



Presentation and  
Discussion Item 9

# PIPELINE INTEGRITY PROGRAM UPDATE

Presented by:

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David Spencer, PE, Water Asset Management Lead, HDR

Presented to:

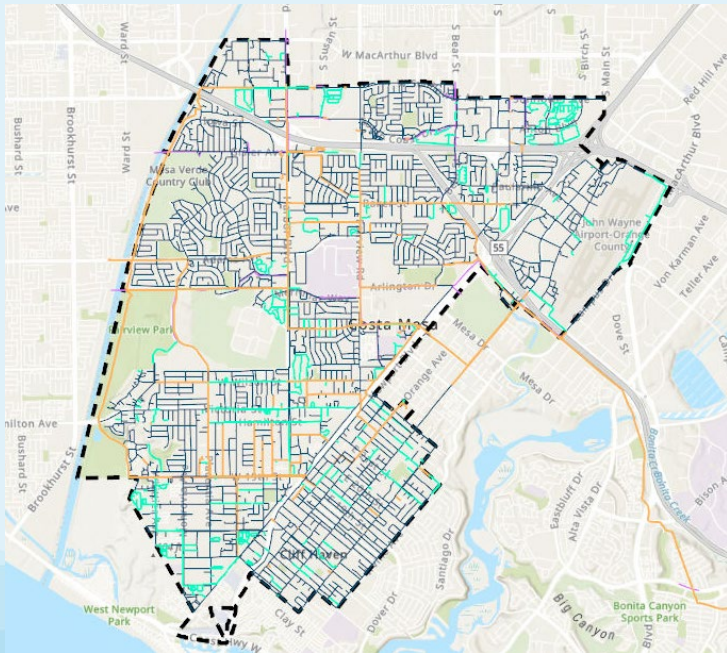
Board of Directors  
September 27, 2023



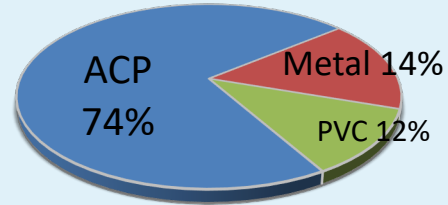
# Pipeline Integrity Program History

2013 Questions: “If we had to replace all of our pipelines in 100 years:

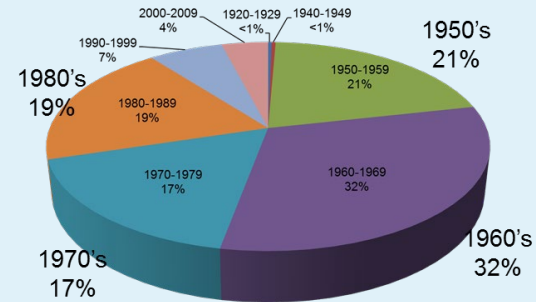
How much would it cost? How would we do it? How would we fund it?



## Material Type

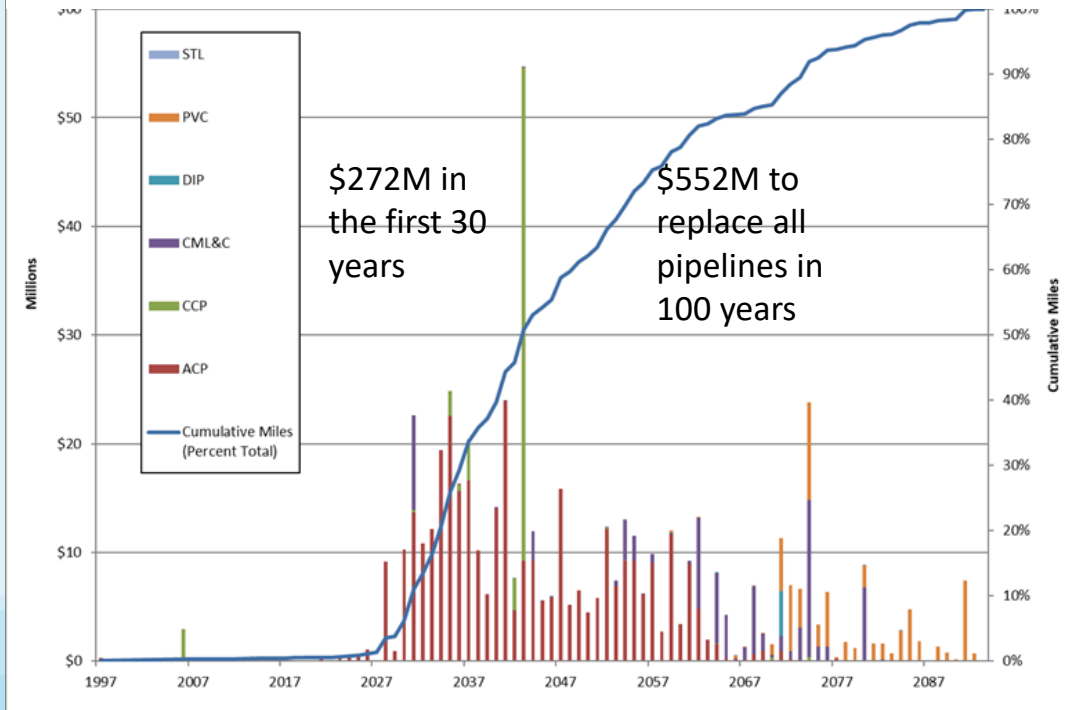


## Installation Decade



# Pipeline Integrity Program History

## 2013 Age-Based Renewal Forecast



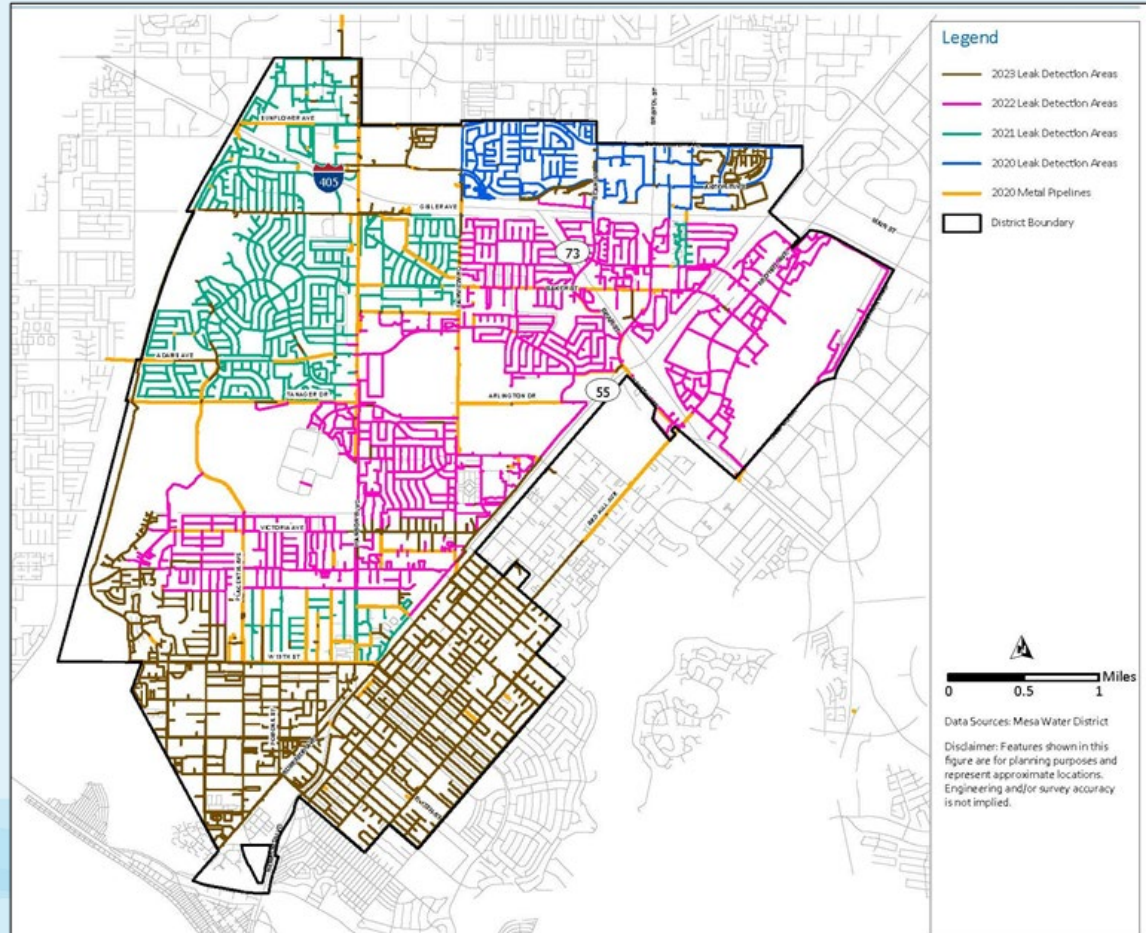
## Pipeline Integrity Program Goals

- Maximize investment
- Replace at end of Useful Life
- Transparent and Dependable Decision Making

# Leak Detection

## Leak Detection Testing FY 20-23

- Leak Detection performed Systemwide.
- No Mainline leaks found



# Systematic Break Data Collection

## Break Data Checklist

Work Order Number \_\_\_\_\_ Work Order Date \_\_\_\_\_  
 Atlas page \_\_\_\_\_ GPS Coordinate \_\_\_\_\_ Pipe Dia. \_\_\_\_\_  
 Circle Pipe Material: ACP CMLC CCP CIP PVC(C900) Other  
 Break was on: Circle: Main Line Fitting Service Line Lateral Stub out  
 Circle samples collected and labeled: ACP sample Soil Sample  
 Photos of break taken? Circle: Yes No  
 External loads observed: Circle: Tree Storm drain pipe Footing Shallow cover Other  
 Contract hit or other third party responsible? Circle: Yes No  
 Main Line Break Assessment: Circle the picture that most resembles the break by pipe material

## CMLC, CCP or CIP

Corrosion hole



Weld seam split



Tree overturn



None of the above

## ACP or PVC (C-900)

Large Blowout



Broken Back (Full Separation)



Circumferential Crack



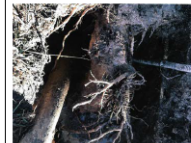
Longitudinal Crack



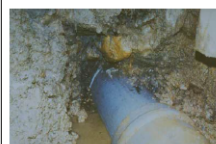
Small Hole



Root Intrusion or Tree Overturn

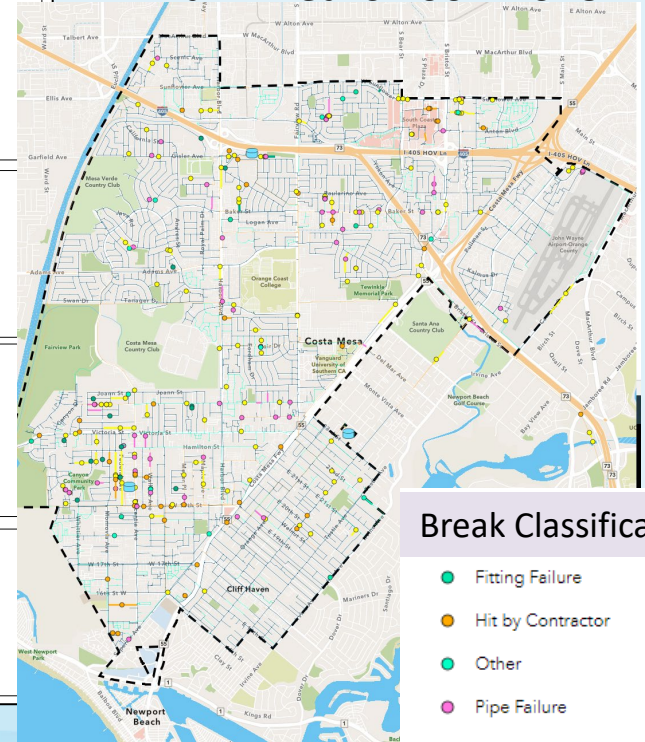


Rock in Bedding



None of the Above

## Main Breaks 2002-2023

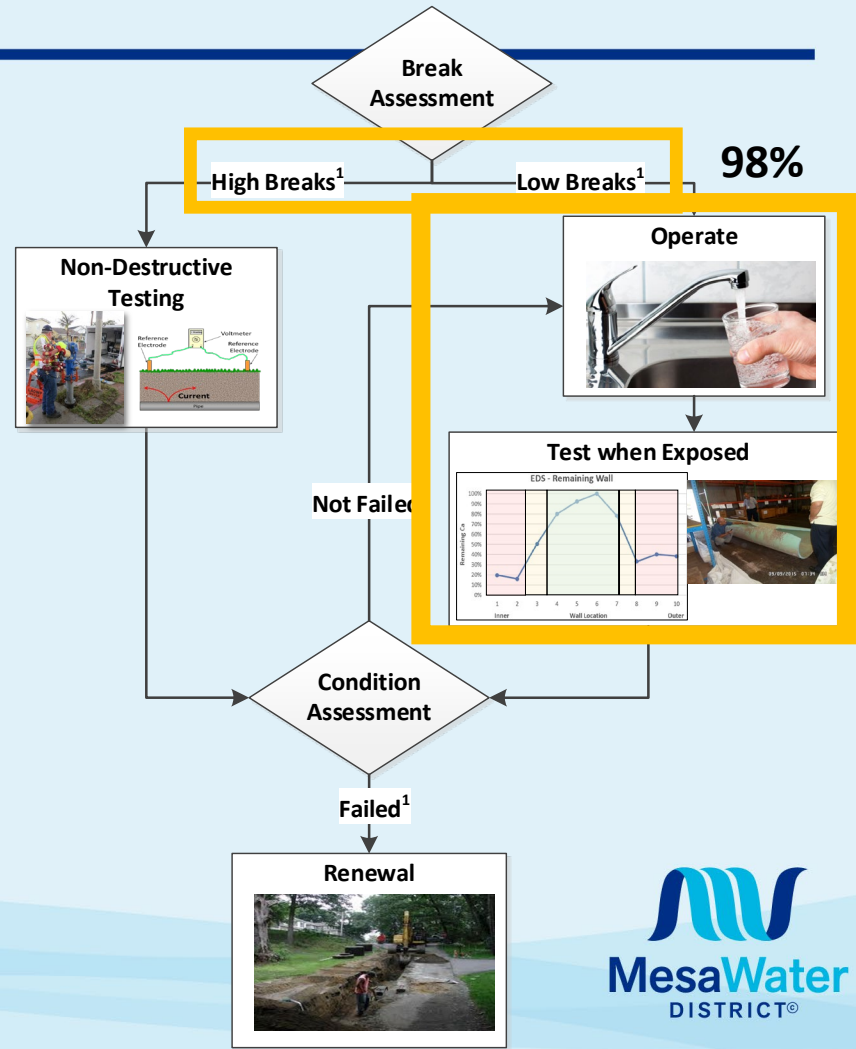
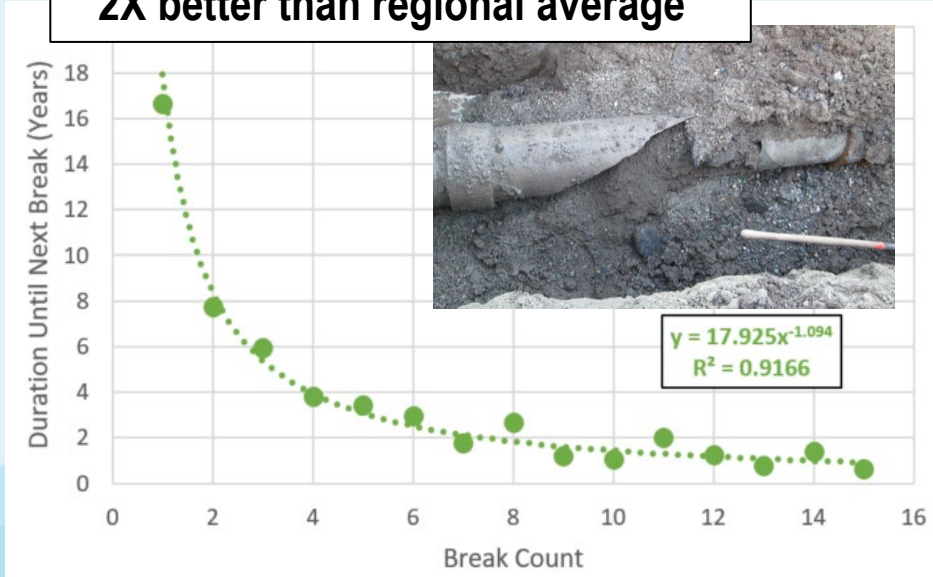


## Break Classification

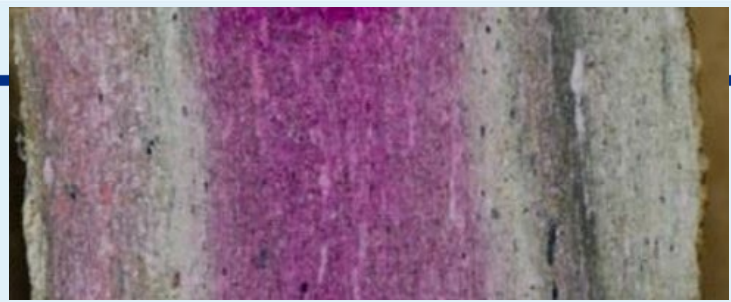
- Fitting Failure
- Hit by Contractor
- Other
- Pipe Failure
- Tree Roots
- Unknown

# Resolution No. 1525 Replacement of Assets

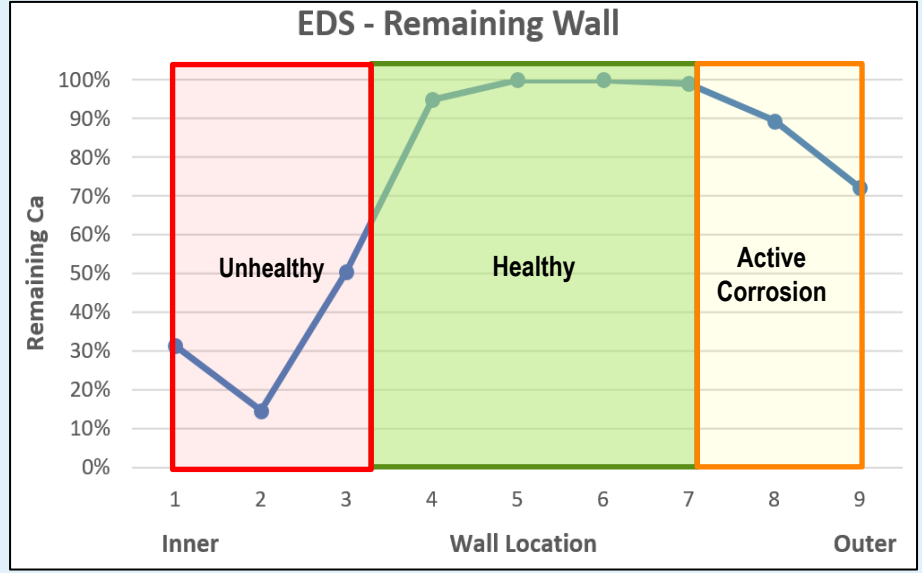
**High Service Level:  
4X better than national average  
2X better than regional average**



# Exposed Pipe Testing



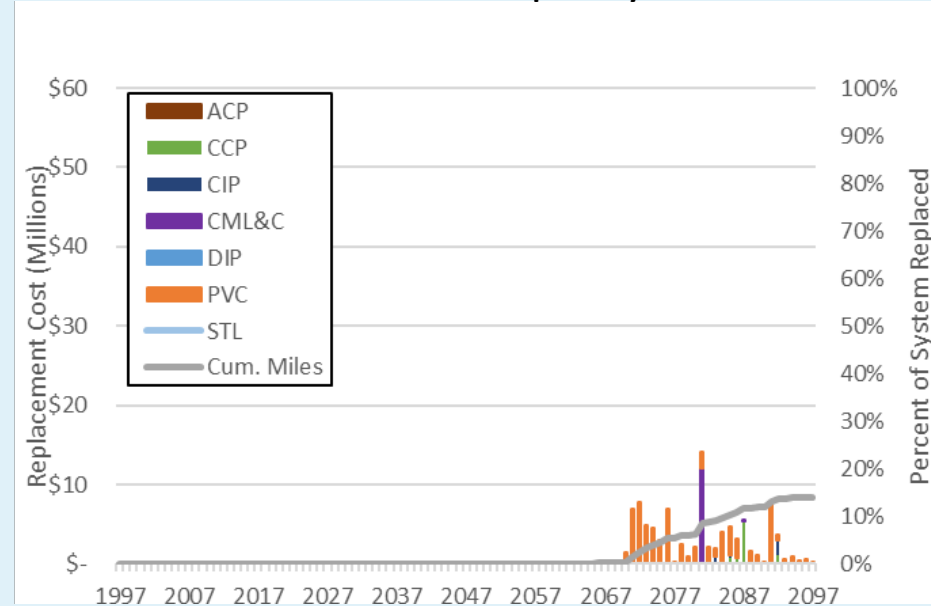
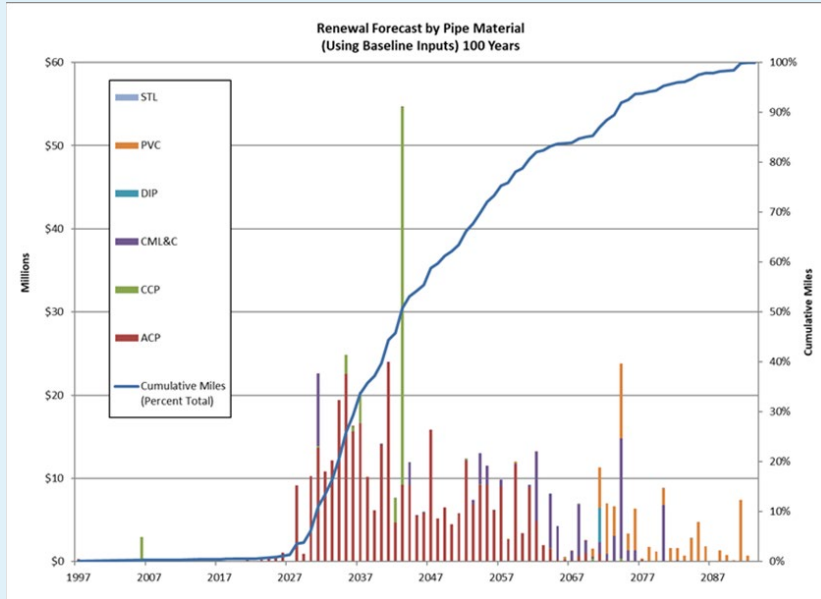
FY	Samples	Average RUL	Average Useful Life	Recommend for Replacement
2020	9	84	141	0
2021	13	82	140	0
2022	30	87	145	0
2023	41	89	144	0



# Updated 100-Year Replacement Cost Curve

Age based: 50% Replaced by 2043 & 100% Replace by 2097

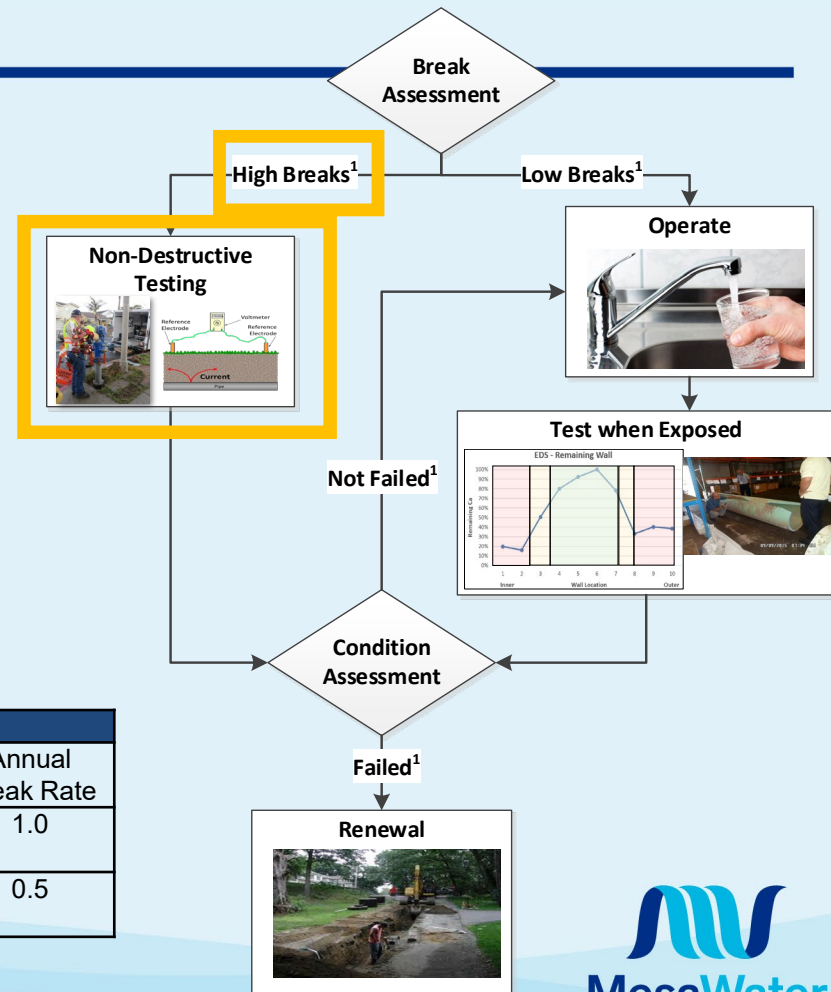
Condition based: 15% Replace by 2097





# Resolution No. 1525 Replacement of Assets

2.3%



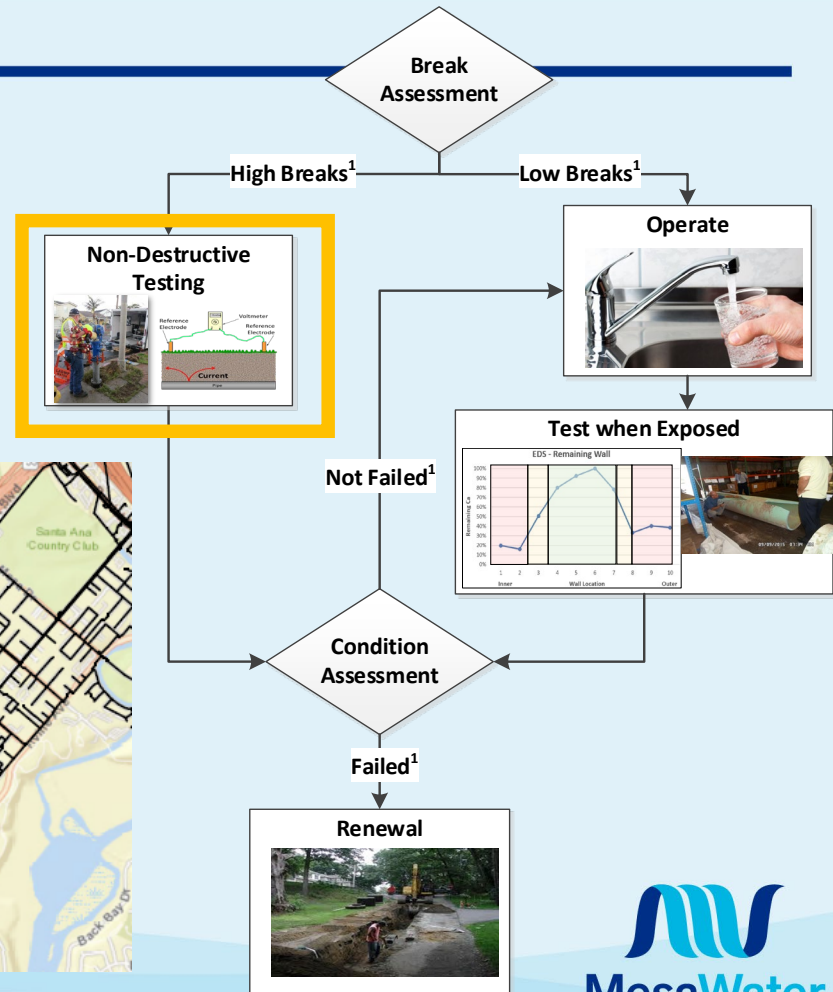
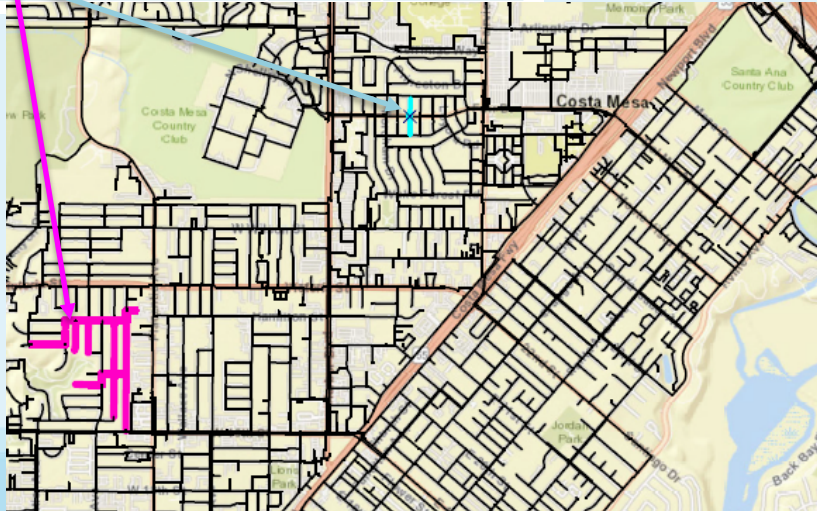
Type of Pipeline	Condition Assessment		Replacement		
	Number of Breaks	Annual Break Rate	Remaining Useful Life	Number of Breaks	Annual Break Rate
Distribution (14" Dia. and smaller)	3	0.2	<10 years	5	1.0
Transmission (16" Dia. and greater)	2	0.2	<10 years	3	0.5

# Resolution No. 1525 Replacement of Assets

Table 4. Summary of Recommended Non-Destructive Testing Candidates

Project Number	Location	Current Age	Length	Breaks (Break Rate)
1	Westside Neighborhood	70	2 miles	15 (0.36)
2	Bowdoin Place	65	0.2 miles	4 (1.2)
Total			2.2 miles	

2.3%

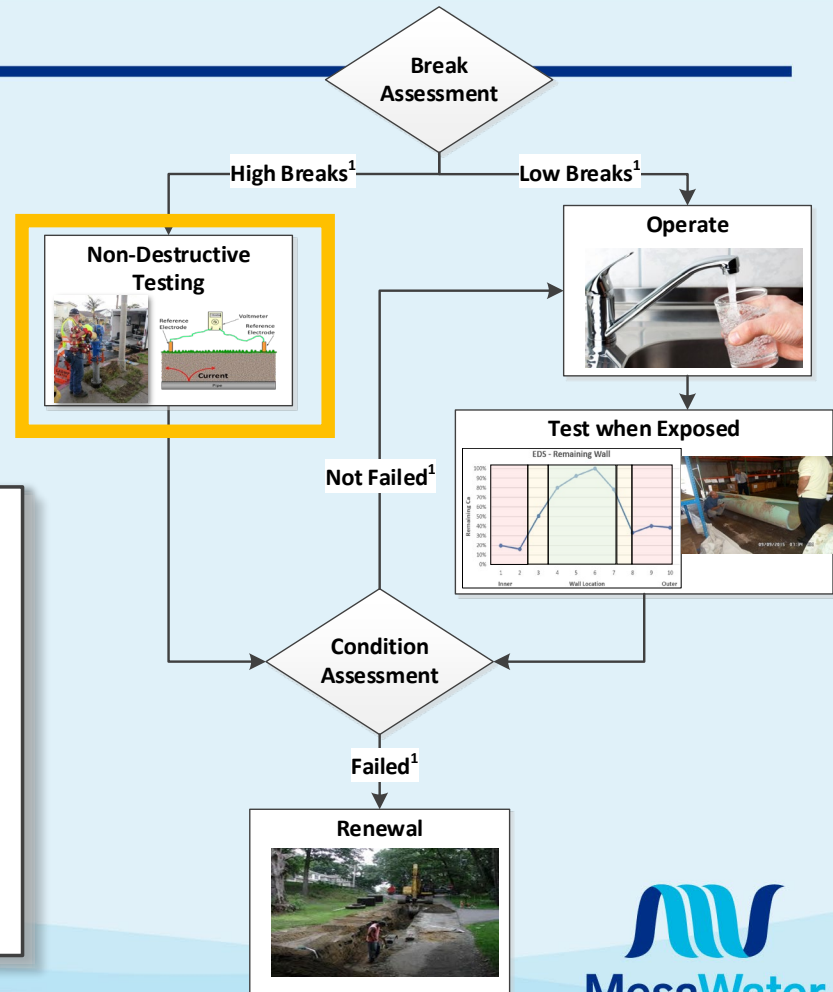
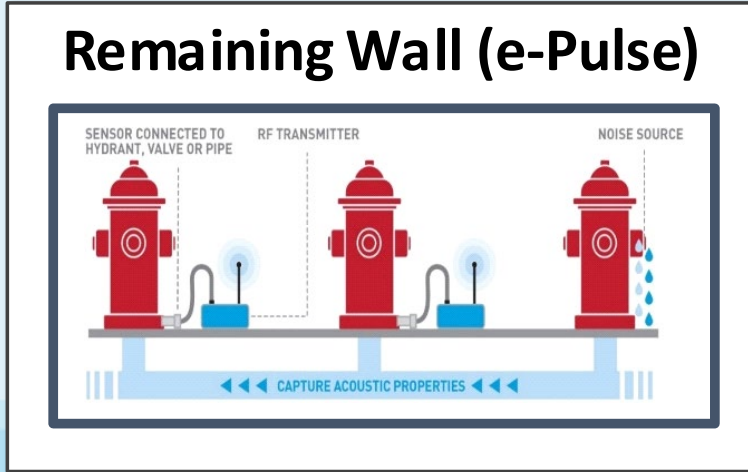


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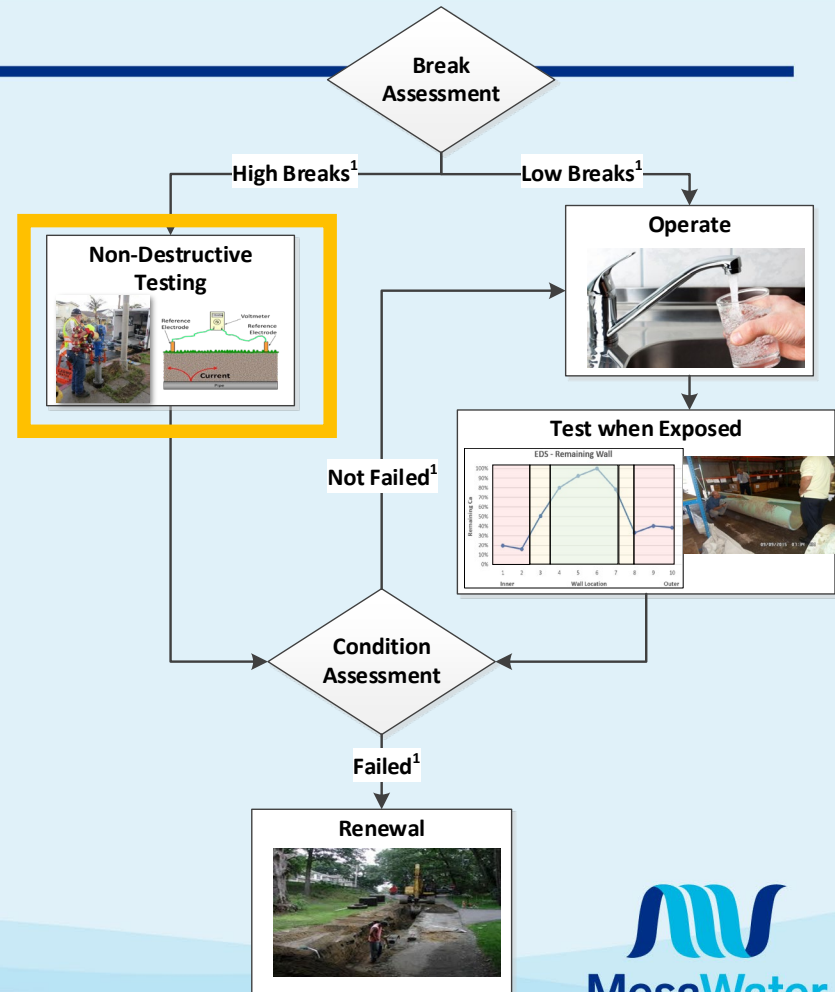
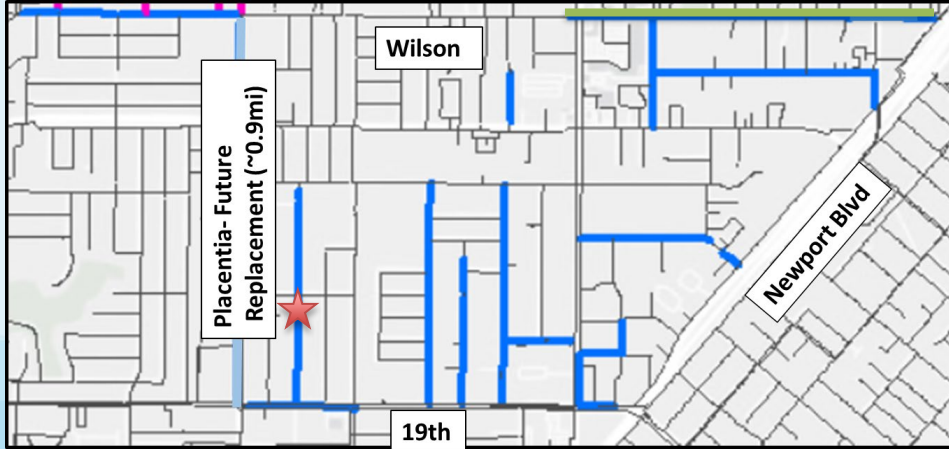
2.3%



# Resolution No. 1525 Replacement of Assets

CMLC Pipes (West of Canyon  
Community Park & 1951 Cohort)

2.3%



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# Planning for FY2024

- Continue tracking breaks, leak detection, exposed pipe sampling
- 2024 Master Plan Update/Asset Management Program

