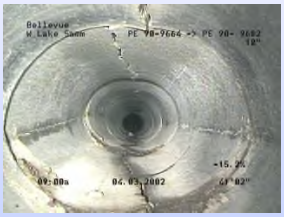
2019-20 STORM & SURFACE WATER CONDITION ASSESSMENT PROGRAM OPTIONS

Environmental Services Commission
June 7, 2018

Presentation Outline



- Purpose
- Background
- Problems & Needs
- Business Case Options Developed
- Comparison of Options
- Key Takeaways
- Digital Side Scanning Camera

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Purpose

Evaluate service level options for a storm drainage pipe video inspection program with the goal of selecting the optimal program that manages costs, benefits and risks to the Utility and its rate payers.

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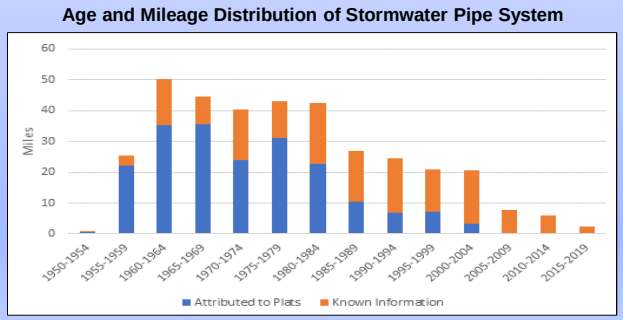
Background

- Existing condition assessment program covers 7-10 miles per year.
- In 2015, CIP work was started to examine 150 miles
  - 100 miles completed so far – 592 repair work orders averaging 6.2 defects per mile.



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Problems & Needs

- 270 miles of the storm system have never been video inspected
- Approximately 16 emergency repairs annually
- 1/3rd of the system has unknown attribute data
- Stormwater lacks dedicated staff for video inspection

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Options Studied

Base Service Level: Contracted inspection – 60 year inspection cycle

Option 1: Increased contracted inspection - 30 year inspection cycle

Option 2: In-house inspection w/New Staff - 20 year inspection cycle

Option 3: Contracted inspection - 20 year inspection cycle

Option 4: Base case & 100 mile accelerated contracted inspection

Option 5: CAMERA UPGRADE In-house inspection 20 year cycle

Option	Miles of Pipe Inspected Annually	Miles of Pipe Inspected through 3-year (2019-2021) accelerated Program	Internal Staff vs. External Vendor	System Inspection Cycle
Base Case	7-10	NA	External Vendor	60 years
1	13.8	NA	External Vendor	30 years
2	20.7	NA	Internal Staff	20 years
3	20.7	NA	External Vendor	20 years
4	9	100	External Vendor	40+ years
5	20.7	NA	Internal Staff	20 years

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Base Service Level

- Contracted video inspection of 7-10 miles a year
- Primarily ahead of Transportation overlay work
- Some investigative capacity
- Existing staff manage the contract

Option	Miles of Pipe Inspected Annually	Miles of Pipe Inspected through 3-year (2019-2021) accelerated Program	Internal Staff vs. External Vendor	System Inspection Cycle
Base Case	7-10	NA	External Vendor	60 years
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5	20.7	NA	Internal Staff	20 years

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Option 1: Increased contracted inspection - 30 year cycle

- Increase contract inspection to 14 miles a year
- 50% focused on Transportation overlay work; 50% focused on programmatic inspection
- Allows for additional investigative work
- Existing staff will manage the contract

Option	Miles of Pipe Inspected Annually	Miles of Pipe Inspected through 3-year (2019-2021) accelerated Program	Internal Staff vs. External Vendor	System Inspection Cycle
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5	20.7	NA	Internal Staff	20 years

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Option 2: In-house inspection w/New Staff - 20 year cycle

- In-house inspection of 20 miles annually
- Focused on Transportation overlay work & additional 10 miles of pipe inspection
- Requires one new FTE to operate the camera & manage the program
- Requires one additional seasonal staff to assist

Option	Miles of Pipe Inspected Annually	Miles of Pipe Inspected through 3-year (2019-2021) accelerated Program	Internal Staff vs. External Vendor	System Inspection Cycle
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4	9	100	External Vendor	40+ years
5	20.7	NA	Internal Staff	20 years

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Option 3: Contracted inspection - 20 year cycle

- Increase contracted inspection to 20 miles a year
- Focused on Transportation overlay work & additional 10+ miles of additional pipe inspection
- Allows for additional investigative work
- Existing staff will manage the contract

Option	Miles of Pipe Inspected Annually	Miles of Pipe Inspected through 3-year (2019-2021) accelerated Program	Internal Staff vs. External Vendor	System Inspection Cycle
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Option 4: Base case + 100 mile accelerated contracted inspection

- Establishes a CIP project for contracted video inspection of 100 miles over two years
- Reverts back to base case after 100 mile accelerated push is completed
- Requires one additional temporary staff to manage the program for 2 Years

Option	Miles of Pipe Inspected Annually	Miles of Pipe Inspected through 3-year (2019-2021) accelerated Program	Internal Staff vs. External Vendor	System Inspection Cycle
Base Case	7-10	NA	External Vendor	60 years
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5	20.7	NA	Internal Staff	20 years

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Option 5: CAMERA UPGRADE In-house inspection 20 year cycle

- In-house inspection of 20 miles a year
- Utilizes new camera technologies that allow for faster video review
- No additional FTE's
- Requires one seasonal staff

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Business Case Assumptions

- Contracted cost per foot for cleaning and inspection decreases as the footage (miles of pipe) increases.
- Program benefits are calculated by the anticipated number of emergency repairs *avoided*.
- Failure costs avoided are based on the cost to perform emergency repairs and include other social costs (traffic impacts).
- 10 Year life cycle NPV assumed discount rate of 2.34%
- Used inspection data and work history to inform rate of critical repairs identified in the storm system
- Benefits of performing inspection ahead of Transportation overlay are not included in the analysis – uniform benefits across all options

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Financial Comparison of Options

10-year Net Present Value

	Base Case Contract Inspection 60 Year Inspection Cycle	Option 1 Contract Inspection 30 Year Inspection Cycle	Option 2 In-House Inspection 20 Year Inspection Cycle (Conventional Camera)	Option 3 Contract Inspection 20 Year Inspection Cycle	Option 4 Base Case and 100 Miles Inspection 2019-21	Option 5 In-House Inspection 20 Year Inspection Cycle (New Camera)
10-year PV Cost Only	-$1,538,000	-$3,033,000	-$3,744,000	-$4,095,000	-$3,278,000	-$2,857,000
10-year PV Benefits Only	$1,403,000	$2,766,000	$4,149,000	$4,149,000	$3,557,000	$4,149,000
10-year NPV	-$135,000	-$267,000	$405,000	$54,000	$279,000	$1,292,000

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Financial Comparison of Options

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10-year PV Cost Only	-$1,538,000	-$3,033,000	-$3,744,000	-$4,095,000	-$3,278,000	**-$2,857,000**
10-year PV Benefits Only	$1,403,000	$2,766,000	$4,149,000	$4,149,000	$3,557,000	**$4,149,000**
10-year NPV	-$135,000	-$267,000	$405,000	$54,000	$279,000	**$1,292,000**

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Key Takeaways from Analysis

- Option 5 - Investing in new camera technology has the highest benefit (NPV)
- Establishes a reasonable condition assessment schedule (20 years)
- Minimal increase in staffing (one seasonal staff to assist)
- Provides additional resource to support corrective maintenance repairs

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2019-2020 Budget Impacts

	2019	2020
Proposed Program	$229,136	$235,099
Base Case 140.23 PA	$157,386	$161,271
Option 5 140.23DA	$71,750	$73,828

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Digital Side Scanning Camera

Benefits vs a traditional video camera:

- No need for stopping to code pipe defects increases productivity/coding back in the office using larger monitors – less traffic impacts/coding is a one person job
- 360 degree viewable area for footage review improves assessment and removes subjectivity
- Picture stitching/flat view display allows for faster review by O&M/Engineering; one stop shop for Engineers
- No moving parts in the camera – fewer breakdowns

https://www.youtube.com/watch?v=mHAvH_o6uME

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Questions?

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2019-2020 Budget

Midlakes Pump Station Cost Update
(Sewer CIP Project #S-61)

	Adopted		Proposed							
	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
2017-23 Sp. Plan (000s)	$302	$0	$0	$0	$0	$0	$0			$302
2019-25 Sp. Plan (000s)			~~$2,819~~ $3,300	$11	$11	$11	$11	$11	$0	~~$2,874~~ $3,355

All figures inflated to year of construction

- Pump station siting and design complexities
- Mitigation of construction risks related to artesian aquifer and potential site settlement
- Increased design budget for added structural design
- Increased construction budget to reflect updated construction cost estimate and preparation of a more complex operating manual
- Construction: Jan 2019 – Dec 2020

Project Vicinity Map

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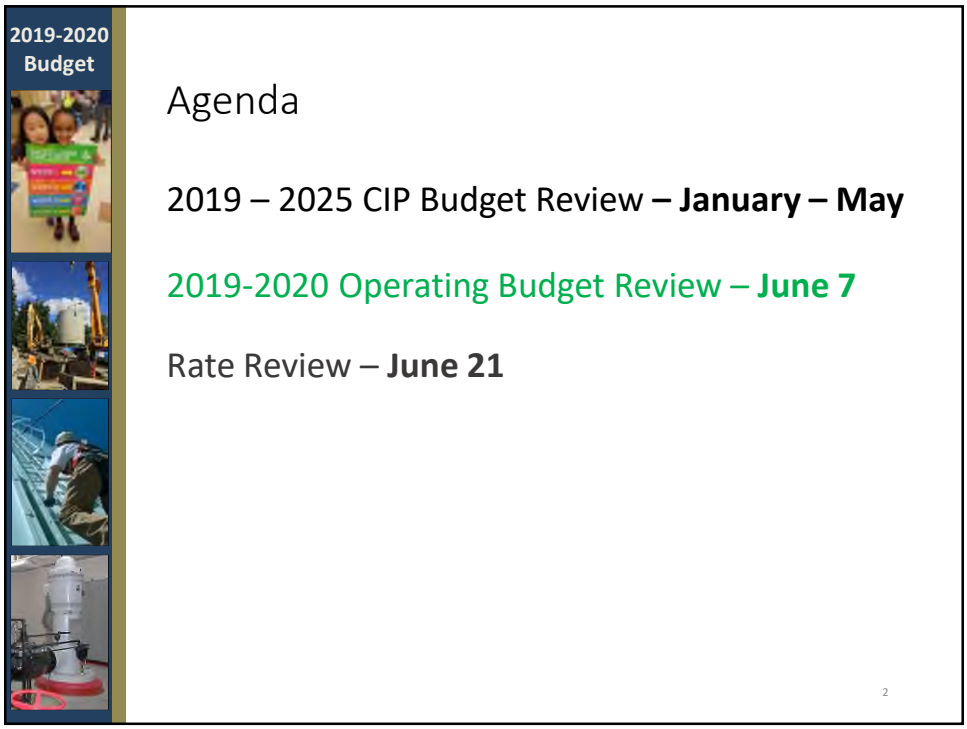
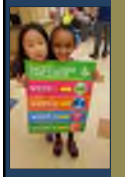
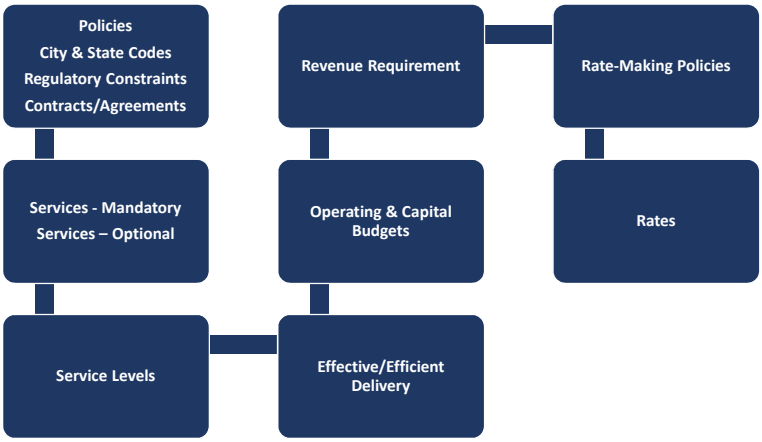
City of Bellevue
Utilities Department
2019-2020 Budget Proposals
June 7, 2018
Environmental Services Commission
GREEN LIVING CHALLENGE
WEEK 1
WEEK 2
WEEK 3
WEEK 4


2019-2020 Budget
Agenda
2019 – 2025 CIP Budget Review – **January – May**
2019-2020 Operating Budget Review – **June 7**
Rate Review – **June 21**
2

2019-2020 Budget




Budget Development Process



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2019-2020 Budget




Early Outlook Forecast – March 2018

Typical Residential Combined Water, Sewer, & Storm Utility Monthly Bill Rate Drivers

	2019 Bill Change		2020 Bill Change	
Prior Year Monthly Bill		$169.55		$177.91
Wholesale costs	2.1%	$3.56	1.0%	1.82
Local				
CIP	*1.0%*	*$1.65*	*0.8%*	*$1.33*
R&R	*0.5%*	*0.90*	*0.9%*	*1.50*
Taxes and Interfunds	*0.6%*	*1.03*	*0.5%*	*0.86*
Operations	*0.7%*	*1.22*	*0.6%*	*1.24*
Total Local	*2.8%*	$4.80	2.8%	$4.93
Total Increase	***4.9%***	**$8.36**	***3.8%***	**$6.75**
New Monthly Bill		$177.91		$184.66

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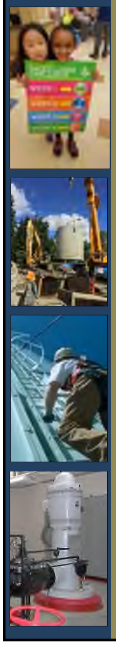
2019-2020 Budget



Budget Priorities

- Sustainable high quality utility services
  - Responsible management of infrastructure assets
  - Long-term financial sustainability
- Certainty and predictability of rates

➢**Goal: Maintain services with minimal new requests**

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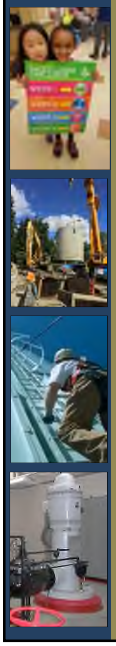
2019-2020 Budget



2019-2020 Operating Budget Highlights

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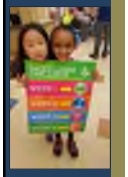
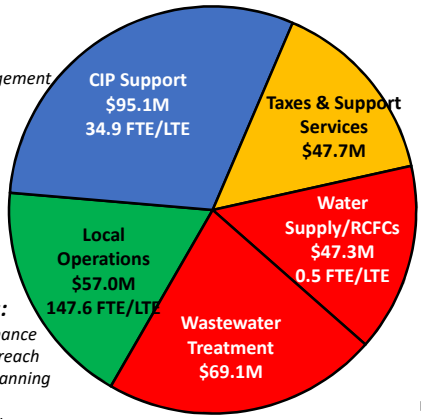
2019-2020 Budget




Proposed 2019-2020 Utilities Budget

$316.2M, 183.0 FTE/LTE

30%
Capital Related:
Transfers to CIP / R&R
CIP Design and Management



52%
Financial Obligations:
Taxes / Support Services
Drinking Water Supply
RCFC Payments
Wastewater Treatment

18%
Local Operations:
Operations & Maintenance
Customer Service/Outreach
Engineering System Planning
Development Services
Support Systems/Assets
Management/Regulatory

Excludes operating reserves

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2019-2020 Budget




2019-2020 New Requests

Maintain Current Service Levels

- Coal Creek Utility District (CCUD) Reservoir Coating ($750K)
- Maintain Customer Service ($37K/yr, 0.25FTE)

Service Enhancement

- Storm video inspection program ($71K/yr)

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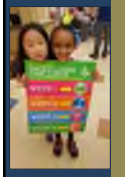
2019-2020 Budget




Implementation of Previously Approved AMI Project

Fully Funded by CIP

- AMI Implementation Temporary Staffing
  - 2 Field support
  - 2 customer service
  - 2 GIS mapping

Fully Funded by Existing Staffing Budget

- Meter Reading Temporary Staffing
  - 2 meter readers

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2019-2020 Budget




2019-2020 Operating Proposals Review

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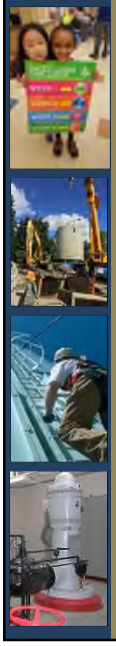
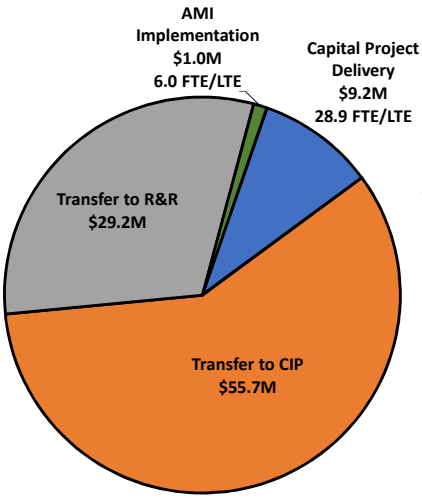
2019-2020 Budget



Capital Related Operating Proposals

$95.1M, 34.9 FTE/LTE



- $3.5B system infrastructure
  - 1,700 miles of pipes
  - 24 water reservoirs
  - 68 pump stations
  - 19 miles of submerged sewer lakelines
- Delivery of 2019-2020 CIP
  - Aging infrastructure
  - Capacity for growth
  - Environmental preservation
  - Customer enhancement

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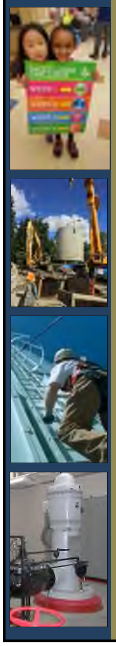
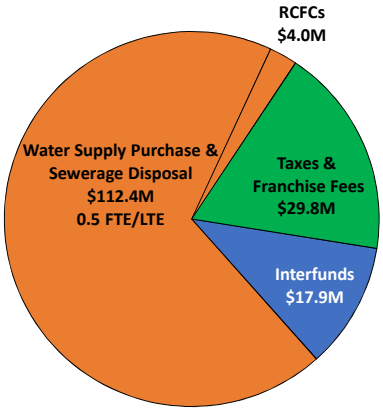
2019-2020 Budget



Financial Obligations - Wholesale, RCFC, Taxes

$164.1M, 0.5 FTE/LTE



- Contractual and legal obligations
  - Water supply contract with Cascade Water Alliance
  - Wastewater contract with King County
  - State & local taxes/franchise fees
  - Support services - rent, IT, HR, etc.

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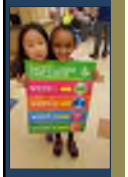
2019-2020 Budget




Local Operations

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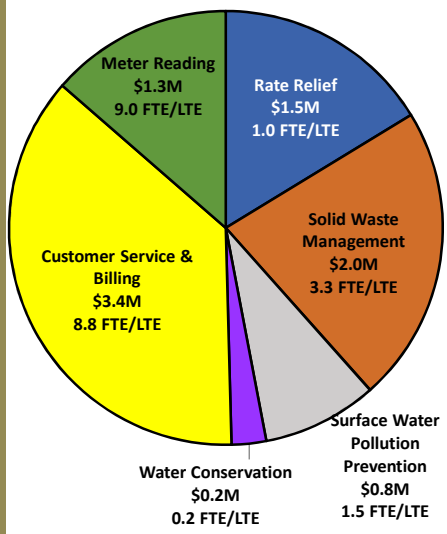
2019-2020 Budget




Customer Service / Outreach

$9.2M, 23.8 FTE/LTE



- 38,000 customer accounts
- 20,000 meter reads monthly
- 5,000 bills weekly
- 125 customer calls daily
- 4,500 move requests yearly
- Rate relief for 1,100 residents
- $24M solid waste contract

- **Cost Drivers Beyond Inflation**
  - Merchant fees
  - 0.25 FTE Billing Account Rep

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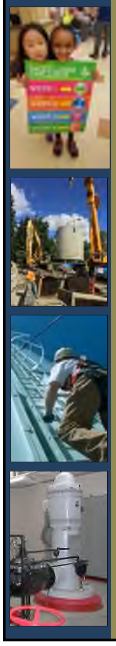
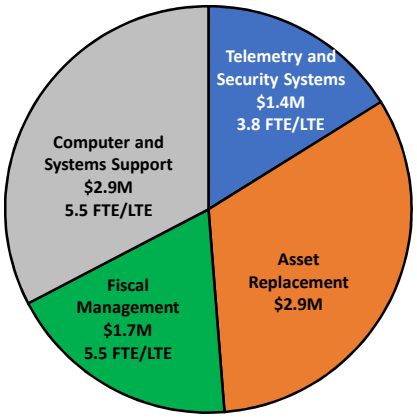
2019-2020 Budget



Support Systems / Assets

$8.9M, 14.8 FTE/LTE



Systems Management
- SCADA
- Customer Information System (CIS)
- Maximo
- GIS mapping

Asset Replacement
- Vactors, CCTV vans, vehicles
- Technology systems

Fiscal Management
- $316M Operating Budget
- $218M CIP

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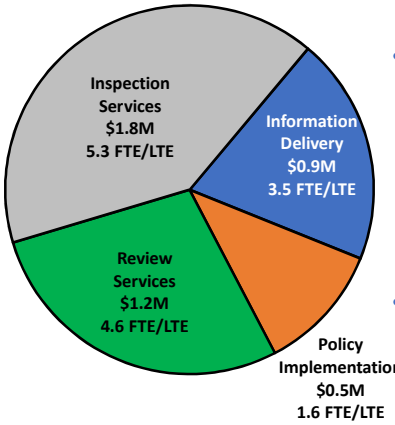
2019-2020 Budget

Utilities Development Services

$4.4M; 14.9 FTE/LTE



- Design review & construction inspection for public utilities needed for private & public developments
- Ensures compliance with local, state and federal regulations
  - Codes, requirements, and engineering standards are met
  - Quality utility infrastructure is built to serve current and future customers
- **Cost Drivers Beyond Inflation**
  - Increased reviews and inspections due to development growth

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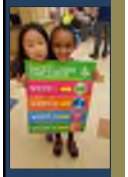
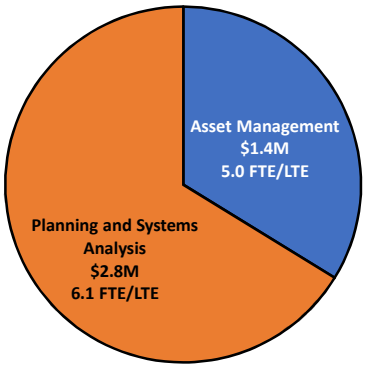
2019-2020 Budget




Engineering - System Planning

$4.2M, 11.1 FTE/LTE



Utility System Planning for our $3.5B utility infrastructure

- Utility System Plans – Water, Sewer, and Stormwater
- Asset Management Planning
- Infrastructure needs assessment
  - O&M input
  - Direct customer input
- Seismic vulnerability assessment and mitigation planning
- Water Rights & Wells Master Plan
- Stormwater Strategic Initiatives
- 7 – Year CIP Development

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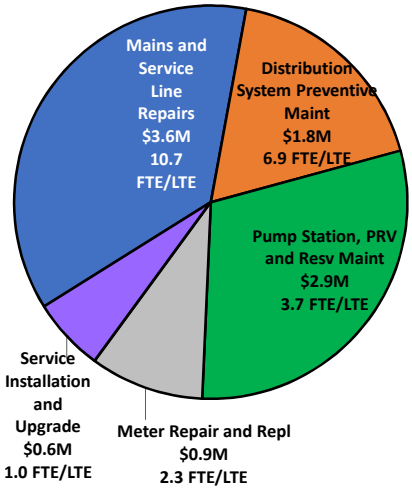
2019-2020 Budget




Operations and Maintenance – Water

$9.8M, 24.5 FTE/LTE



Water System

- 40,000 water connections
- 610 miles of water mains
- 24 reservoirs
- 22 pump stations
- 62 pressure zones
- 10,000 valves
- 5,800 fire hydrants

Cost Drivers Beyond Inflation

- CCUD reservoir coating - $750K
- Water service supplies

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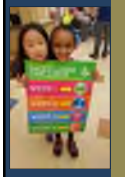
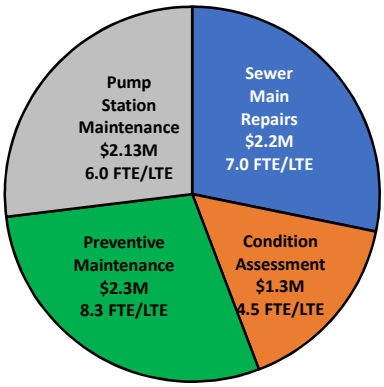
2019-2020 Budget




Operations and Maintenance – Sewer

$7.9M, 25.7 FTE/LTE



- Wastewater System
  - 640 miles of pipe
  - 46 pump & flush stations
  - 14,000 maintenance holes
  - 34 major connections to King County system
  - 19 miles of submerged lakelines

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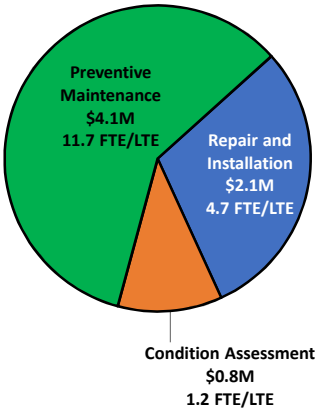
2019-2020 Budget




Operations and Maintenance – Storm & Surface Water

$7.0M, 17.6 FTE/LTE



- Storm and Surface Water System
  - 20,000 public storm drains
  - 400 miles of pipes
  - 350 city-owned residential detention facilities
  - 11 city-owned regional detention facilities
  - 80 miles of open streams
  - 864 acres of protected wetlands
- Regulatory Compliance (NPDES, ESA)
- **Cost Drivers Beyond Inflation**
  - Increase inspection from 7 miles to 20 miles per year
  - Temp help/supply costs

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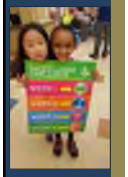
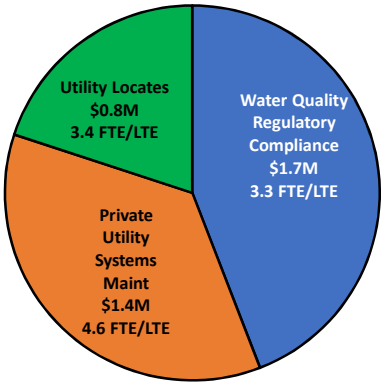
2019-2020 Budget




Regulatory

$3.9M, 11.3 FTE/LTE



- Federal and State regulations
  - Safe Drinking Water Act
  - NPDES Permit
  - Clean Water Act
- Private System Maintenance
  - Cross-Connection/Backflow
  - Private Drainage Inspections
  - Fats, Oils, Grease (FOG)
- Utility Locates (Call 811)

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2019-2020 Budget




Department Management

- $**1.7M, 4.0 FTE/LTE**
- Departmental leadership
  - Strategic Planning
  - Policy Implementation
  - Industry Best Practices
  - Stewardship of Resources
  - Innovation & Process Improvements
  - Workforce Development
  - Regional Collaboration

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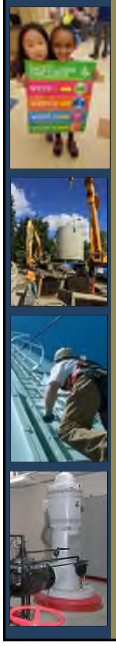
2019-2020 Budget



Proposed Utilities FTE/LTE Changes

	FTEs	LTEs	Total
Authorized - 2018	**173.75**	**2.00**	**175.75**
Billing Account Rep	*0.25*		*0.25*
AMI Implementation Support Meter Reader		 *6.00* *2.00*	 *6.00* *2.00*
Maint Worker (expires end of 2018)		*(1.00)*	*(1.00)*
Total Change	**0.25**	**7.00**	**7.25**
Requested - 2019-20 Budget	**174.00**	**9.00**	**183.00**

FTE: Full Time Equivalent; LTE: Limited Term Employee

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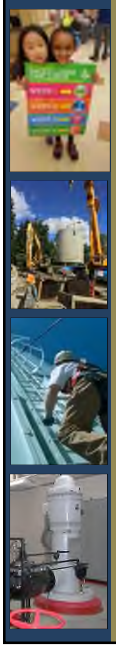
2019-2020 Budget



Next Steps

- June 21
  - Rate Review & Discussion
  - Commission's budget proposal recommendation to Leadership Team

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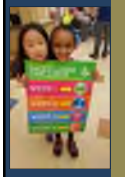
2019-2020 Budget



Our Customers Expect High Quality Services

- ❖High customer service rating
  - 87% customer satisfaction
- ❖Solid financial management
  - High bond rating – Aa1
  - No debt
- ❖National standards of excellence
  - APWA Accreditation
  - AMWA Platinum Award
  - AMWA Sustainable Water Utility Management Award

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