



King County

Department of Natural Resources and Parks
Wastewater Treatment Division

NORTH MERCER ISLAND/ENATAI Sewer Upgrade Project

Technical Information Meeting

April 24, 2017





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NORTH MERCER ISLAND/ENATAI Sewer Upgrade Project

Presentation agenda

- Welcome and introductions
- Project overview and final alignment
- HDD construction
- Pipe rehabilitation
- Easement process
- Next steps

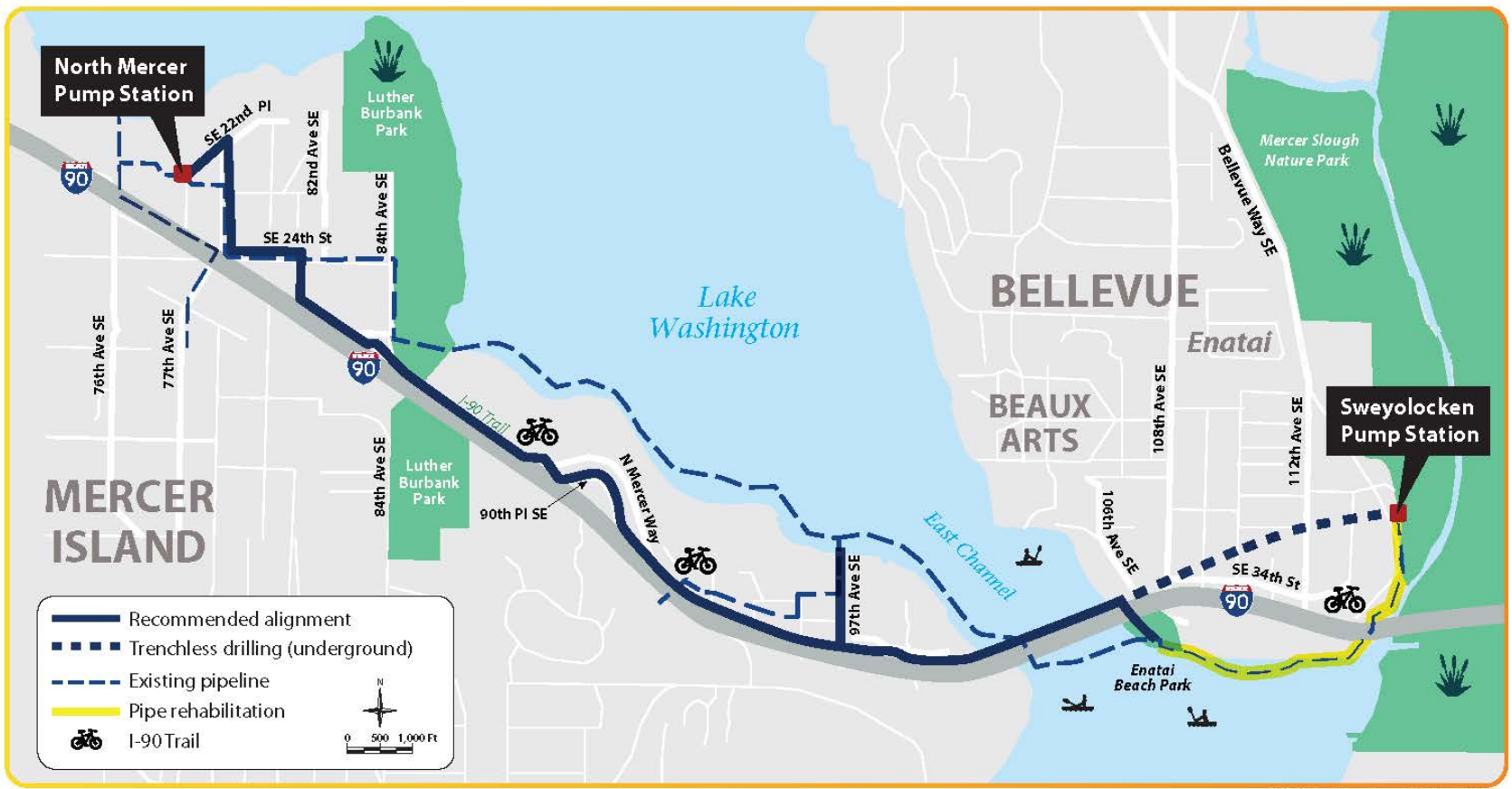


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Project alignment





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Construction methods

- Open-cut
- In-water
- Trenchless (Horizontal Directional Drilling)
- Pipe rehabilitation – Cured In Place Pipe - CIPP



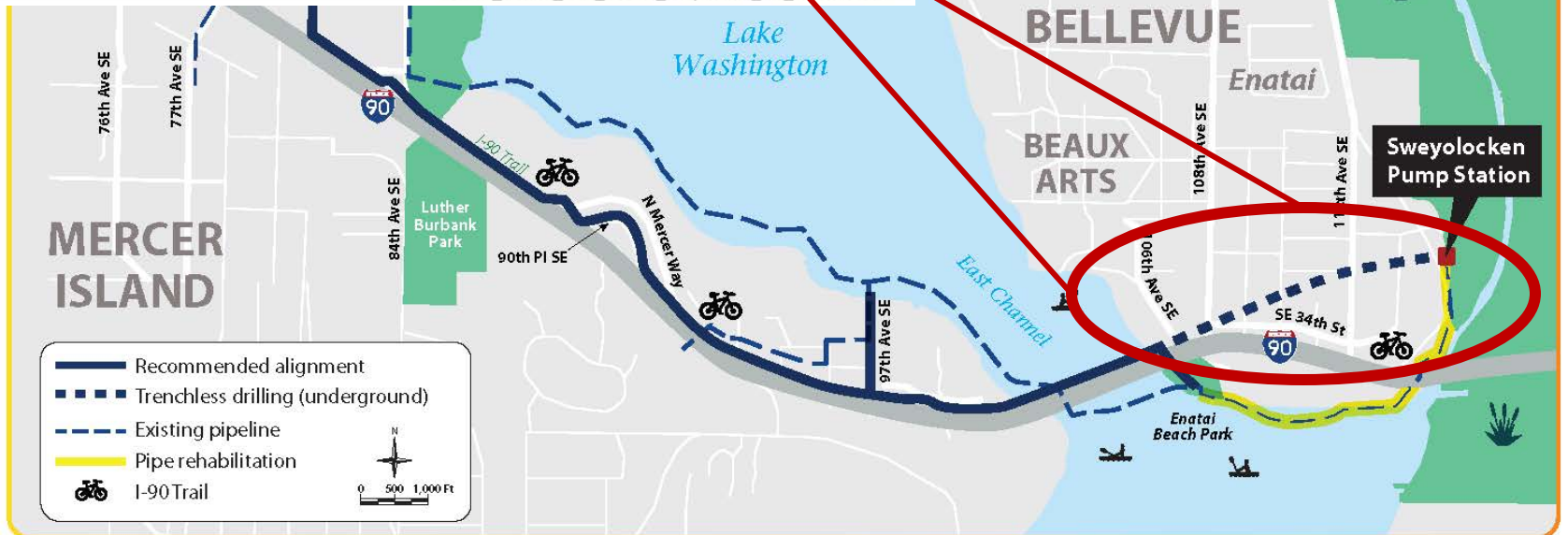
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I-90 Sewer Upgrade Project



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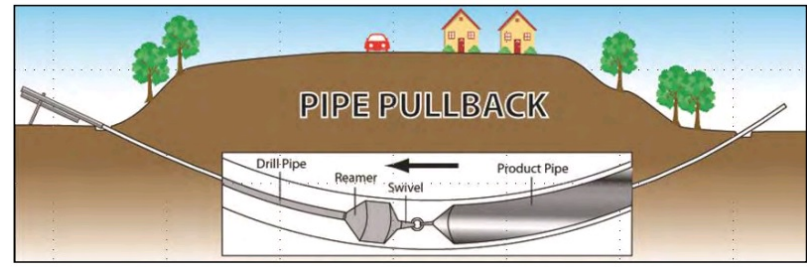
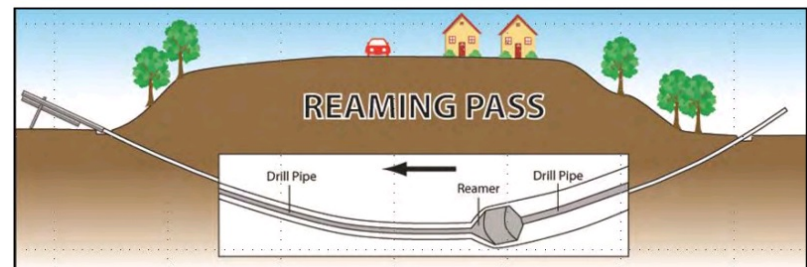
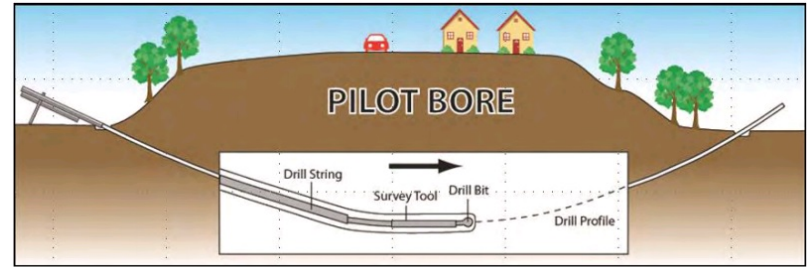


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HDD process

Three main steps:

- Pilot bore
- Reaming pass
- Pipe pullback



Not to scale

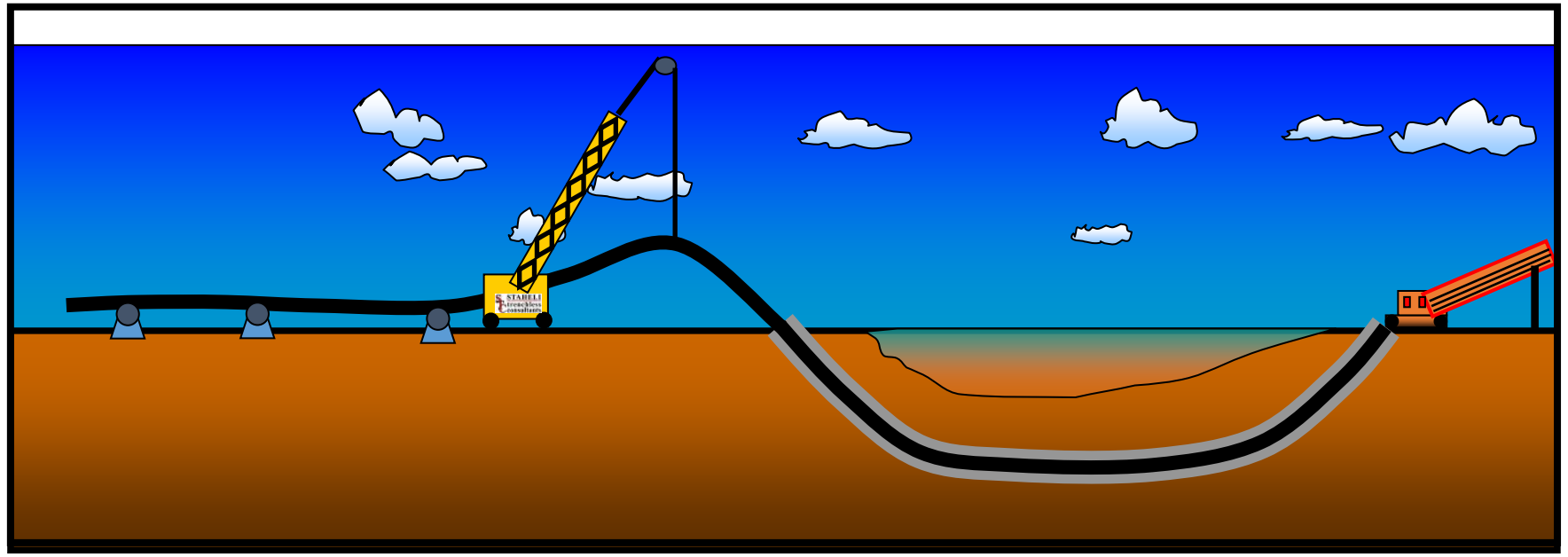


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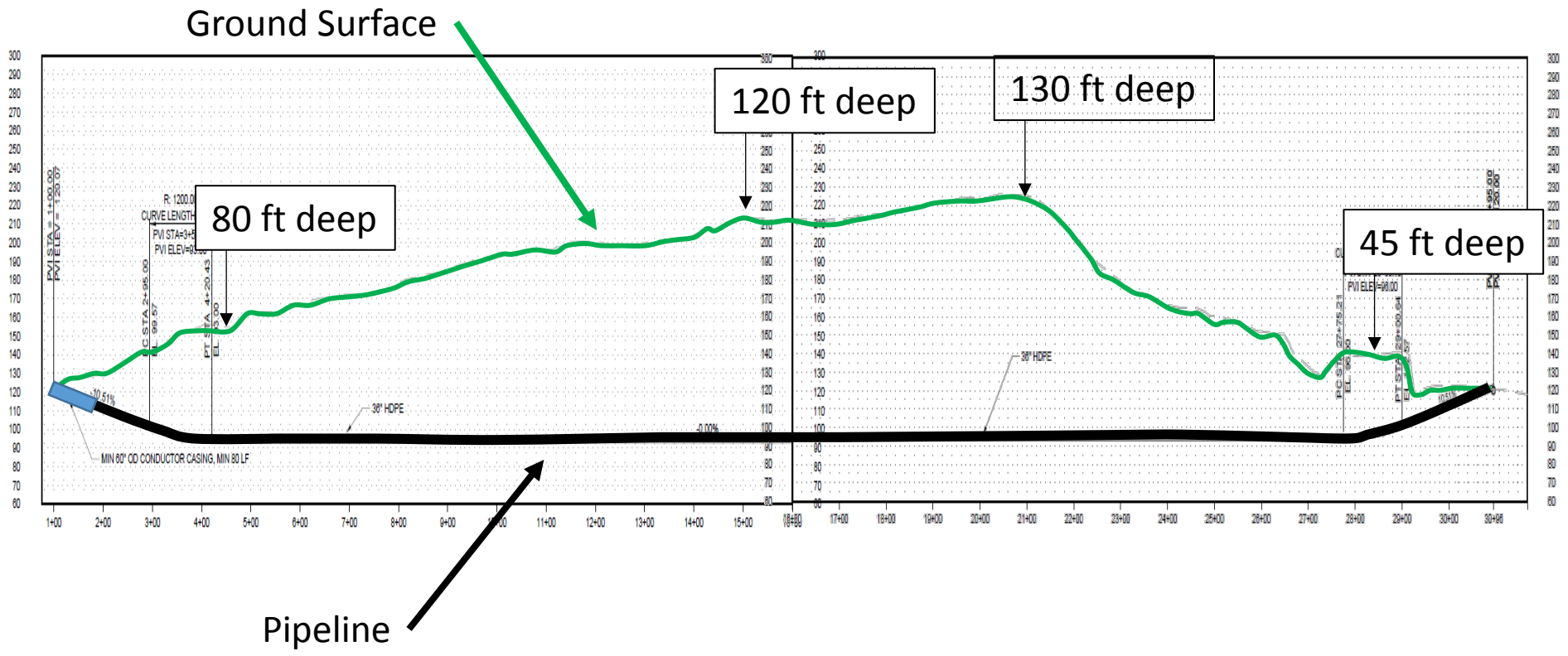
Typical Horizontal Directional Drilling





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Enatai HDD – used in areas where pipe is too deep to be installed by open cut



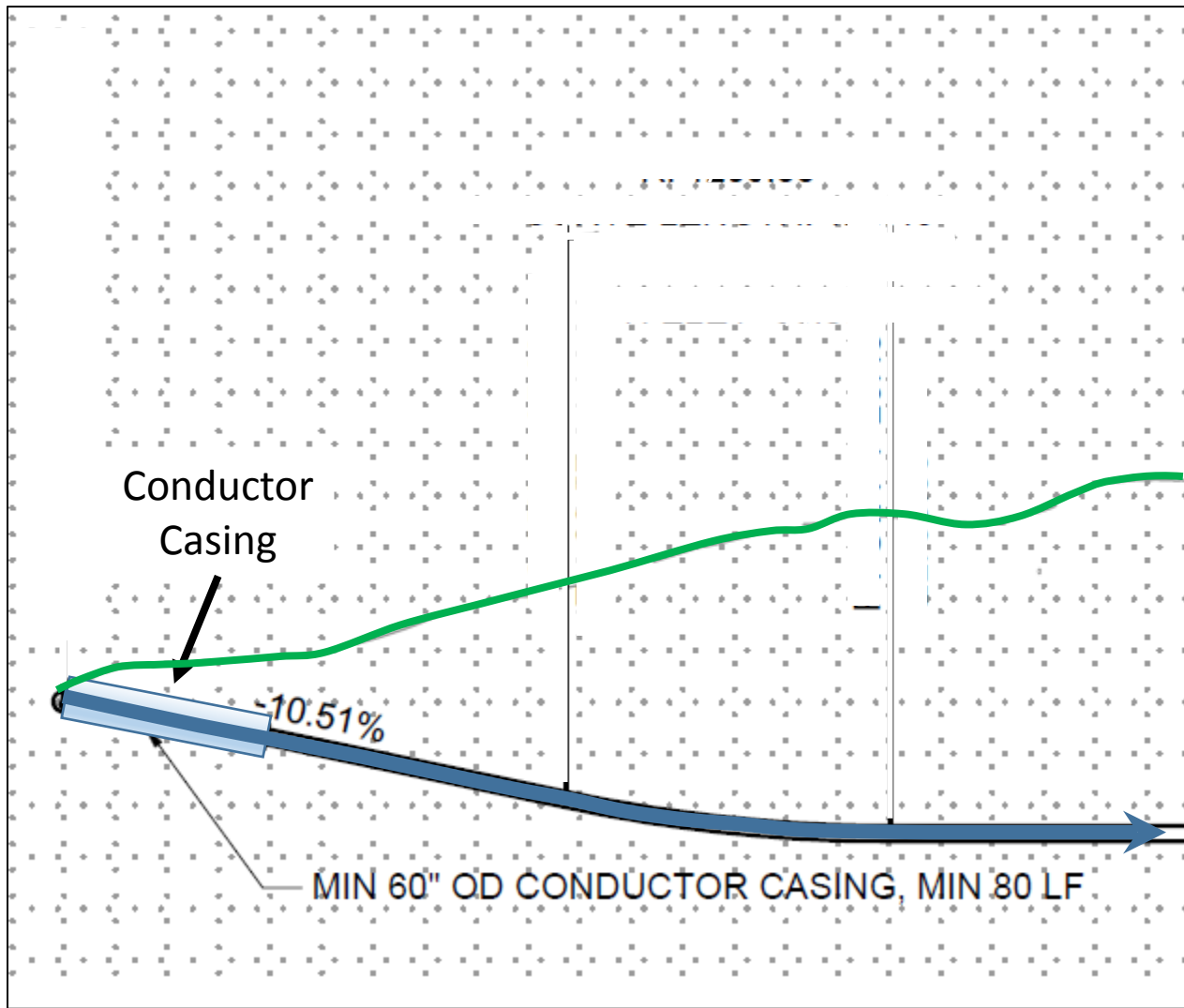


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Protecting the Piles and Upper Soil Layer





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48-inch
Conductor
Casing





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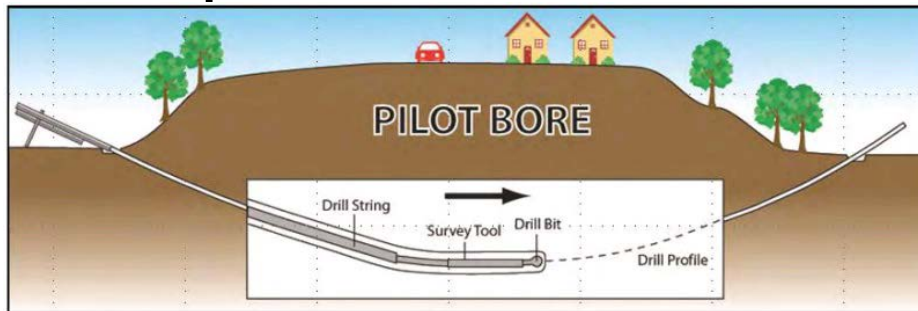
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HDD Process Step 1: Pilot bore



- Drill from Enatai Beach Park toward Sweyolocken
- 12-inch diameter hole
- Drill about 200 feet per day



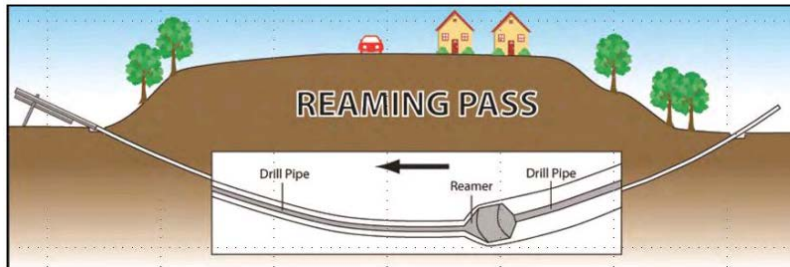


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HDD process: Step Two – Reaming pass



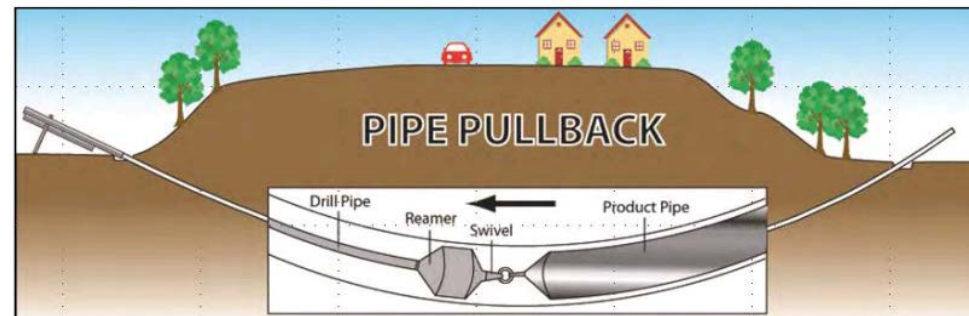
- Pull reamers from Swayolocken to Enatai Beach Park
- Enlarge the hole from 12 inches to 48 inches
 - Several Passes
(12 to 24) ; (24 to 36); (36 to 48)
- Takes about 30 days
(10 days per pass)



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HDD process: Step 3: Pipe pullback

- Pipe pulled through the bore
 - Enatai Beach Park to Sweylocken
- Sections of pipe floated in Lake Washington to the bore entry
- Large cranes on barges
 - lift pipe to insert in the borehole
- Drilling Equipment
 - at both ends of the bore
- Takes Approximately 2-3 days
 - (including set up and pull)





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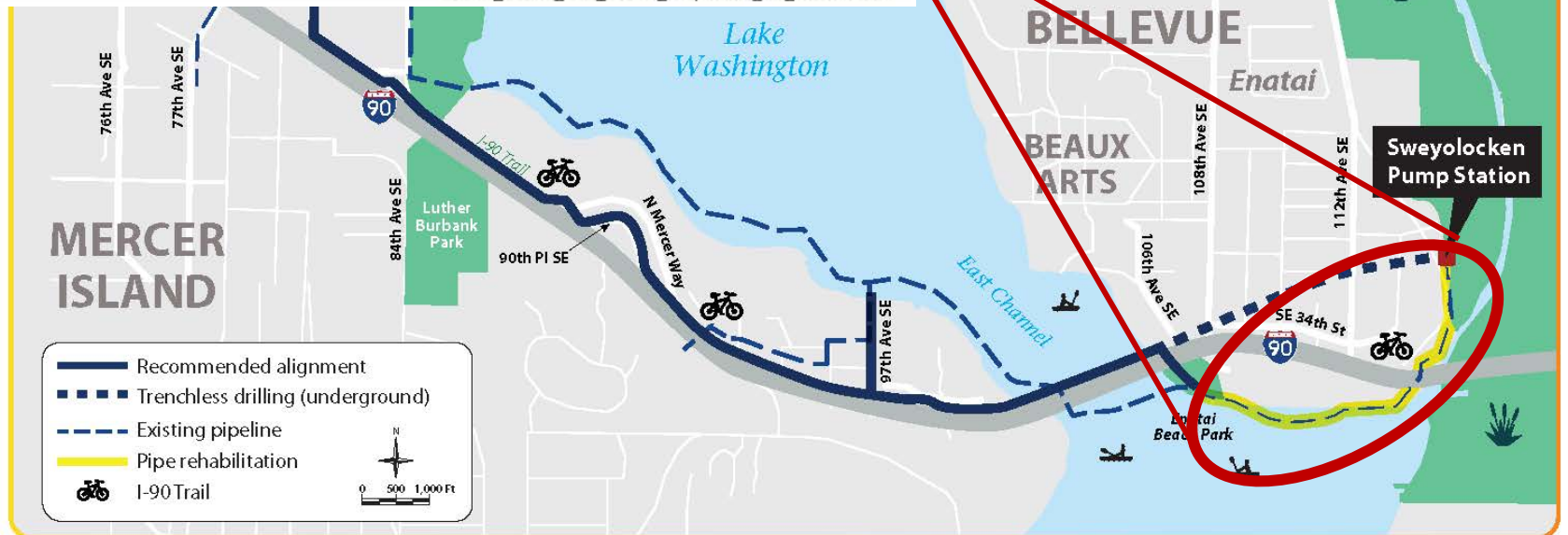
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CIPP Rehabilitation



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Pipe Rehabilitation

Existing North Mercer Island/Enatai Sewer:

- Rehabilitated
- Remain in service
 - By-Pass sections for rehabilitation
- Receive flows
 - 25 homes
 - 2 City of Bellevue sewers



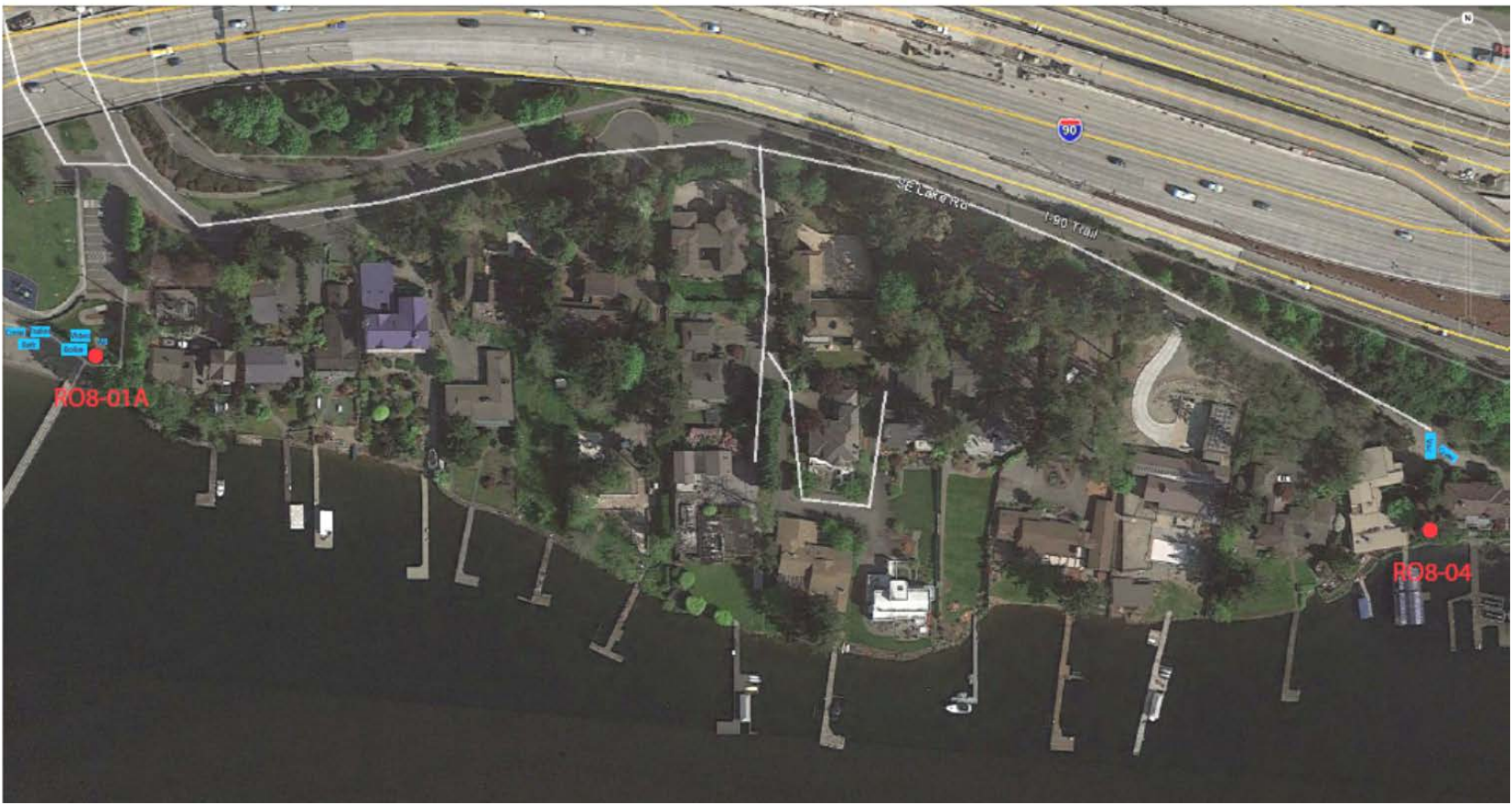


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Portion of the Rehabilitation Impacting residents





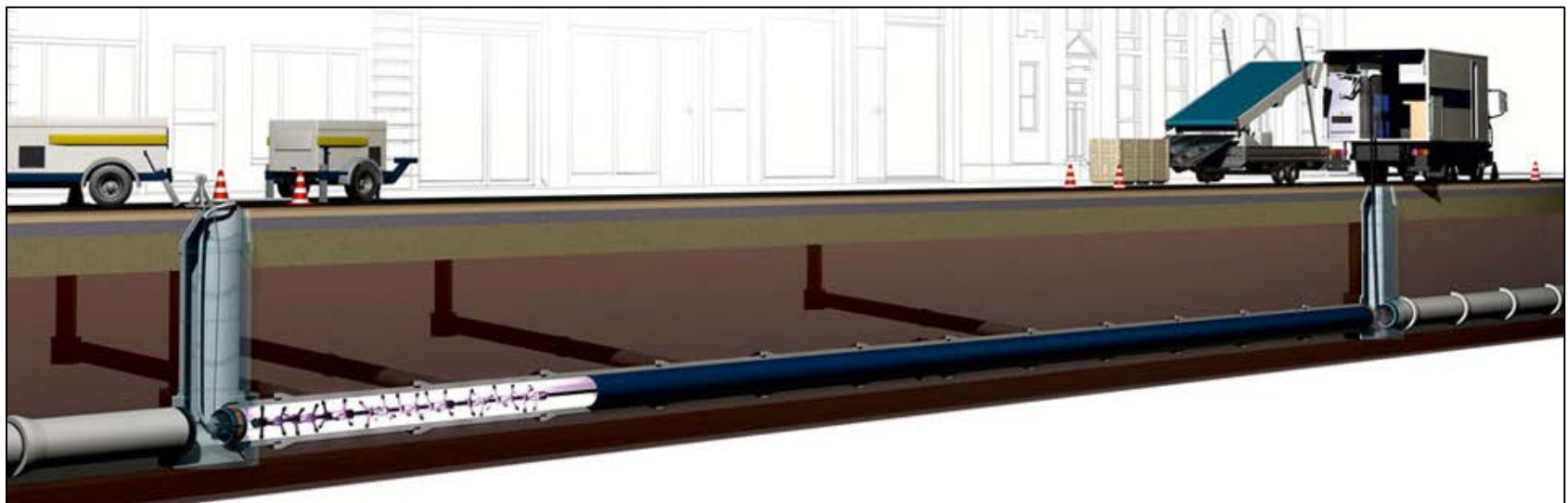
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Pipe Rehabilitation

- Crews at manhole locations will install a new liner that will be cured in place (called CIPP)
- Some of this work will be conducted from the water





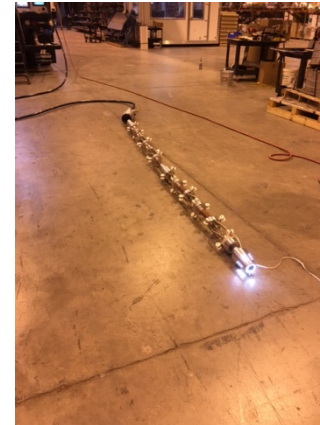
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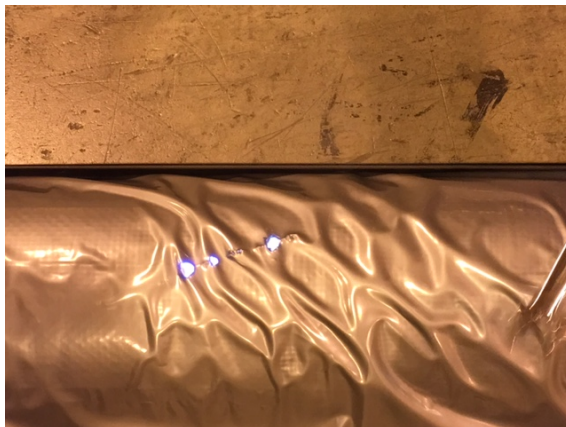
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Step 1: Insert Liner in Pipe
And Inflate Liner



Step 2: Prepare the
UV Light Train



Step 3: Run UV Light Train
Down Pipe to Cure Liner



Step 4: Completed New
Structural Pipeline



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Rehabilitation Access

- **PROCESS:**

- Clean Sewer
- Insert Liner
- Cure Liner
- Reinstate Services

- **WATER ACCESS:**

- 80-ft x 30-ft barge for liner insertion
- 50-ft x 25-ft barge for curing equipment

- **ACCESS FROM LAND:**

- Liner Truck
- Video Truck
- Air Compressor
- Winch





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Easement process

1. Contact from King County – *occurred in January 2017*
2. County orders property title reports
3. County determines square footage needs
4. County hires independent appraiser and verifies with second independent appraiser



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Easement process continued

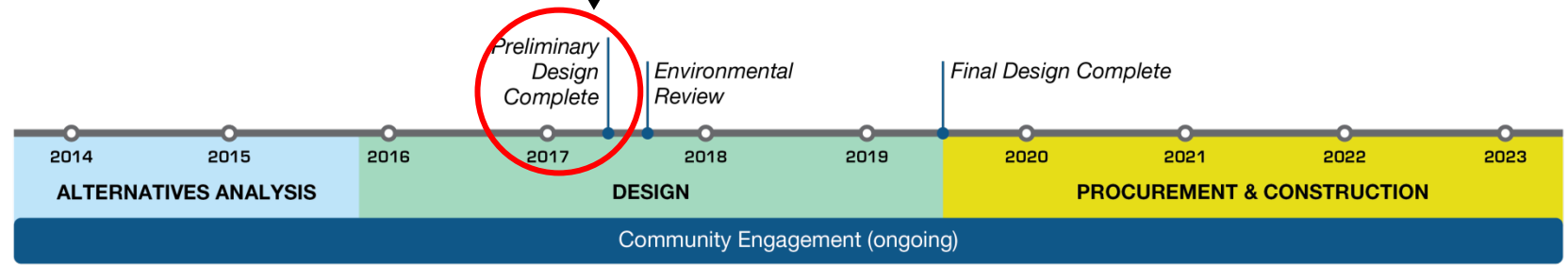
5. King County presents appraised value and easement document, and meets with you to answer questions
6. If needed, County explains original appraisal or provides up to \$750 toward your own appraisal
7. Finalize agreements



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Next steps:

Preliminary Design – mid-2017



- Initial design drawings
- Confirm property easement needs
- Refine construction methods
- Begin identifying construction sequencing (when we will build what)



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Next steps:

Environmental Review – fall 2017



- Identify environmental impacts
- Conduct environmental review under State Environmental Policy Act (SEPA)
- Opportunity for public input



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Our commitment to you

- Outreach and coordination with individual property owners
- Community group briefings
- Street walk and talks
- Gather community input where we can





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Questions and comments

For more information:

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- 206-477-5415