

May 4th, 2023

Setting Up for Success:

The City of Hillsboro's Comprehensive Approach to Pipeline Replacement Project Prioritization

Presented by:

Negar Niakan, PE (City of Hillsboro)

Preston Love, PE (Conсор)

Agenda

- 01 Project Background
- 02 Assessment of Existing Pipeline
- 03 Business Case Evaluation
- 04 Pipeline Replacement Plan
- 05 Funding





01

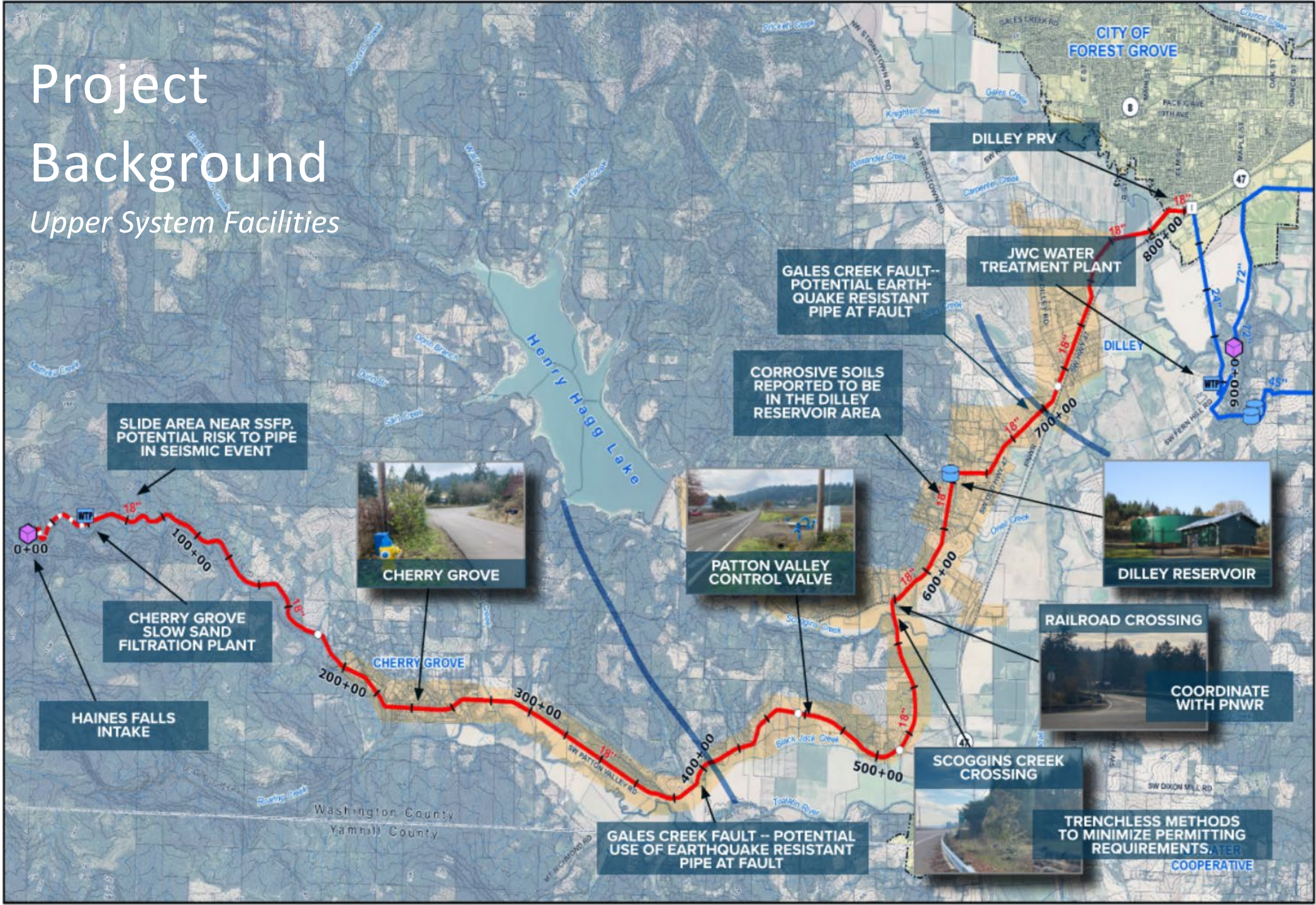
Project

Background



Project Background

Upper System Facilities



Project Background

Project Need and Scope

Need

- Documented corrosion and leaks along existing aging pipeline

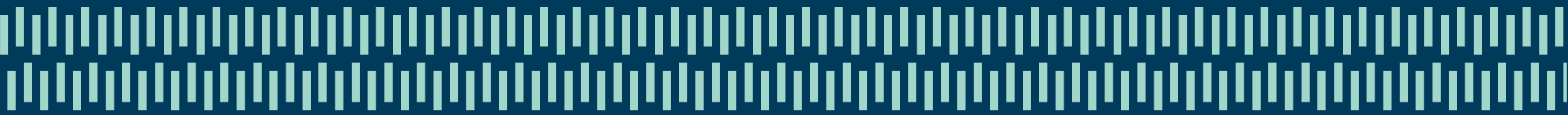
Goal

- Develop prioritized pipeline replacement plan

Scope

- Evaluate pipeline condition, develop business case evaluation plan, and prioritize individual segments for replacement





02

Assessment of Existing Pipeline



Pipeline Assessment Roles



- As-builts & pipe condition documentation review
- Develop Pipeline Assessment Plan
- Perform Hydraulic Analysis
- Site walkthrough & potholing observation



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- Geotechnical hazards review
- Evaluate seismic, landslide, liquefaction & lateral spreading risk along pipeline

- Define environmental & land use permitting requirements along pipeline
- Develop strategy for permitting replacement projects

- Soils corrosivity testing
- Pipeline coating inspection & analysis
- Evaluation of corrosion risk along pipeline

- Review status of easements along existing pipeline
- Evaluate easement needs for proposed alignments

Assessment of Existing Pipeline

Approach



Define Pipeline Segments



Conduct Site Investigation



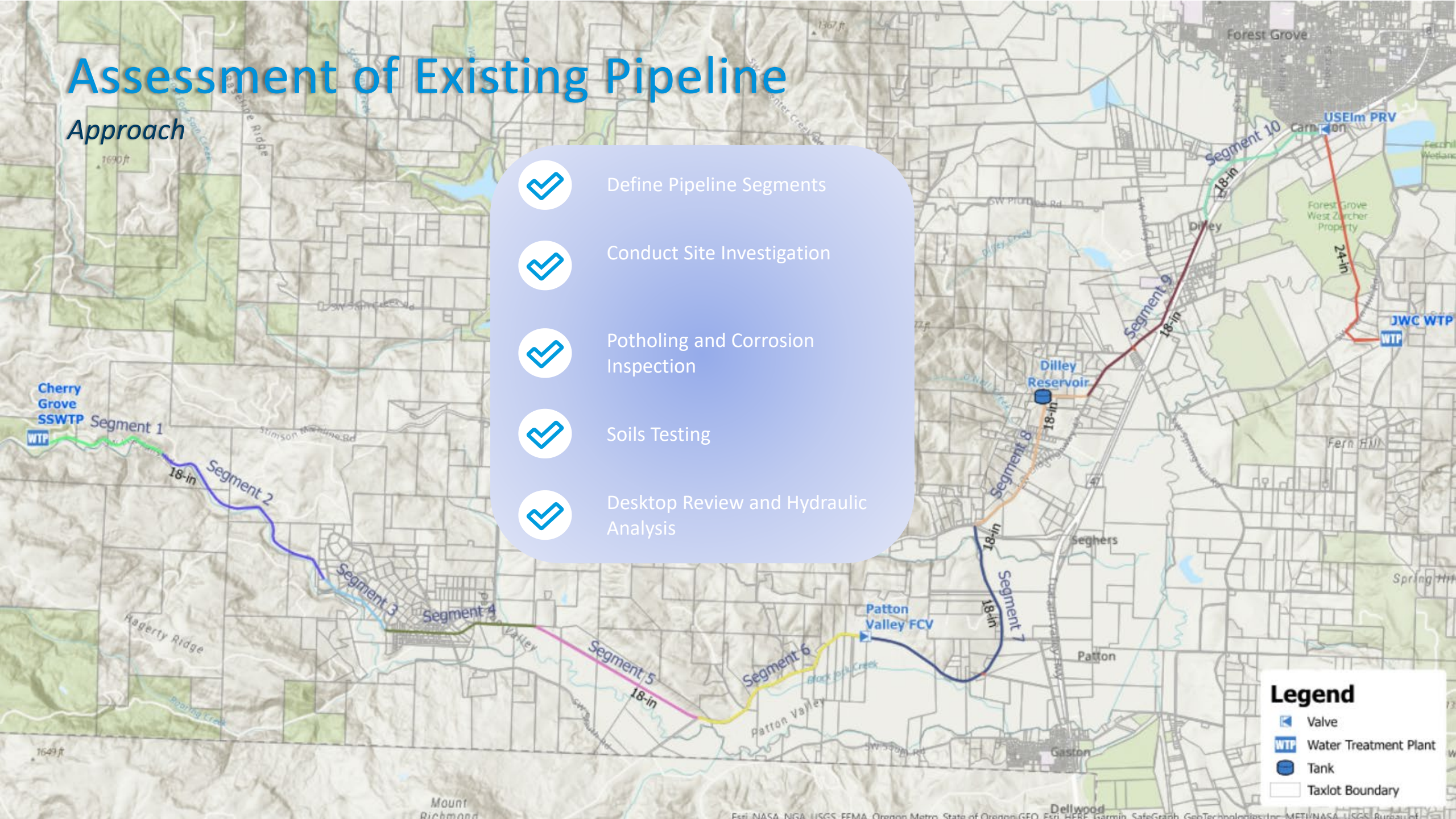
Potholing and Corrosion Inspection



Soils Testing

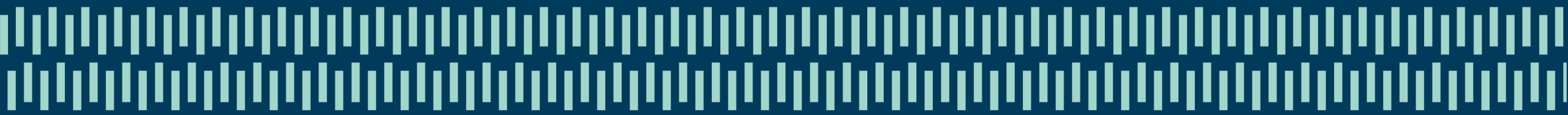


Desktop Review and Hydraulic Analysis



Legend

- Valve
- Water Treatment Plant
- Tank
- Taxlot Boundary



03

Business Case Evaluation



Business Case Evaluation

Approach and Benefits

BCE Approach

- Comprehensive alternatives analysis for pipeline replacement
- Includes socio-economic factors as criteria in addition to engineering design considerations

Benefits of the BCE Process

- Provides opportunity for collaboration
- Gives voice to all project stakeholders
- “Planning for the Future”



Business Case Evaluation

Replacement Alternatives

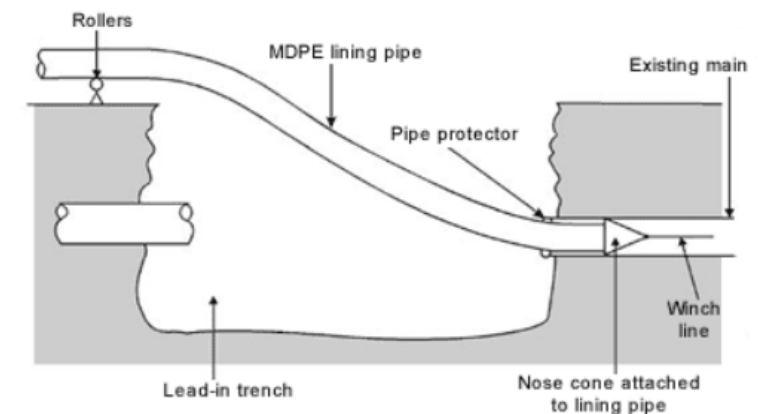
Alternatives for Replacement

- First step is to identify alternatives for the BCE
- Considered HDPE and DI Pipe for segment replacement materials
- Replacement alternatives:
 - Trench replacement in same alignment
 - Trench replacement in alternate alignment
 - Keep existing pipe
 - Trenchless Rehabilitation
 - *Sub-Alternative: HDD/Jack and Bore for crossings*

CIPP

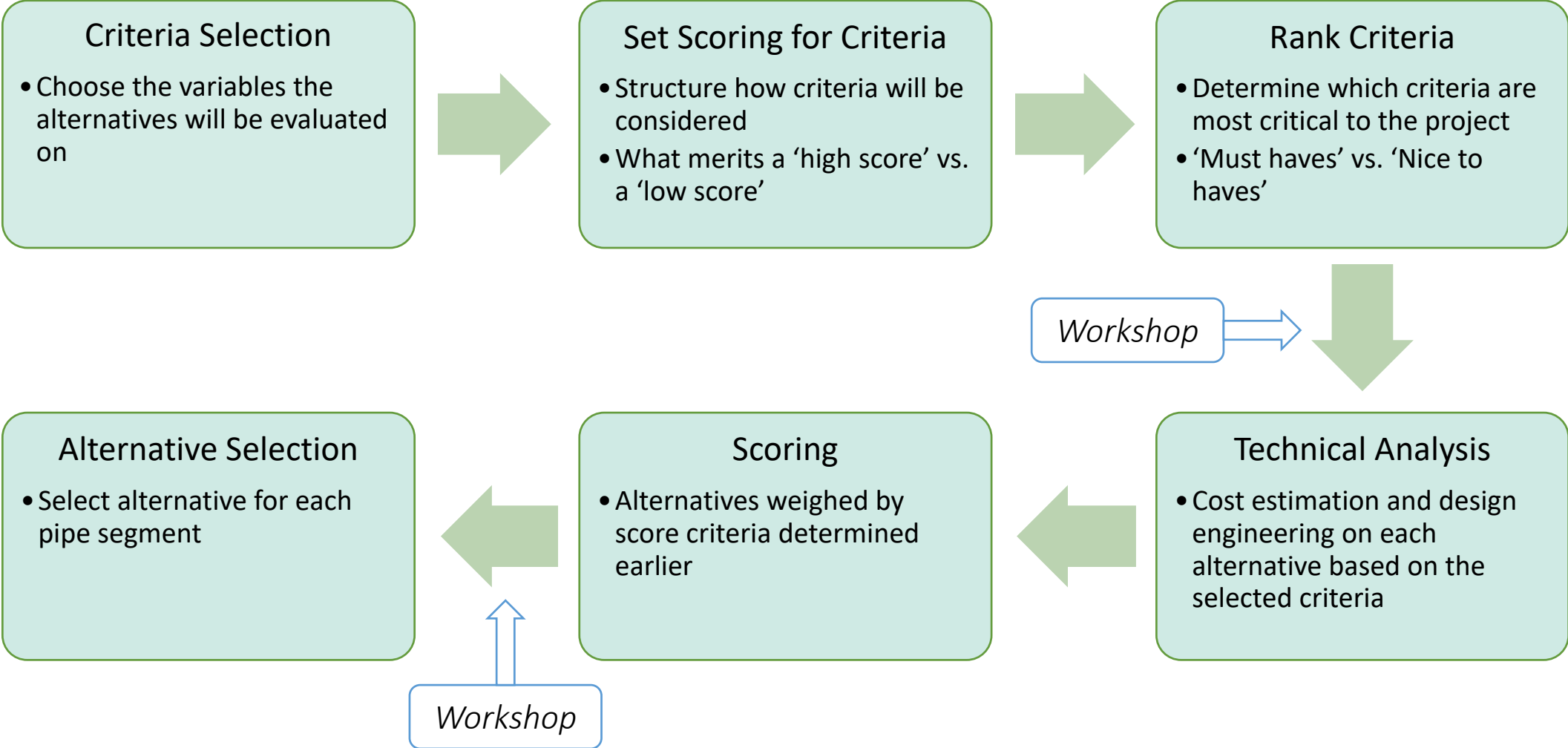


Sliplining



Business Case Evaluation

Methodology Overview





Business Case Evaluation

Evaluation Criteria Ranking System

- Engineering Design Consideration
- Project Risk Consideration
- Social Factors

Evaluation Criteria Weighted Rankings

Segment No.	Construction Costs	Easement Needs	Permitting Considerations	Install Risk	Service Reconnection Risk	Seismic Resilience	Accessibility for Future O&M	Service Life	Service Impact Considerations	O&M Costs	Equity Impacts	Cathodic Protection	Traffic Impacts
BASE RANKING	9	8	8	7	6	6	5	5	4	4	3	2	2
1	9	8	8	7	1	8	5	5	4	5	3	2	2
2	9	8	8	7	1	8	5	5	4	5	3	2	2
3	9	8	8	7	6	8	5	5	4	4	3	2	2
4	9	6	5	7	8	6	5	5	6	4	3	2	2
5	9	1	5	7	6	6	8	5	4	4	3	4	2
6	9	1	5	7	6	7	8	5	4	4	3	4	2
7	9	5	8	9	7	6	5	5	6	4	3	2	2
8	9	9	5	7	8	4	5	5	6	4	3	2	2
9	9	8	8	7	6	5	5	5	6	4	3	4	4
10	9	5	9	8	6	6	5	5	4	4	3	4	2





04

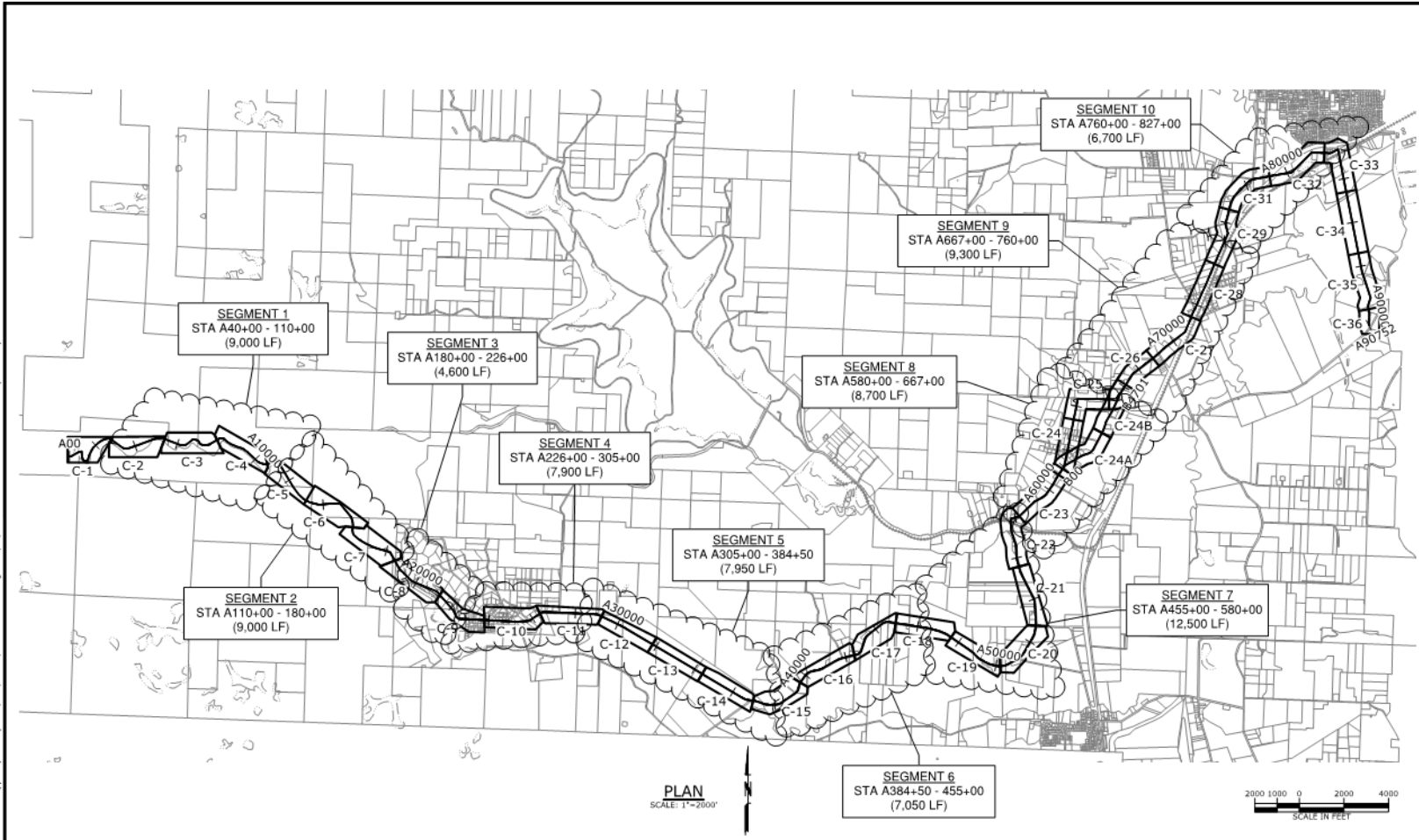
Pipeline Replacement Plan





Pipeline Replacement Plan

Segment Prioritization and Replacement Schedule



Project Priority	Segment ID	Preliminary Replacement Year
1	Segment 5	2029
2	Segment 10	2026
3	Segment 8	2027
4	Segment 9	2028
5	Segment 7	2030
6	Segment 6	2030
7	Segment 4	2029
8	Segment 3	2031
9	Segment 2	2032
10	Segment 1	2032

<p>NOTICE</p> <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE</p>		<p>DSN DESIGNED</p> <p>RAW DRAWN</p> <p>CHK CHECKED</p>	<p>PRELIMINARY ONLY</p> <p>DO NOT USE FOR CONSTRUCTION</p> <p>JUNE 2021</p> <p>Murraysmith</p>		<p>UPPER SYSTEM REPLACEMENT STUDY</p> <p>Hillsboro OREGON</p>	<p>PIPELINE SEGMENTS FOR ALTERNATIVES ANALYSIS</p>	<p>SHEET</p> <p>G-4</p>
NO.	DATE	BY	REVISION	<p>PROJECT NO.: JUNE 2021 SCALE: AS SHOWN DATE: 21-3092</p>		<p>4 of 40</p>	



05

Funding





Replacement Project Funding

Strategy, Work to Date, and Next Steps



➤ Funding Opportunities

BRIC Grant

Ear-Mark-EPA



Thank you!

