asset Management

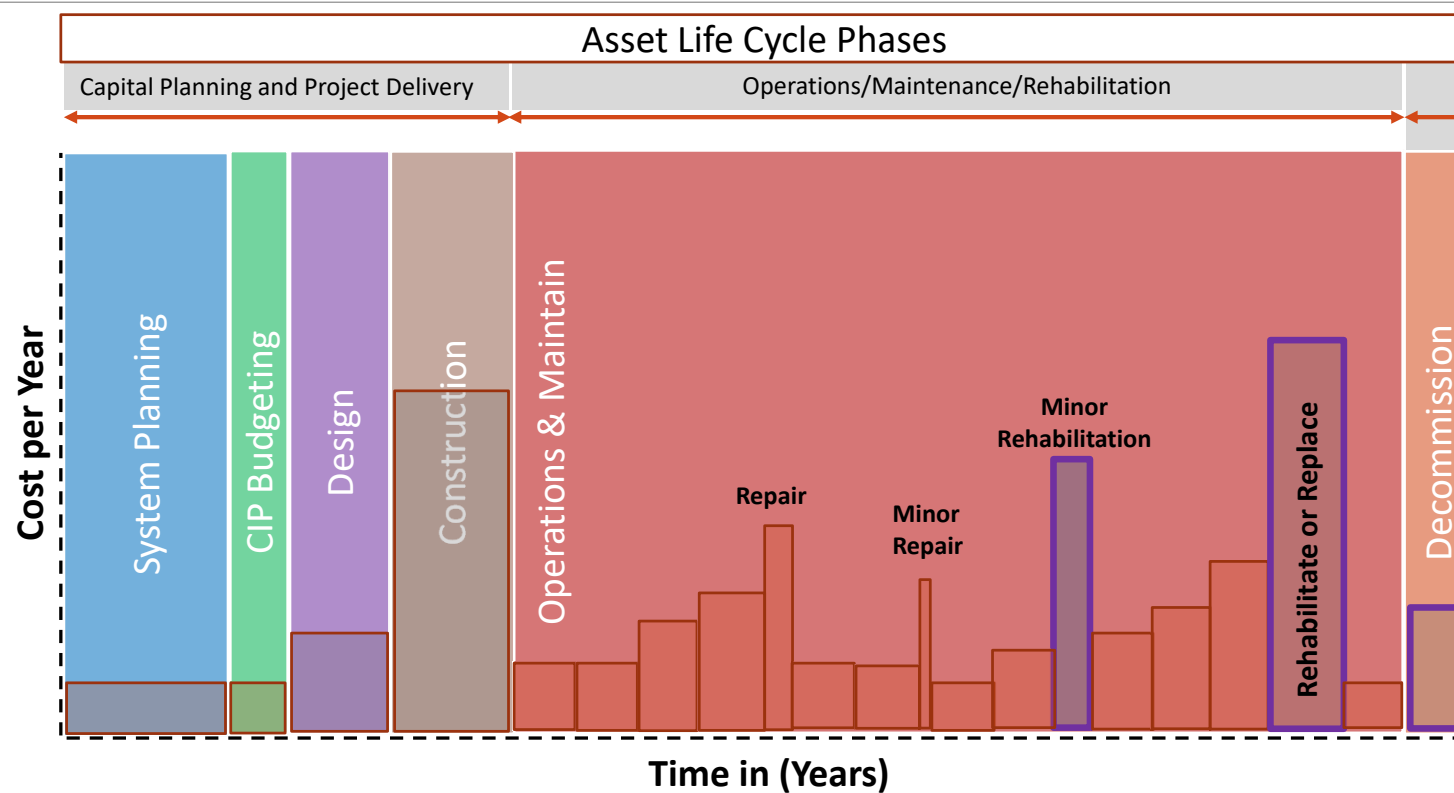
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- Utilities Asset Management Principals:
  - ✓ Adopt life cycle approach
  - ✓ Balance risk, cost and performance
  - ✓ Emphasis on financial and environmental stewardship, plus social considerations
  - ✓ Maintain robust systems to manage and analyze information
  - ✓ Commit to continuous improvement
- Implement leading best practices to effectively and efficiently deliver reliable and sustainable services to our customers and community at the lowest cost.

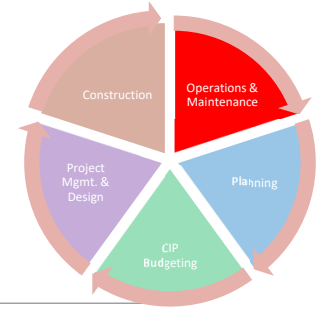




# Life Cycle of an Infrastructure Asset

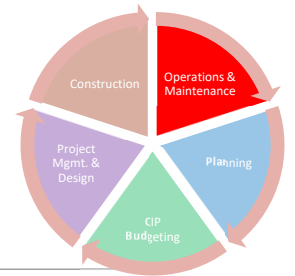


# Utilities Operations & Maintenance



- Emphasis is to extend the useful life of our assets
- Preventive and Corrective Maintenance Programs
- Data analysis - indicators of performance and efficiency
- Regulatory requirements
- Safety

# Utilities Operations & Maintenance

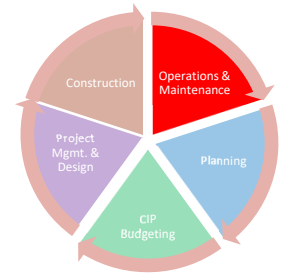


## Water Key Program Areas

- Regulatory Compliance (drinking water)
- Hydrant and Valve Survey
- Inspection, Maintenance & Repair Programs
  - Water Main & Service Line Repair (breaks and leaks)
  - Hydrants/Valves
  - Facility and Building
  - Reservoirs (tanks), Pumps, back up generators
- SCADA Analysis



# Utilities Operations & Maintenance

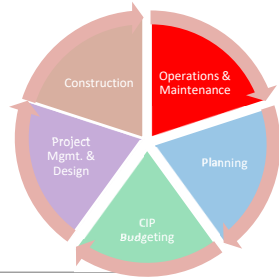


## Wastewater Key Program Areas

- Condition Assessment (CCTV/video inspection)
- System Cleaning (mainline cleaning)
- Manhole Inspection/Critical Manhole Inspection
- Repair Program



# Utilities Operations & Maintenance



## Surface and Stormwater Key Program Areas

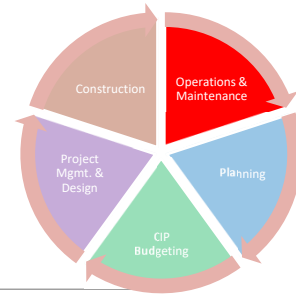
- Inspection
- System Cleaning
- Construction
- Condition Assessment (CCTV/video inspection)
- Regulatory Compliance (NPDES Permit)
- Special Projects





# Utilities Operations & Maintenance

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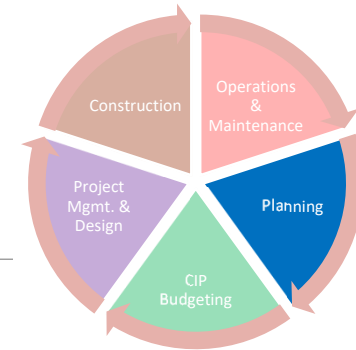
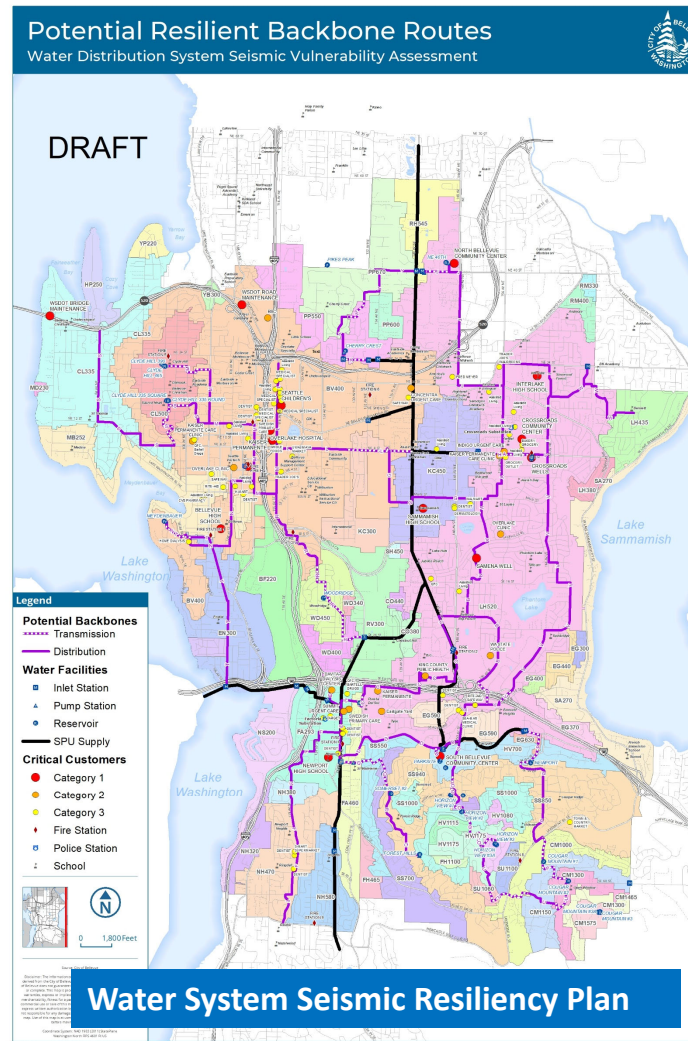
## Coordination with Engineering

- Quarterly meetings to coordinate
- Review of emerging and current issues
- Prioritize repairs/replacements
- Respond to urgent issues
- Collaboration throughout the asset lifecycle

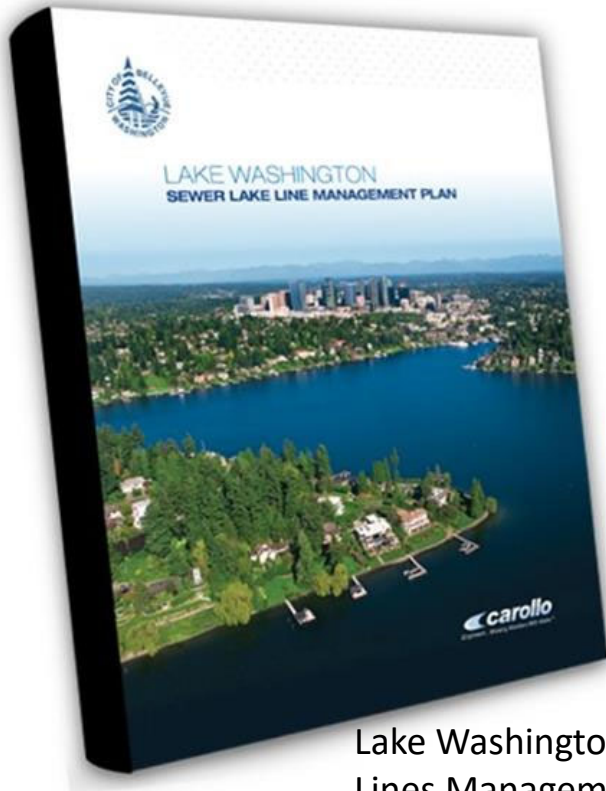
# Utilities Planning

## Drinking Water

- Water System Plan
- Seismic Vulnerability Assessment & Resiliency Plan
- Emergency Water Supply Plan
- Reservoir Structural & Seismic Study
- West Operating Area Reservoir Siting Study



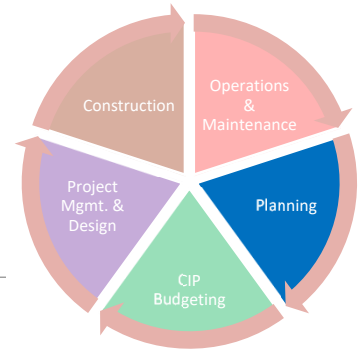
# Utilities Planning



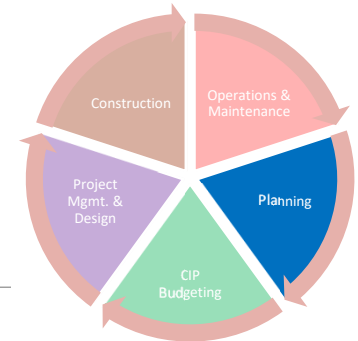
Lake Washington Lake Lines Management Plan

## Wastewater

- Wastewater System Plan
- Lake Washington Lake Lines Management Plan
- Sewer Force Main Condition Assessment
- Medina, Somerset, Fairweather I&I Analysis



# Utilities Planning

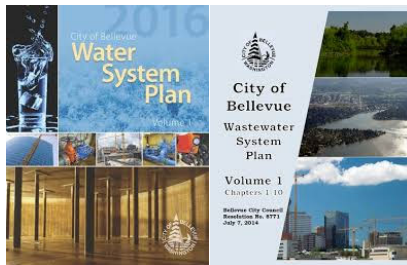
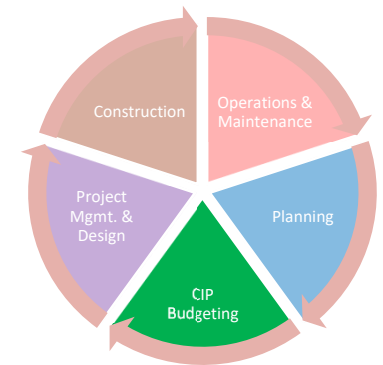


**Watershed Management Plan**

## Storm and Surface Water

- Stormwater System Plan
- Watershed Management Plan
- Stream Culvert Condition Assessment

# Project Identification



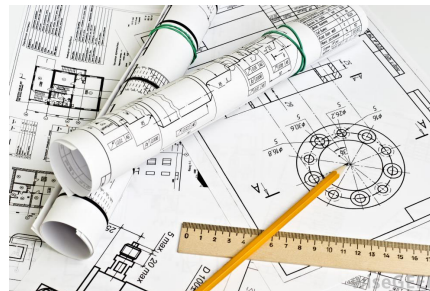
System Plans



Operations and Maintenance



Agency Coordination



Engineering Studies  
Asset Management

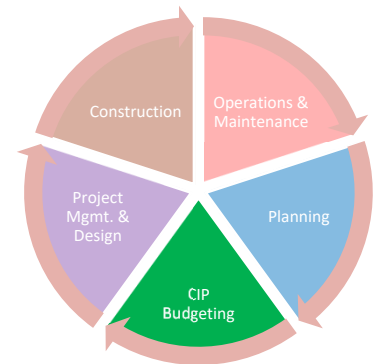
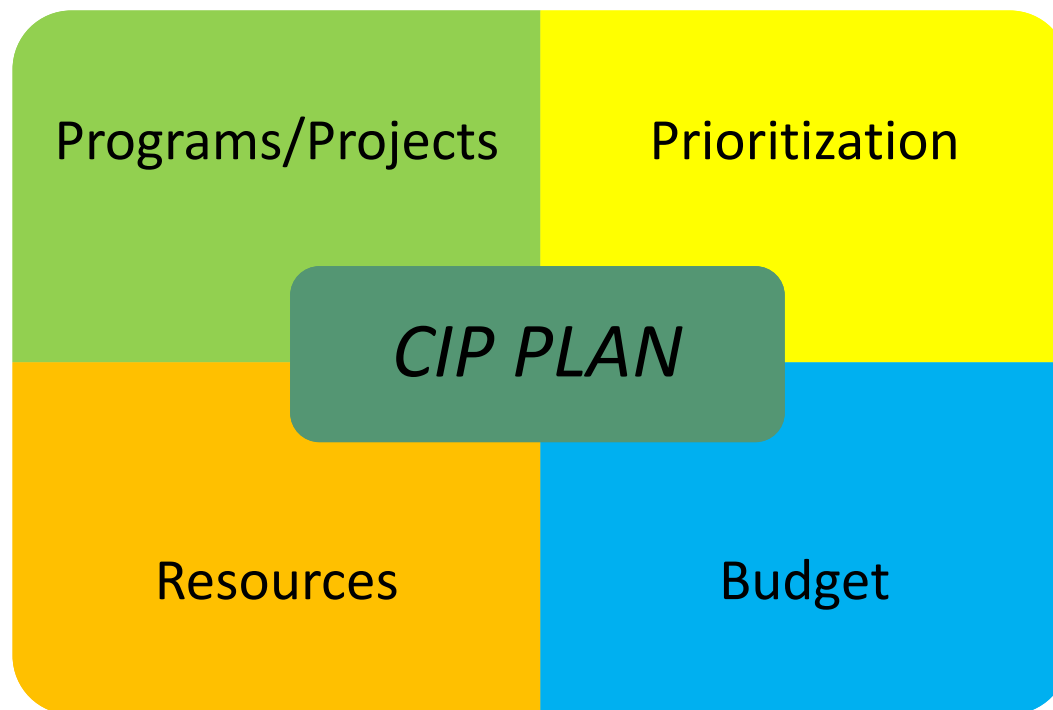


Customer Service



# CIP Budget Development

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# Project Management

Scope, Schedule and Budget Development

Consultant contract management

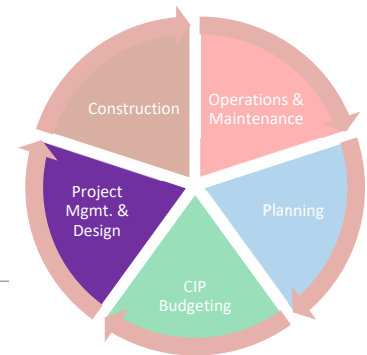
Community outreach and engagement

Monitoring & controlling the project

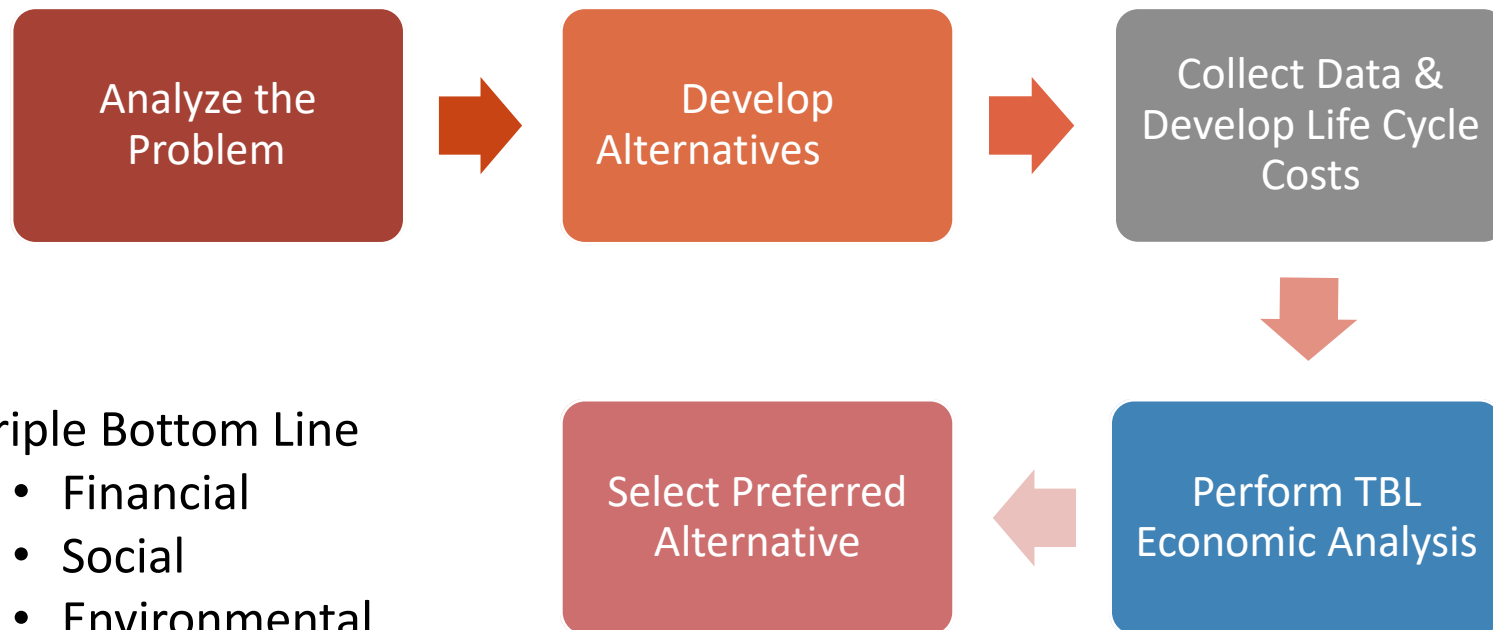
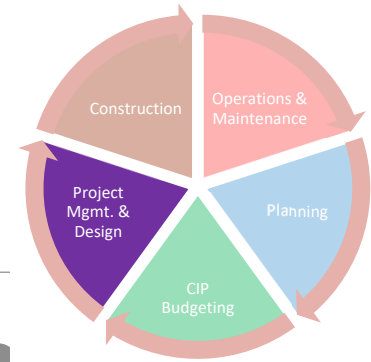
Quality management

Permitting

Project governance processes– Gates



# Project Initiation & Business Case Analysis (BCA)

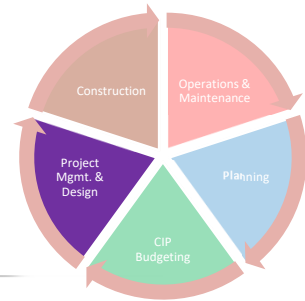


TBL= Triple Bottom Line

- Financial
- Social
- Environmental



# Engineering Design



Survey, Geotechnical and other data collection

Plan Development with Computer Aided Design and Drafting (CADD)

Specifications and Estimates

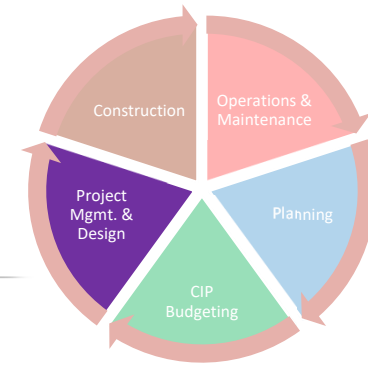
Multiple disciplines: Civil, Mechanical, Electrical, Geotechnical, Hydraulics, Environmental, Control Systems

Public Outreach

Permitting (Army Corps of Engineers, WDFW, DOH, DOE, City of Bellevue (ROW Use, Land Use, Building Permits)

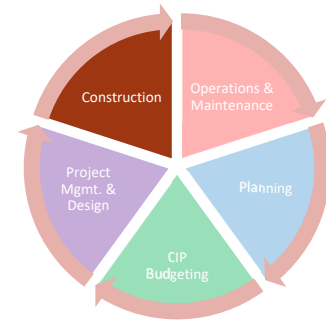
Development of Documents for Construction

# Advertisement, Bid, and Award



RCW 39.04 requires local agencies to award public works contracts to a responsible bidder with the lowest responsive bid. This applies to informal bidding, such as a small works roster, as well as formal competitive bids.





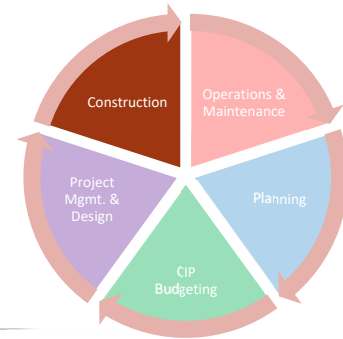
# Construction

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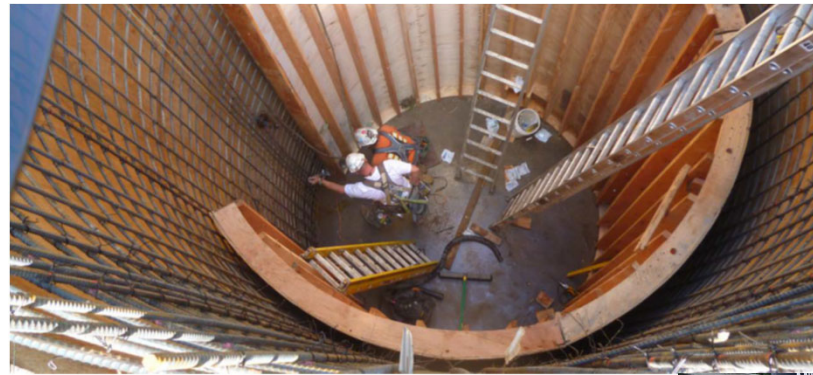
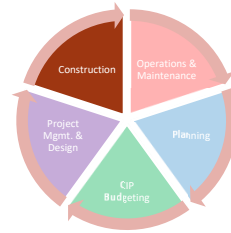
# Construction Management



Manage	Ensure	Ensure	Perform	Coordinate
Manage the construction contract (scope, schedule & budget)	Ensure adherence to the design plans and specifications	Ensure adherence to the permit requirements	Perform quality control inspection	Coordinate with community members, external agencies, O&M, other departments, etc.



# Construction



# Utilities Infrastructure from Development Projects

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**Bellevue Plaza**  
1,050,000 SF Office



**1001 Office Towers**  
647,000 SF Office



**Avenue Bellevue**  
332 Condominium Residences  
251 Hotel Rooms  
76,000 SF Retail



# Pike's Peak Reservoir Replacement





# Pike's Peak Reservoir Replacement

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Artist rendering of new reservoir

## **Project Scope:**

*1.25 MG pre-stressed concrete reservoir with separate fill and draw pipes, control valve vault, site piping, stormwater system, and associated site improvements, landscaping and restoration.*

# Pike's Peak Reservoir Replacement

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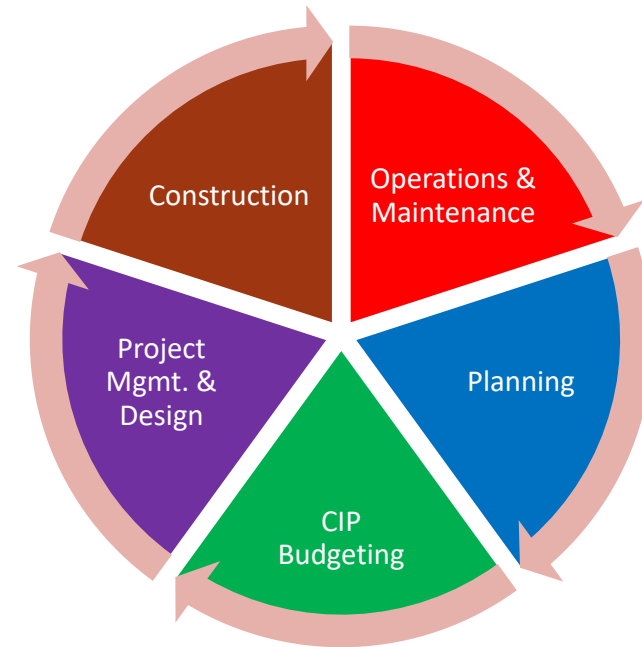
- Robust community engagement process – CAG members:
  - Bridle Trails Community Club
  - Bridle Trails Park Foundation
  - Lake Washington Saddle Club
  - Washington State Parks Department
  - Multiple neighborhood representatives
- **Construction contract awarded on April 12 for \$7.3M**
- **Construction phase: Now till 3<sup>rd</sup> Quarter 2022**





# Summary and Key Points

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# Discussion & Questions

