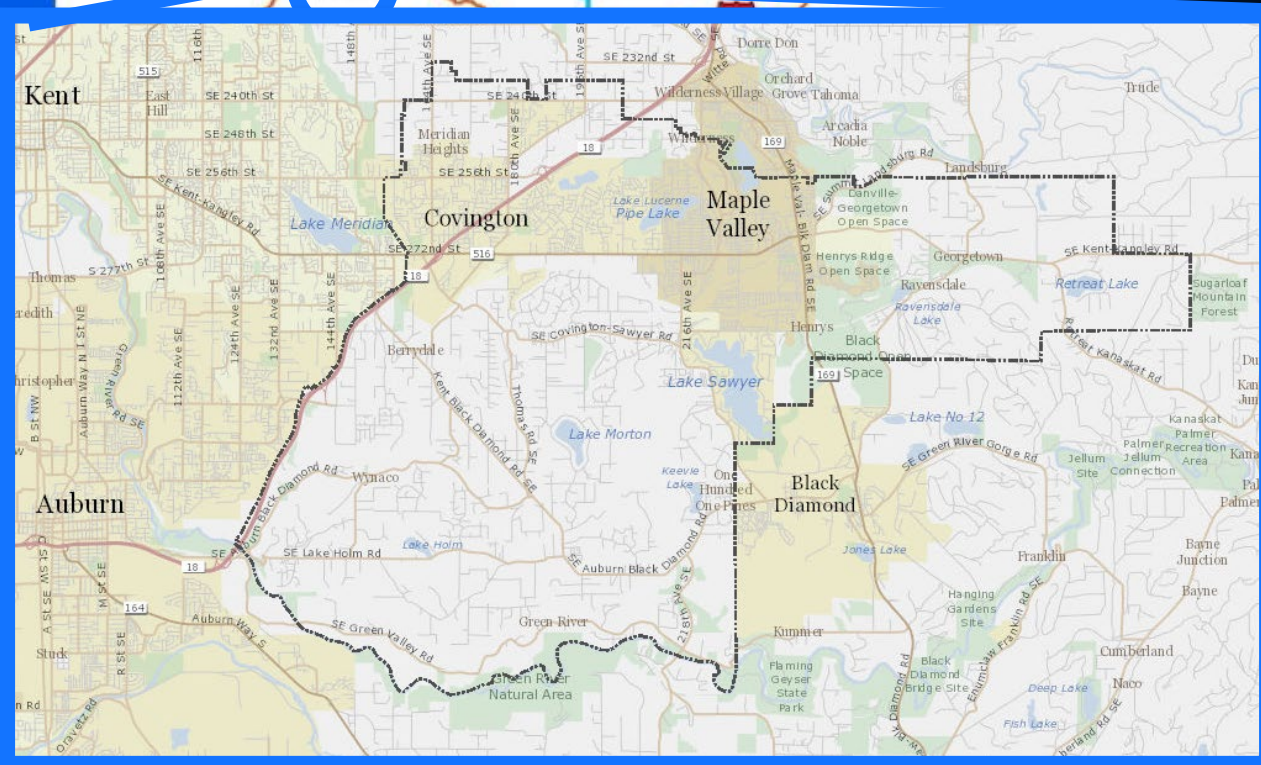
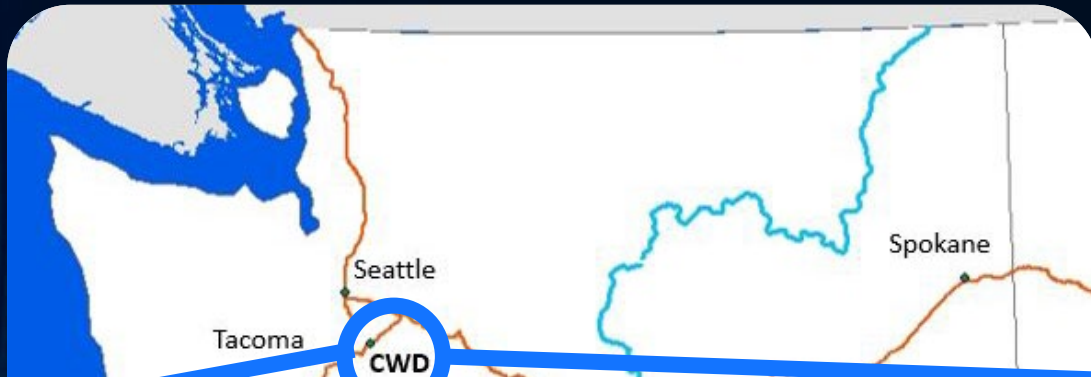




# Asset Management Journey

*IMPLEMENTING MANAGEMENT STRATEGIES TO DRIVE  
FUTURE PLANNING AND LONG-TERM FUNDING NEEDS*

# Covington Water District

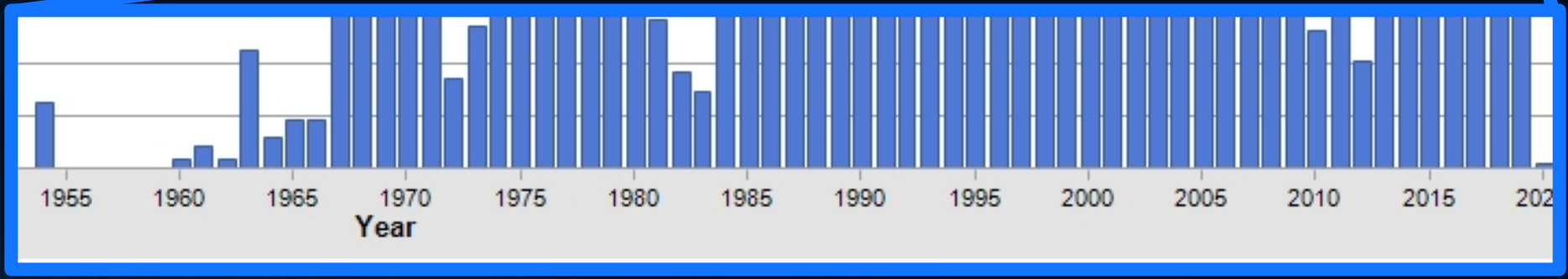
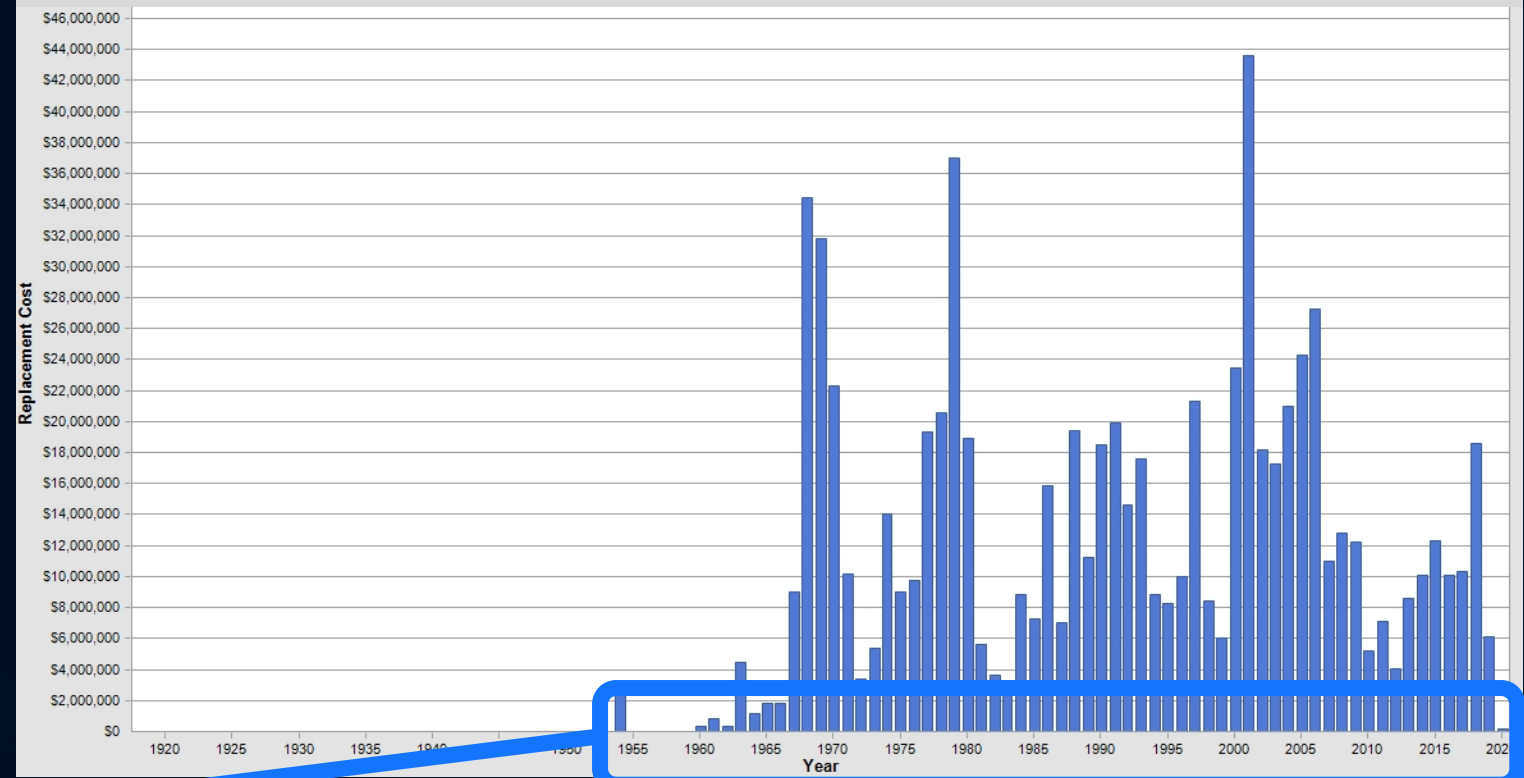


- Founded in 1960
- Provide clean, safe and reliable water to a 55-mile area in South King County, serving a population of over 50,000 through 19,000+ connections
- Responsible for over 90,000 water assets, including 322 miles of transmission and distribution pipe.
- 2022 Production: 2.004 billion gallons
- 2022 Average Daily Demand: 5.54 MGD



**Our Mission:**  
To serve quality water with excellent customer service, commitment to strategic and emergency planning, fiscal responsibility, regulatory compliance, stewardship and partnerships.

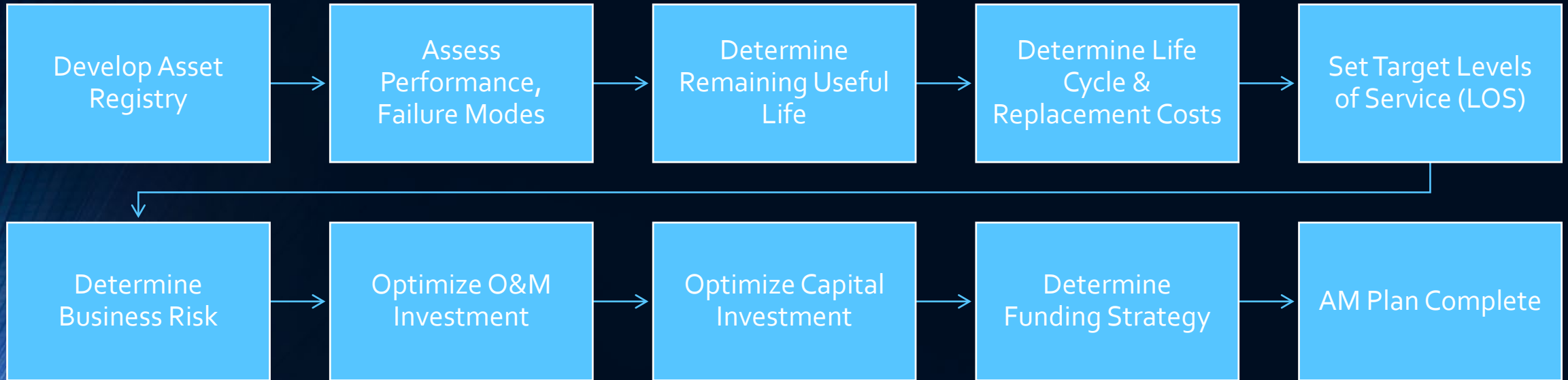
Covington Water District Asset Installation Profile



# Asset Management Framework

1. What is the current state of our assets?

2. What is our required level of service?



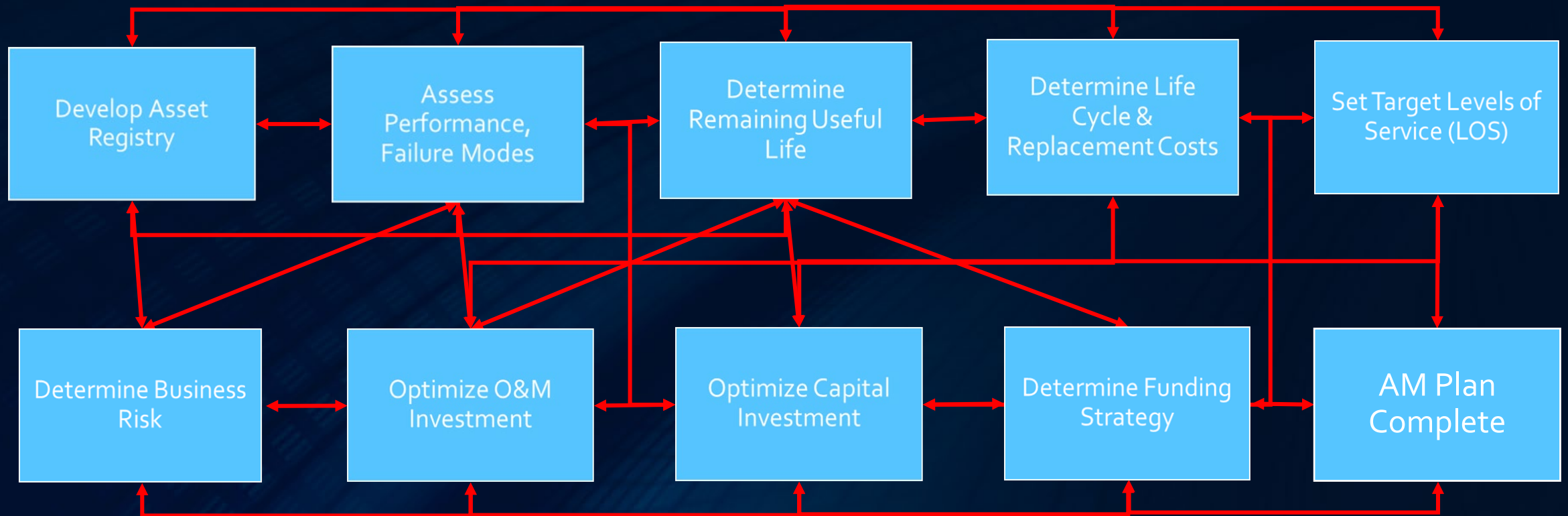
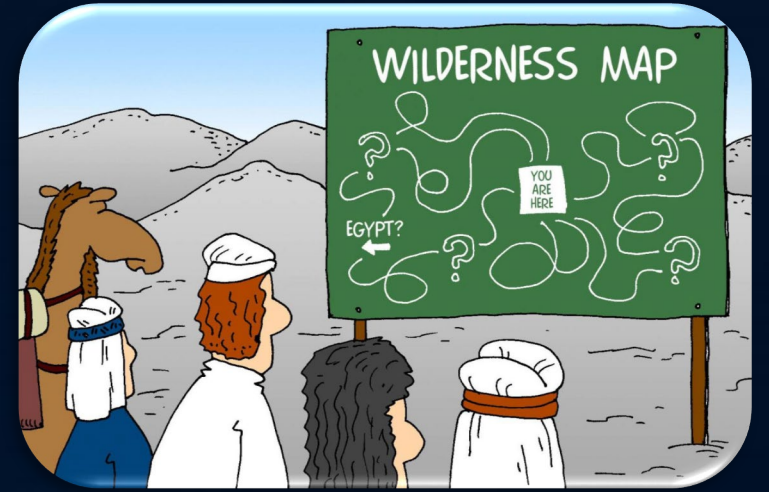
3. Which assets are critical to sustained performance?

4. What are the best O&M and CIP investment strategies?

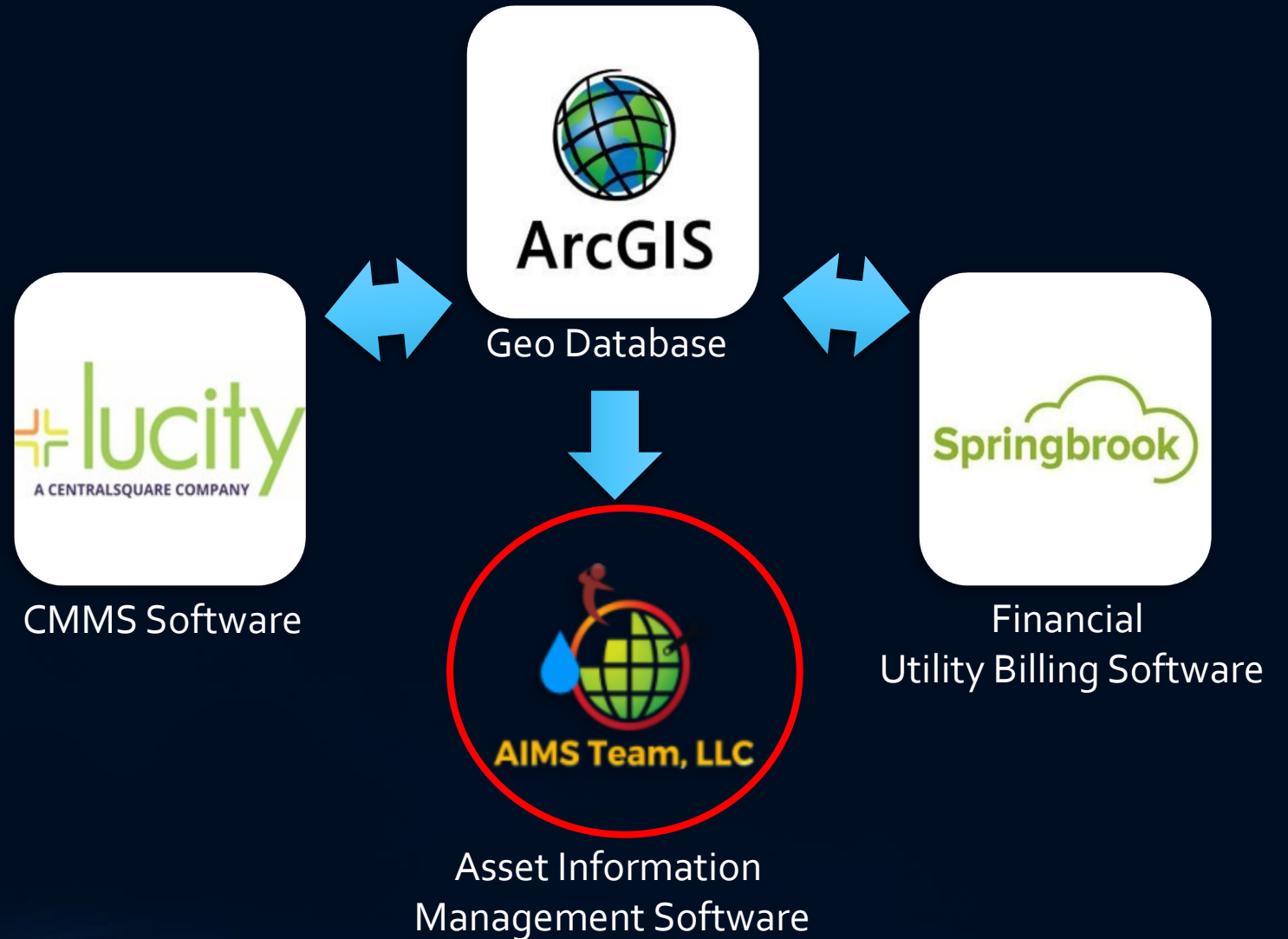
5. What is my best long-term funding strategy?

# The path isn't always a straight line.

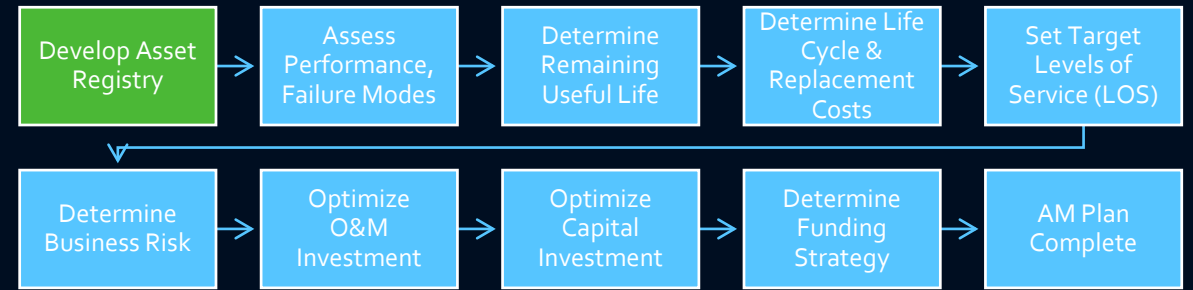
*"No plan survives first impact"*



# Covington Water District's Asset Management Systems



# What is the current state of our assets?



## Asset Management Plan Statistics

Model Year: **2023**  
 Number of Assets With AMP Parameter Discrepancies: **19**  
 Number of Validated Assets: **85,925**  
 Number of Assets With AMP Inclusion: **85,967**  
 Number of Model Ready Assets: **85,693**  
 Number of Assets With Model Results: **85,693**  
 Number of Assets Synchronized into AMP: **85,967**

### Asset Hierarchy

open all | close all

- Reload
- Add Level
- Delete Level
- BLDG0008 - Headquarters Building H (1)
  - Electric Power System (1)
    - Turbine Building (4)
  - Booster Pumping
    - Tank 2 Booster Pump Station (2)
    - Sugarloaf Estates Booster Pump Station
    - Tank 3 Booster Pump Station (2)
    - Tank 5 Booster Pump Station (2)
    - Tank 6 Booster Pump Station
  - Distribution System
    - Control Valves (56)
    - Interties
    - Water Hydrants (2508)
      - Lateral HY (2516)
      - Foot Valves (2488)
    - Water Meters (24669)
    - Water Pipes
    - Water Valves (7124)
    - Water Vaults (70)
  - Vehicles and Mobile Equipment (32)
  - Water Storage
    - Headquarters Tanks (6)
      - Tank 2 (9)
      - Tank 3 (8)
      - Tank 4 (5)
      - Tank 5 (7)
      - Tank 6 (8)
      - Tank 7 (6)
    - Sugarloaf Estates (6)
    - Sugarloaf Mountain (8)

### Folder Contents: Lateral HY (ID=156)

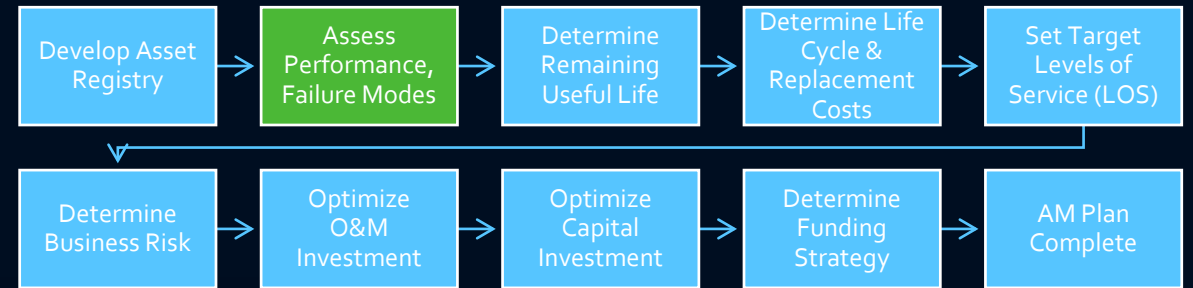
Contents AMP Report AMP Administration

#	Asset ID	Asset Name	Asset Class	Asset Area	Lucity Table	Lucity ID
1	LHY00001	Lateral Hydrant	PIPE	660	WTPIPE	14145
2	LHY00002	Lateral Hydrant	PIPE	660	WTPIPE	14146
3	LHY00003	Lateral Hydrant	PIPE	660	WTPIPE	14147
4	LHY00004	Lateral Hydrant	PIPE	660	WTPIPE	14148
5	LHY00005	Lateral Hydrant	PIPE	660	WTPIPE	14149
6	LHY00006	Lateral Hydrant	PIPE	660	WTPIPE	14150
7	LHY00007	Lateral Hydrant	PIPE	660	WTPIPE	14151
8	LHY00009	Lateral Hydrant	PIPE	660	WTPIPE	14152
9	LHY00010	Lateral Hydrant	PIPE	660	WTPIPE	14153
10	LHY00011	Lateral Hydrant	PIPE	660	WTPIPE	14154
11	LHY00012	Lateral Hydrant	PIPE	660	WTPIPE	14155
12	LHY00013	Lateral Hydrant	PIPE	660	WTPIPE	14156
13	LHY00014	Lateral Hydrant	PIPE	660	WTPIPE	14157
14	LHY00016	Lateral Hydrant	PIPE	660	WTPIPE	14159
15	LHY00017	Lateral Hydrant	PIPE	660	WTPIPE	14160
16	LHY00018	Lateral Hydrant	PIPE	660	WTPIPE	14161
17	LHY00019	Lateral Hydrant	PIPE	660	WTPIPE	14162
18	LHY00020	Lateral Hydrant	PIPE	660	WTPIPE	14163
19	LHY00021	Lateral Hydrant	PIPE	660	WTPIPE	14164
20	LHY00022	Lateral Hydrant	PIPE	660	WTPIPE	14165
21	LHY00023	Lateral Hydrant	PIPE	660	WTPIPE	14166

Page: 1 of 51 | Page size: 50 | Item 1 to 50 of 2516



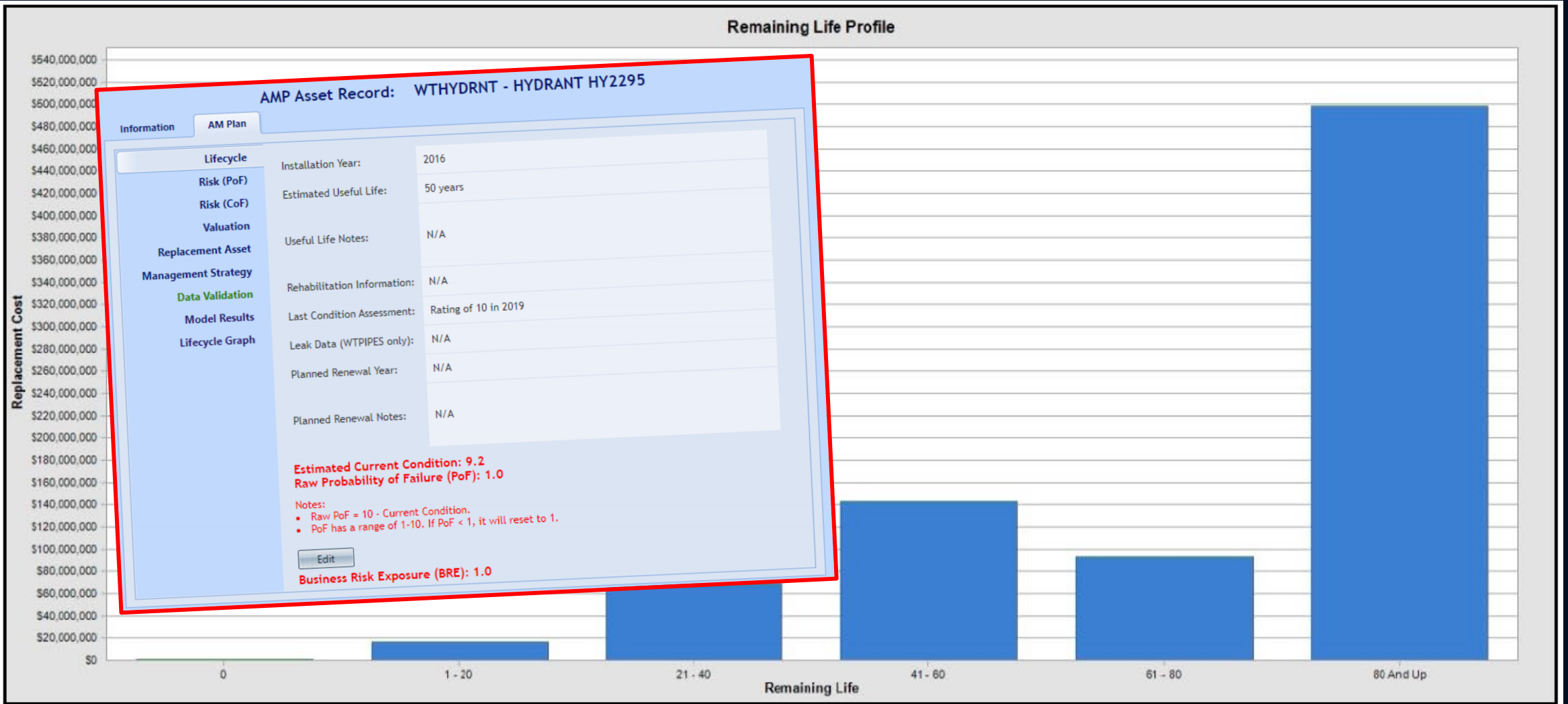
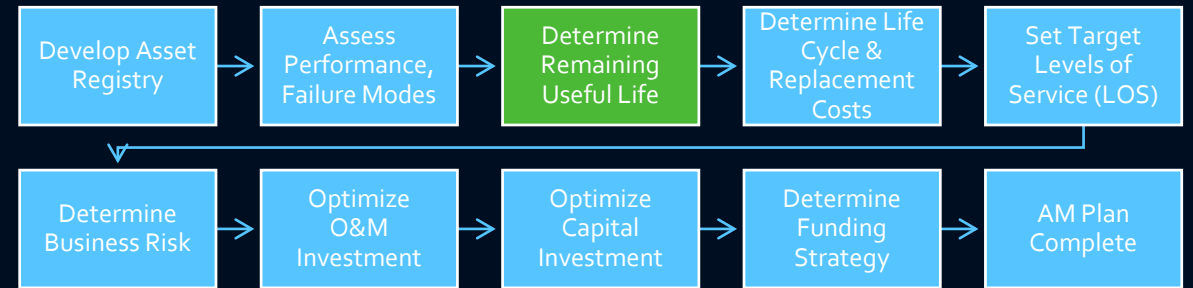
# What is the current state of our assets?



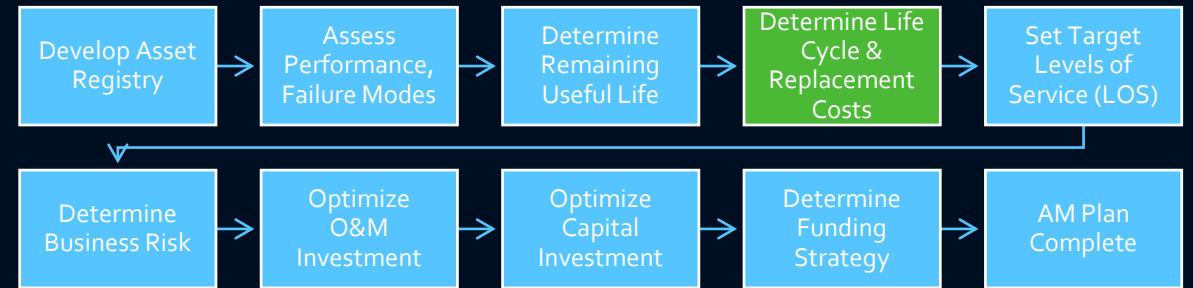

Condition Ratings					
Rating	1	2	3	4	5
Condition	Excellent	Good	Fair	Poor	Failing
Definition	New or refurbished asset, exceeds operational performance requirements.	Always meets operational performance requirements.	Usually meets operational performance requirements. Out of service only for short periods.	Inefficient; becoming ineffective, obsolete. Not meeting operational performance requirements.	Failing, not capable of sustaining required performance.
Operability	Always available for operations.	Practically always available for operations.	Functioning with occasional interruption of service.	Periodic breakdown. Out of service for moderate periods, somewhat difficult to return to service.	Essentially inoperable. Continuous and recurrent breakdowns.
Maintainability	Easily maintained.	Easily maintained with mainly PM, minimal attention required.	PM with increasing corrective maintenance.	Downtime is excessive, difficult to return to service.	Extensive downtime duration; Practically impossible to return to service. Parts no longer available.
Maintenance Type	PM Only	PM with some minor repair.	PM with growing number of minor corrective work orders.	PM's not sufficient to keep in operation. Corrective work orders increasing significantly.	Corrective maintenance is frequent with repeated patterns of failure. Close monitoring is required.



# What is the current state of our assets?



# What is the current state of our assets?



Asset Type	Replace Cost	Rehab Cost
Automatic Transfer Switch	\$24,000	\$0
CONTROL VALVE	\$54,000	\$150
Exterior Lighting	\$45,000	\$0
Fencing	\$160,000	\$0
Forklift	\$30,000	\$0
Generator	\$150,000	\$0
HVAC	\$70,000	\$0
HYDRANT	\$185,000	\$4,000
METER	\$0	\$10,600
Motor	\$140,000	\$0
Motor Control Center	\$220,000	\$0
Panel	\$10,000	\$0
Panelboard	\$40,000	\$0
PIPE	\$317,592	\$0
ROOF	\$15,000	\$0
SCADA Field Devices	\$50,000	\$0
Security	\$110,000	\$0
Switch	\$110,000	\$0
Switchboard	\$15,000	\$0
SYSTEM VALVE	\$1,900	\$0
TANK	\$0	\$4,800,000
Transformer	\$355,000	\$0
Treatment Equip CL2	\$94,500	\$6,250
Treatment Equip Filters	\$20,000	\$0
Treatment Equip NAOH	\$55,500	\$0
Vehicle	\$565,000	\$0
<b>Grand Total</b>	<b>\$2,837,492</b>	<b>\$4,821,000</b>

AMP Asset Record: WTHYDRNT - HYDRANT HY2295

Information | AM Plan

**Lifecycle**

Risk (PoF)

Risk (CoF)

**Valuation**

Installation Cost: \$0.00

Past O&M Cost: \$0.00

Replacement Cost: \$5,000.00

Rehabilitation Cost: 20 %  
(% of Replacement Cost)

**Replacement Asset**

**Management Strategy**

Data Validation

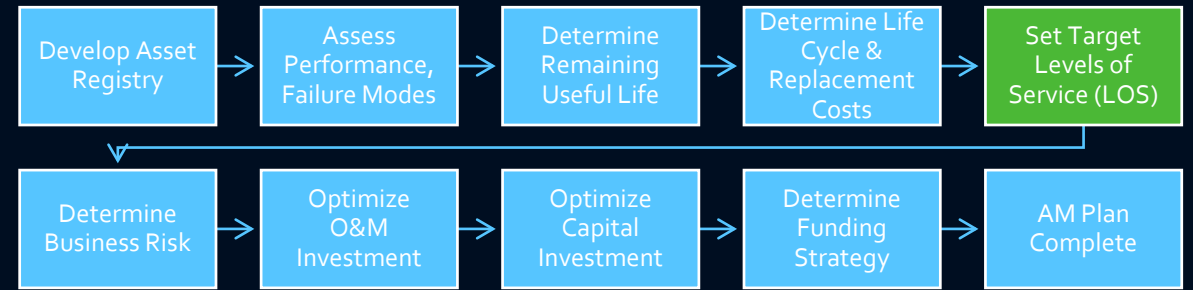
Model Results

Lifecycle Graph

Edit

Close Window

# How Do We Determine Our Required Level of Service?



## Step 1: Customer Strategic Outcomes

Established who our stakeholders are and the desired community outcomes. Determine which CWD core value aligns with the community outcome. Determine the desired strategic outcomes to align with community outcomes and core values.

## Step 2: Levels of Service Standard

Determine customers expectations and desired level of service (cLOS) for strategic outcomes. Align desired customer outcomes to a level of service (LOS). Determine whether this is a proposed LOS or a current LOS monitored by CWD.

## Step 3: Performance Measures & Responsibility

Determine KPI for each LOS; what CWD provides and how it is measured. Understand how to measure and the data sources needed to measure each KPI. Determine stakeholders impact of not maintaining LOS. Determine who at CWD is responsible for each LOS

## Step 4: Cost Implication

Determine the cost implication of maintaining each LOS. Determine current O&M and Capital costs to maintain LOS. Determine any additional O&M or Capital costs needed to maintain LOS.

## Step 5: Asset Level

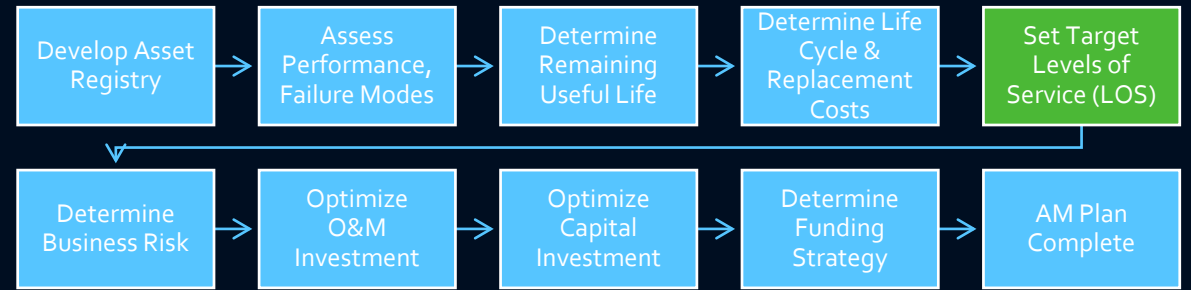
Determine which assets are required to maintain each LOS. For each asset detail the performance indicators required of the asset to meet the LOS.

What is required of our assets now and in the future?





# What is our required level of service?



## Asset Class: Hydrants

This asset class comprises: **2.79%** of the Covington Water District's asset registry

This asset class has a replacement value of: **\$12,350,000**

**Asset Count**  
This section evaluates the total number of assets in the asset class. This evaluation includes total assets in asset registry, total validated assets, total model-ready assets, and total model results. The total number of validated assets are assets that have been updated in AIMs in preparation for modeling. Model-ready assets have had replacement cost information and management strategies applied. Total model results reflects the number of assets that have been incorporated into future funding models.

Total Assets in Asset Registry	Total Validated Assets	Total Model Ready Assets	Total Model Results
2479	2471	2471	2471

**Asset Condition**  
This section evaluates the current condition of assets for this asset class. Condition assessments are performed by field staff during periodic operations and maintenance activities for this asset class. Below is the matrix used by field staff for condition assessments. The pie chart below indicates the overall condition of this asset class. The tabular data aligns replacement cost to each condition rating.

**Covington Water Condition Rating Matrix**

Rating	1	2	3	4	5
Condition	Excellent	Good	Fair	Poor	Failing
Definition	Substantially meets current operational requirements.	Meets current operational requirements.	Meets current requirements. Out of service until repaired.	Significant deficiencies, impacting performance.	Failing, not capable of sustaining performance.
Operation	Virtually always operational.	Virtually always operational.	Operational with occasional interruption of service.	Partial breakdown, operational for moderate period.	Complete breakdown, inoperable.
Maintenance Level	Highly attention required. Fully maintained.	Largely preventive maintenance scheduled.	PH with increasing reactive maintenance.	PH with increasing reactive maintenance. Return to service.	Extensive attention required. Usually requires replacement.
Maintenance Type	PH Only	PH Only	PH with some minor repair.	Corrective maintenance/repairing.	Corrective maintenance/repairing with replacement of parts.
Useful Life	Asset meets up to 120% of useful life consumed.	Up to 100% of useful life consumed.	Up to 80% of useful life consumed.	Up to 60% of useful life consumed.	Up to 40% of useful life consumed. In need of replacement.

**Asset Class by Condition Rating**

**Asset Replacement Cost by Condition Rating**

Condition Rating	% of Grand Total	Replacement Cost
2_Good	74.63%	\$9,250,000
1_Excellent	17.18%	\$2,125,000
3_Fair	5.32%	\$660,000
5_Failing	2.86%	\$315,000
<b>Total</b>	<b>100.00%</b>	<b>\$12,350,000</b>

## Covington Water District Operations Department Home Page

**REPORT NAVIGATION**

- Home
- Air Vacs
- Blow Offs
- Expense
- Excavation
- Fleet
- Hydrants
- Labor Hours
- Treatment
- Valves
- Water Loss - CWD
- Water Loss - SLWS
- Water Quality - CWD
- Water Quality - SLWS

Open Work Orders

788

Closed Work Orders

29.48K

Avg Work Orders Closed/Year

3.68K

Year

All

**Status of All Open Work Orders**

● New Work Order ● In progress ● Needs Assistance ● WO On Hold ● Needs Review

**Work Orders Closed by Year**

● Count of Work Order # ● Hours

**All Open Works by Lead Worker**

To Be Deter...	387
Tom Huizen...	178
Dale Benson	81
Tyler Howard	46
Cameron H...	36
Jeffrey Greer	18
Chris Wilson	14
Andrew Car...	7
Austin And...	6
Matt Zager	3
Terry Camp...	3

Count of Lead Worker

**Total Work Orders by Asset #**

System ID	Count
SS00019	929
SITE012	360
SITE014	358
SITE008	357
SITE009	357
SITE003	350
SITE011	350
SITE013	346
SITE010	334
SITE001	327
SITE016	324
SITE015	314
SITE018	293
SITE002	280
Total	29477

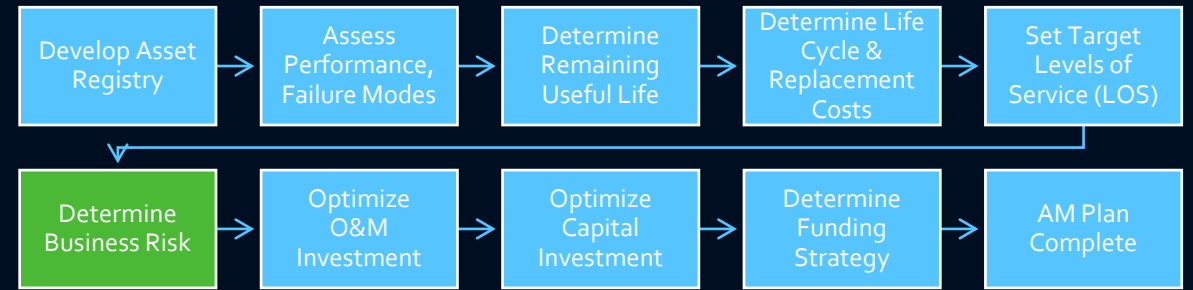
**WO's Created by Operator**

W/O Created By	Count
PM	16364
Tyler Howard	481
Chris Wilson	331
Andrew Carson	263
Cameron Hermesen	217
Jeff Greer	209
Matt Rosso	174
Tom Huizenga	158
Chris Guest	152
Todd Tandecki	131
Austin Anderson	117
Brian Kump	101
Josh Tendor	92
Total	29477

**WO's Closed by Operator**

Lead Worker	Count
Chris Guest	4666
Andrew Carson	3225
Chris Wilson	2548
Jim Moe	2009
Jeffrey Greer	1937
Brian Kump	1769
Craig Hurley	1526
Tyler Howard	1506
Cameron Hermesen	1313
Allan Gosnell	1011
Austin Anderson	1004
Todd Tandecki	921
Tom Huizenga	812
Total	29477

# Which assets are critical to sustained performance?



AMP Asset Record Details

AMP Asset Record: WTHYDRNT - HYDRANT HY2295

Information | AM Plan

Lifecycle

Risk (PoF) **Estimated Current Condition: 9.2**  
**Raw Probability of Failure (PoF): 1.0**

Risk (CoF)

Valuation

Replacement Asset

Management Strategy

Data Validation

Model Results

Lifecycle Graph

PoF Adjustment Factors:	
Environment (1-2)	Use (0-2)
1	1
Notes: N/A	Notes: N/A

Total PoF Adjustment Factor: 1

**Final PoF: 1.0**

Note: Final PoF = Raw PoF \* Total PoF Adjustment Factor. PoF has a range of 1-10.

Edit

**Business Risk Exposure (BRE): 1.0**

Close Window

AMP Asset Record Details

AMP Asset Record: WTHYDRNT - HYDRANT HY2295

Information | AM Plan

Lifecycle

Risk (PoF)

Risk (CoF) Raw Consequence of Failure (CoF): 1  
Notes: N/A

Valuation

Replacement Asset

Management Strategy

Data Validation

Model Results

Lifecycle Graph

CoF Mitigation Factors:		
Redundancy (0-1)	Containment (0-1)	Diversion (0-1)
1	1	1
Notes: N/A	Notes: N/A	Notes: N/A
Spares vs. Lead Time (0-2)	Emergency Response Plan (0-1)	Monitoring (0-1)
1	1	1
Notes: N/A	Notes: N/A	Notes: N/A

Total CoF Mitigation Factor: 1

**Final CoF: 1.0**

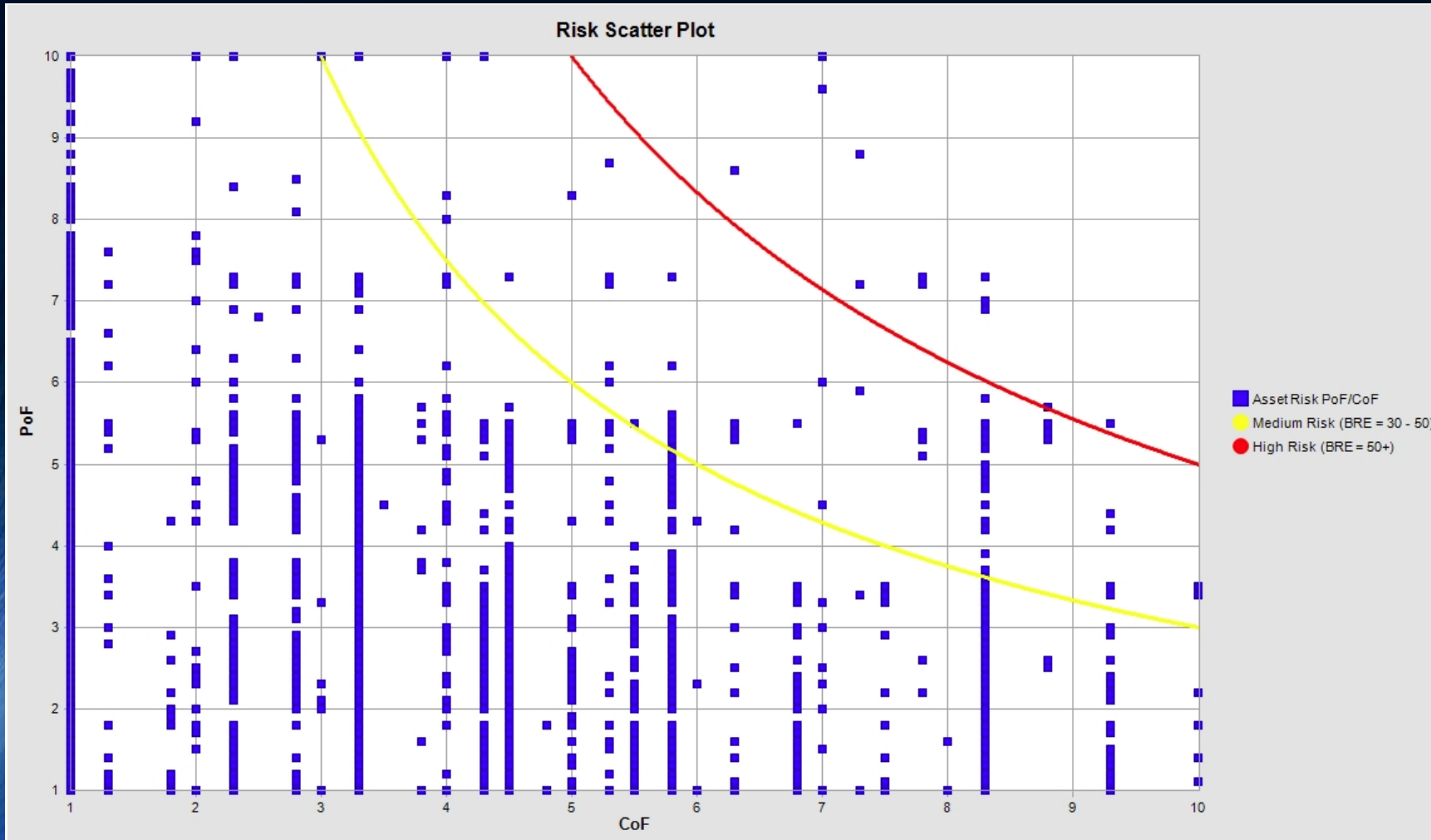
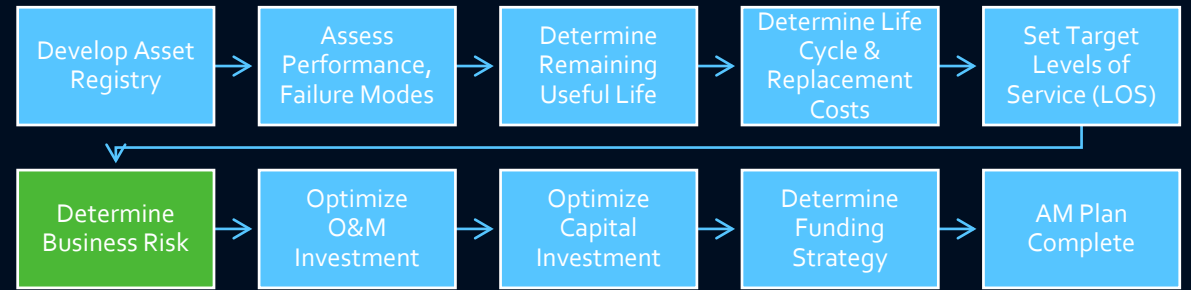
Note: Final CoF = Raw CoF \* Total CoF Mitigation Factor. CoF has a range of 1-10.

Edit

**Business Risk Exposure (BRE): 1.0**

Close Window

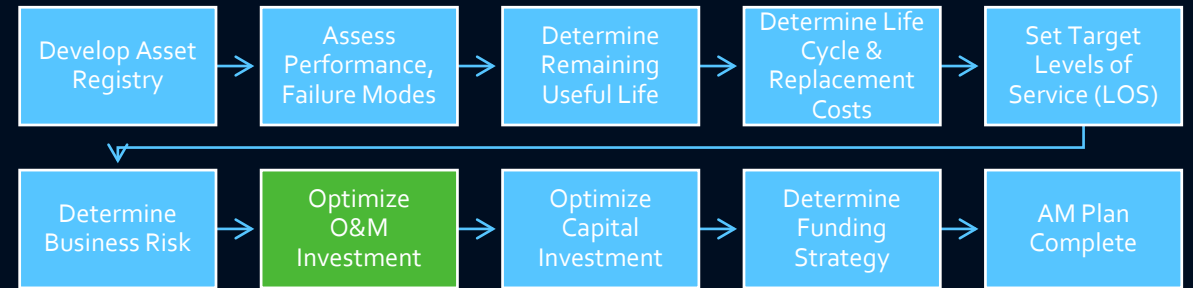
# Which assets are critical to sustained performance?



Total	Risk Level
110	High
645	Medium
85,069	Low
85,824	Total



# What are the best O&M investment strategies?



## Covington Water District Management Strategy Editor

#	Strategy Name	Description	Number of Possible Rehabilitation Events	Post-Rehabilitation Condition	Renewal Trigger - Condition	Renewal Trigger - BRE	Renewal Trigger - Age	Number of Associated Assets
1	Fire Hydrant Strategy-1	Post (>=) 2001 install date. Rehab every 20 years.	4	9.0	1.0			
2	Fire Hydrant Strategy-2	1974 - 2000 install date. Rehab every 25 years.	2	9.0	3.0			
3	Fire Hydrant Strategy-3	1960 - 1973 install date. Replace based on lead porting at end of useful life.	0		1.0			
4	Run to End of Useful Life - BASIC		0		0.0			
5	CL2 Generator	Rehab on trigger condition.	5	9.0	5.0			
6	Control Valves	Rehab valve every 5 years.	9	9.0	1.0			
7	System Valves < 12"	Replace valve when condition exceeds recommended torque values.	0		1.0			
8	System Valves >= 12"	Rehab valve when condition exceeds recommended torque values.	1	9.0	1.0			
9	Water Meter-1	Run to end of useful life for meters 0.625 to 2.0 inches.	0		0.0			
10	Water Meter-2	Rehab for meters greater than 2.0 inches.	5	9.0	1.0			
11	Water Tank - Steel	Re-coating interior and exterior.	3	9.0	3.0			
12	Wells	Cleaning and re-development	3	9.0	3.0			
13	Run to End of Useful Life	Run to end of useful life with routine maintenance.	0		2.0			
14	Ductile Iron Water Mains/Pipes	Replace all DI water mains every 120 years. This includes DI water mains and hydrant laterals	0		1.0			
15	Fire Hydrant Laterals including valves	To evaluate the fire hydrant laterals and valves for 100 year replacement	0		0.0			
16	Run to End of Useful Life-Services	This strategy is to be used for Lateral Line of Service	0		0.0			
17	Run to End of Useful Life-Electrical	This strategy is to be used for Electrical equipment.	0		1.0			
18	Asbestor Cement Water Mains/Pipes	Replace all AC Pipe at end of life with Ductile Iron Pipe.	0		0.0			
19	Cast Iron and PVC Water Mains/Pipes	Replace CI and PVC water mains every 100 years.	0		0.0			
20	Brass and Copper Water Pipes	Replace all Brass and Copper pipes at the end of life with different type.	0		0.0			

**AMP Asset Record Details**

**AMP Asset Record: WTHYDRNT - HYDRANT HY2295**

Information | **AM Plan**

**Lifecycle**

**Risk (PoF)**

**Risk (CoF)**

**Valuation**

**Replacement Asset**

**Management Strategy**

**Data Validation**

**Model Results**

**Lifecycle Graph**

**Management Strategy:** Fire Hydrant Strategy-1

**Description:** Post (>=) 2001 install date. Rehab every 20 years.

**Number of Possible Rehabilitation Events:** 4

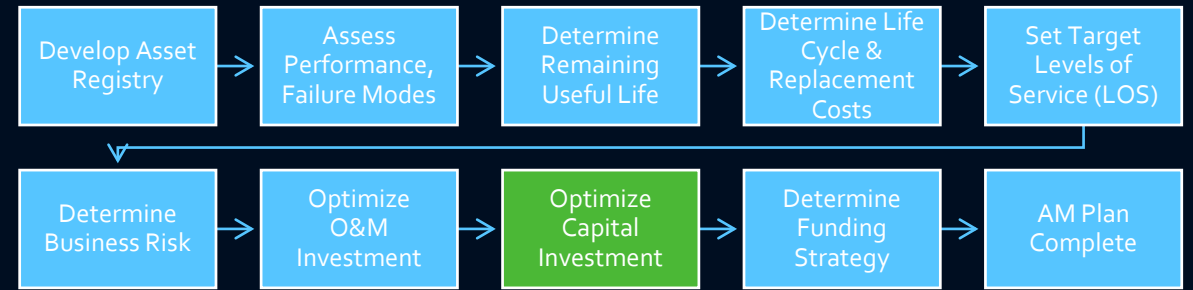
**Post-Rehabilitation Condition:** 9.0

**Renewal Trigger - Age:** 200

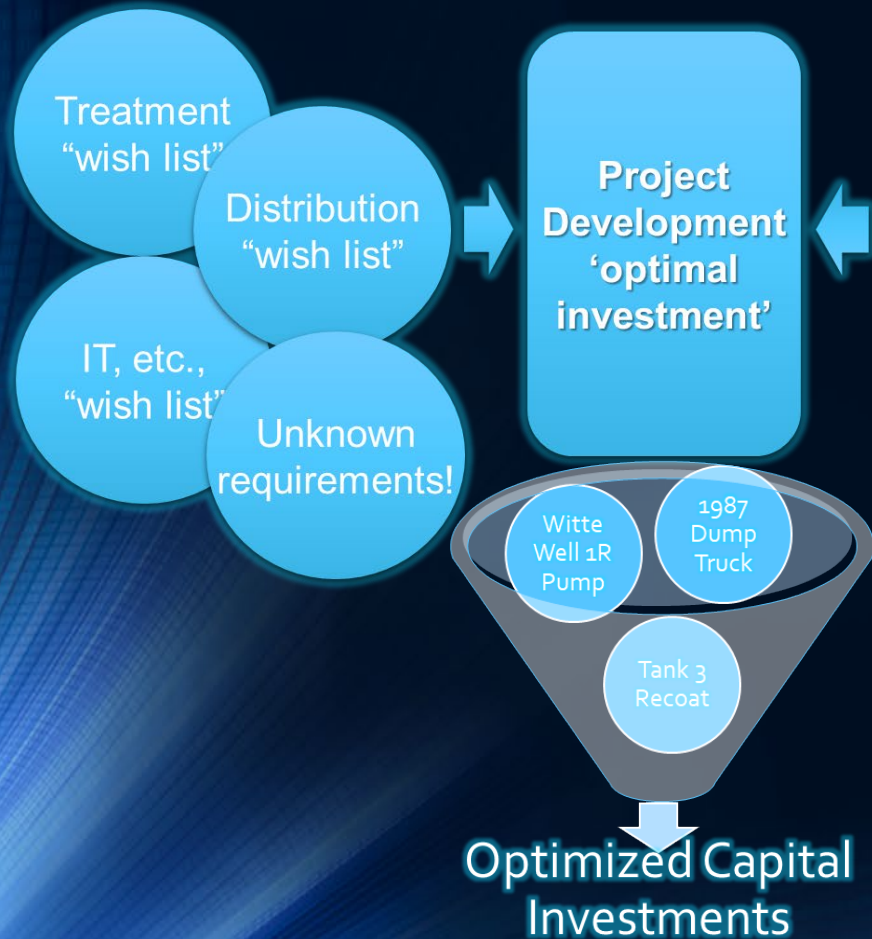
**Renewal Trigger - Condition:** 1.0

**Renewal Trigger - BRE:** 100

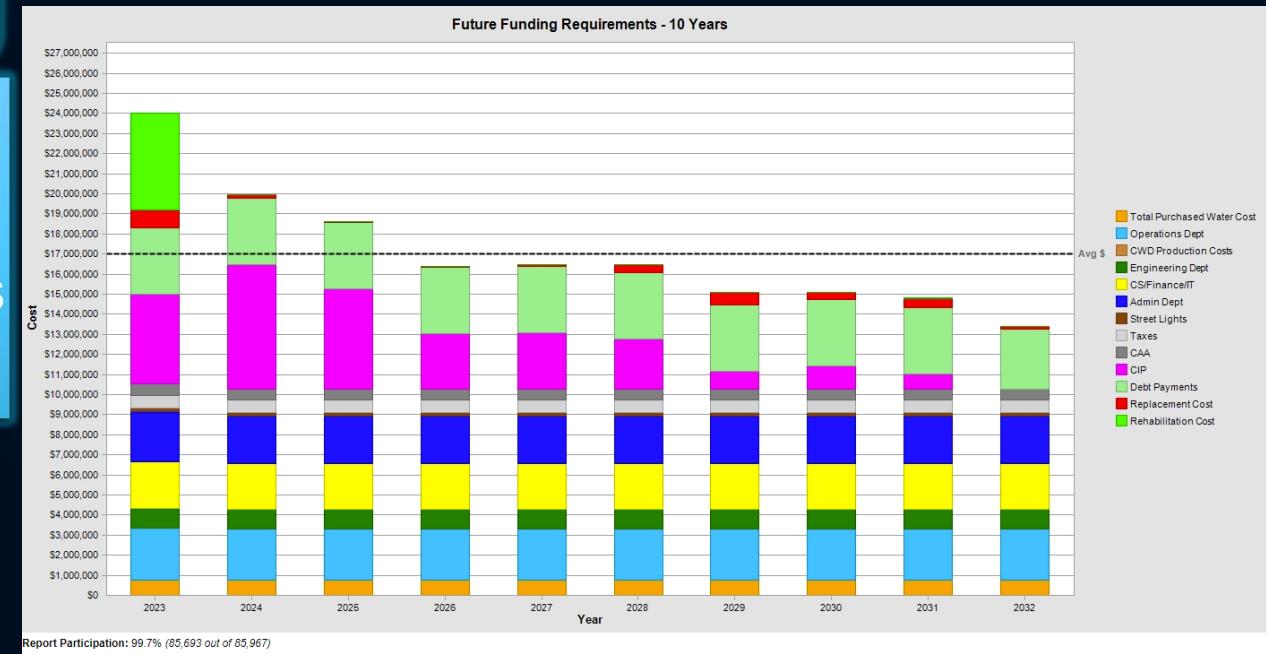
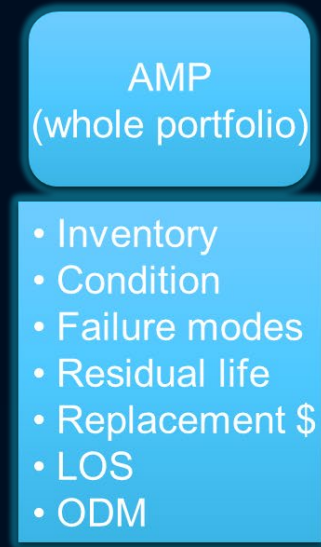
# What are the best CIP investment strategies?



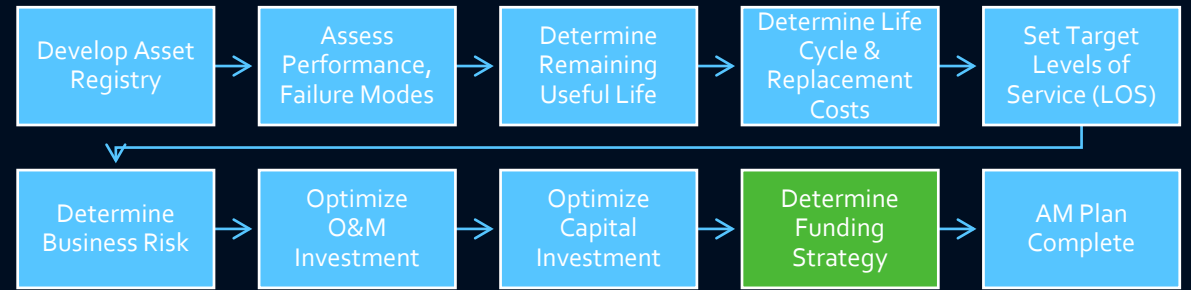
## “Champion” model



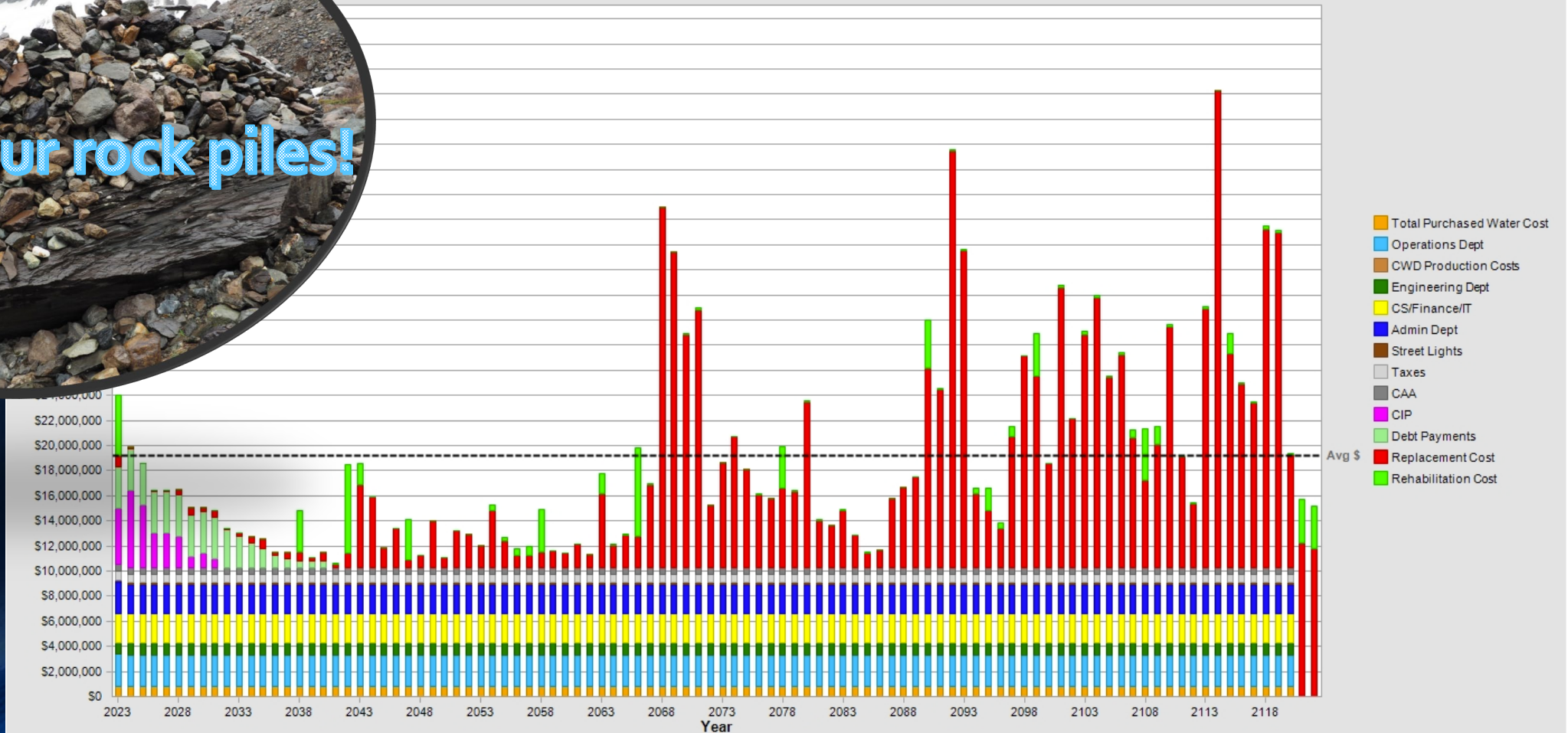
## “Structured” model



# What is the best long-term funding strategy?



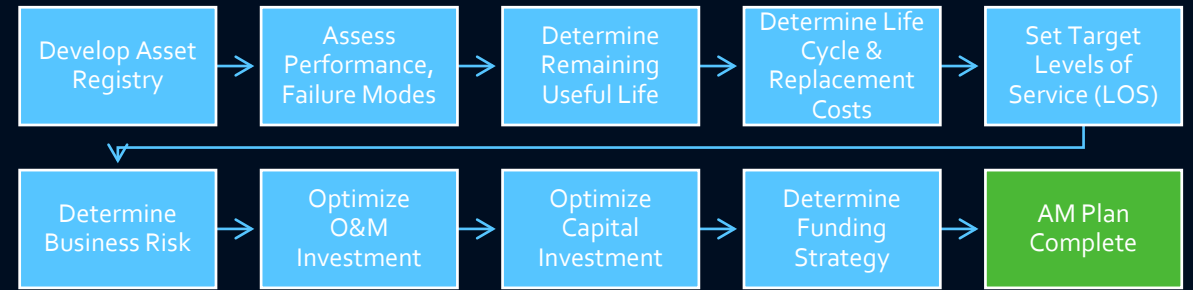
Future Funding Requirements - 100 Years



Report Participation: 99.7% (85,693 out of 85,967)

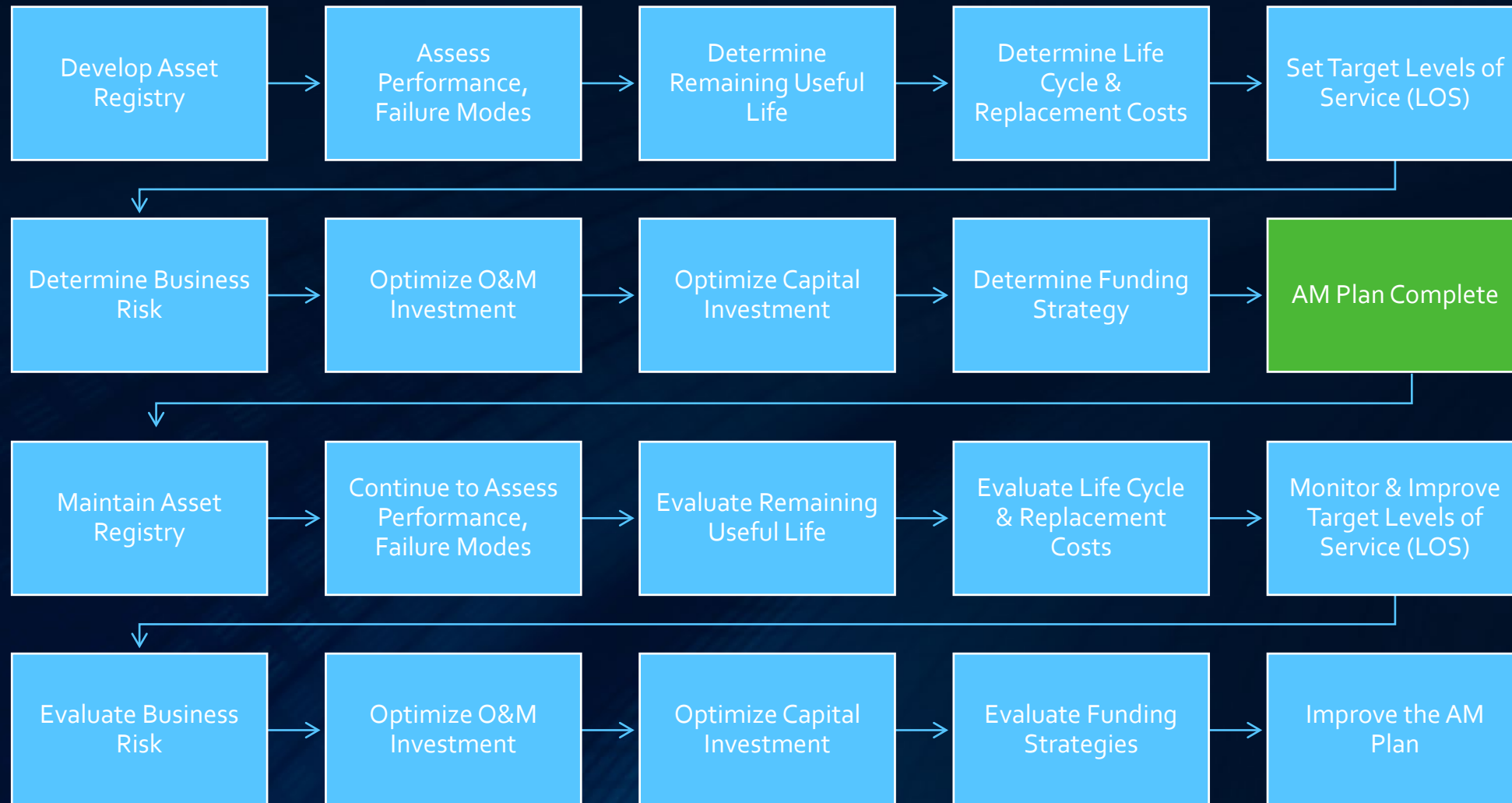


# Covington Water District Asset Management Plan



1. What is the current state our assets?
2. What is our required level of service?
3. Which assets are critical to sustained performance?
4. What are the Best O&M and CIP investment strategies?
5. What is my best long-term funding strategy?

# How do you sharpen your asset management strategies to go from good to great?





Vision of Tomorrow | Action Today

[www.covingtonwater.com](http://www.covingtonwater.com)



@Covington\_Water

# Questions?

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