



CITY COUNCIL MEETING STAFF REPORT

Meeting Date: April 6, 2020		Subject: Boeckman Dip Bridge Alternatives Analysis (CIP #4212) and Stormwater Master Plan Amendment	
		Staff Member: Nancy Kraushaar, PE, Civil Engineer Dominique Huffman, PE, Civil Engineer	
		Department: Community Development	
Action Required		Advisory Board/Commission Recommendation	
<input type="checkbox"/> Motion <input type="checkbox"/> Public Hearing Date: <input type="checkbox"/> Ordinance 1 st Reading Date: <input type="checkbox"/> Ordinance 2 nd Reading Date: <input type="checkbox"/> Resolution <input checked="" type="checkbox"/> Information or Direction <input type="checkbox"/> Information Only <input type="checkbox"/> Council Direction <input type="checkbox"/> Consent Agenda		<input type="checkbox"/> Approval <input type="checkbox"/> Denial <input type="checkbox"/> None Forwarded <input checked="" type="checkbox"/> Not Applicable Comments: N/A	
Staff Recommendation: N/A			
Recommended Language for Motion: N/A			
Project / Issue Relates To:			
<input type="checkbox"/> Council Goals/Priorities	<input checked="" type="checkbox"/> Adopted Master Plan(s): Transportation System Plan Project UU-01	<input type="checkbox"/> Not Applicable	

ISSUE BEFORE COUNCIL:

Staff will update Council on the Boeckman Dip Bridge Project work completed since their February 3, 2020 work session date and requests Council discussion and consideration of direction on future project issues and next steps.

EXECUTIVE SUMMARY:

For project background, please see **Attachment 1**, the Executive Summary from the Council's February 3, 2020 work session. At that work session, Staff summarized preliminary engineering work that had been completed to develop the project scope, including:

- The OBEC Consulting Engineers (OBEC) **May 2014 “Boeckman Dip Planning Design Narrative for Frog Pond Master Plan”** that explored alignments and developed costs for two bridge options; “Option A” – a 305-foot long with a 6 percent maximum grade (\$13.1 million) and “Option B” – a 432-foot long bridge with a 3.5 percent maximum grade (\$17.9 million). Both assumed removing the roadway embankment fill down to the upper level bench and emergency overflow culvert. The estimates were in 2013 dollars with a 30 percent planning contingency; and
- The DOWL (formerly OBEC) **December 2019 “Boeckman Dip Alternative Analysis Memorandum”** that explored costs, permitting, and right-of-way implications for three construction detour alternatives to a full road closure. The “Option A” bridge is lengthened to 380 feet for all three to preserve a significant tree at 7550 Boeckman Road. This memorandum also took a preliminary look at a bridge option where existing embankment would be removed to allow for the main culvert removal.

The memo concluded the full road closure remained the preferred option based on cost, contractor constructability, construction duration, tree removal, and environmental impacts; and Alternative 1 (the north-side temporary road detour) was preferred (based on the same criteria) over the two other detour alternatives evaluated, should the City rule out the full road closure.

Cost estimates were updated as follows (2021 dollars with a 30 percent contingency):

- Bridge with Alternative 1 Detour – \$18.2 million
 - Bridge with Full Road Closure – \$16.4 million
 - Additional cost for main culvert removal – \$2 to \$3.7 million and potentially greater because of current unknowns.
- DKS Associates **June 2019 “Wilsonville Boeckman Road Dip Detour – Traffic Study”** that evaluated the effect a full road closure and the associated traffic diversion would have on the rest of the transportation system. They concluded that a temporary traffic signal, to relieve congestion at the Stafford Road/Elligsen Road/65th Avenue intersection, would help mitigate the impacts of the Boeckman Road closure. Both Clackamas County and Washington County would need to approve installation of the temporary signal.

Since the February work session, staff has completed a preliminary tree inventory for the area impacted by a north-side detour, fish passage assessment for the Boeckman Dip crossing, and held a teleconference with Oregon Department Fish and Wildlife (ODFW) staff.

- The preliminary tree inventory covered trees greater than 6 inches in diameter in an area 70 feet north of Boeckman Road on the west side of the dip. It found 7± Oregon Oak trees, 6± Douglas Fir, 10± Big Leaf Maple, 10± Red Cedar, 1± Pine, and 20± Red Alder. Most

of the trees, with only a few exceptions, located within this area were in relatively good condition.

- The fish passage assessment reported Boeckman Creek provides habitat for cutthroat trout both upstream and downstream of the crossing and habitat for rainbow trout/steelhead and Chinook salmon downstream of the crossing. There is no current information regarding how far upstream the rainbow trout/steelhead and Chinook salmon travel since the 2006 fish passage project the City completed in Memorial Park. However, the assessment determined that fish could reach the crossing. The gradient of the creek allows fish access from downstream. The boulders at the Boeckman Road main culvert outfall do not pose a migration issue. With unimpeded passage from the Willamette River, ODFW is within its rights to require fish passage at the Boeckman Dip Crossing.
- The teleconference with ODFW staff provided information about what project elements would trigger a fish passage requirement:
 - The project requires cumulative removal, fill, replacement, or addition of over 50 percent by volume of the existing material directly above an historic channel or historically-inundated area
 - The project modifies the culvert or flow control structure located at the upstream/north end of the culvert, including modifications such as culvert lengthening or lining
 - The project involves roadbed installation or replacement that:
 - Widens the roadfill footprint within a channel, or
 - Fills or removes over 50 percent by volume of the existing roadbed material directly above a culvert.

A fish passage requirement will most likely involve removal of the flow control structure that was constructed to manage the drainage from out-of-basin flows diverted to the Boeckman Creek Basin from the Coffee Creek Basin (area north and west of Boeckman Road including Mentor Graphics up to and including Argyle Square).

The Hydraulic/Hydrologic study discussed at the February work session will then be needed to evaluate the impacts of the associated flow modifications to Boeckman Creek and the stability of the creek bed and banks through the project reach and downstream to the Willamette River. If the downstream basin cannot handle the flows, it may be possible to pursue a waiver process if the City can identify a location to remove a fish barrier elsewhere.

Next Steps and Future Project Issues

Based on the findings from the above work, the next critical path item is to determine the condition of the existing main culvert at the Boeckman Dip. Staff recommends we proceed with the culvert condition assessment. If the culvert has deteriorated to the extent that it requires lining or other improvement, fish passage will be required giving much clarity to the Boeckman Dip Bridge Project scope.

If the culvert is in satisfactory condition, expected ranges of embankment/fill removal volumes associated with an “Option A” bridge (or similar that provides for wildlife crossing and the Boeckman Creek Trail) can be reviewed to see where it fits relative to the 50 percent volume fish passage trigger. This effort will also provide clarity to the Project scope.

Since the February work session, Staff has been asked, through public comment, to look at potential cost savings or advantages of raising the road by raising the embankment (which would increase the embankment prism within the creek corridor – likely requiring lengthening of the main culvert and thus triggering fish passage requirements). Staff recommends that action on this request be postponed until we have more clarity on the Project scope.

At the February meeting, Staff presented a list of issues that will require resolution as Project design advances, including bridge length and cross-section, aesthetics, vertical grade, appropriate project delivery (contracting) method, and funding sources. Staff recommends that these issues be addressed in the future when the Project scope is more clearly defined.

Staff also recommends that the City be prepared to initiate the Hydraulic/Hydrologic study to evaluate the impacts of the potential flow modifications to Boeckman Creek and the stability of the creek bed and banks through the project reach and downstream to the Willamette River by amending the Stormwater Master Plan project list, as described in proposed Resolution No. 2804 on the Council agenda.

EXPECTED RESULTS:

The staff briefing will update the City Council on Project progress and allow for discussion and direction for the project as it moves forward.

TIMELINE:

The project timeline is not certain at this time. Clarifying the Project scope will allow Staff to more accurately provide a schedule to the City Council.

CURRENT YEAR BUDGET IMPACTS:

The approved FY 2019-20 budget includes \$935,000 in Year 2000 Urban Renewal District funds for project design and overhead associated with the Boeckman Dip Bridge project (CIP #4212). The project is to be designed jointly with the Boeckman Road Street Improvements – Frog Pond project (CIP #4205) and the Canyon Creek/Boeckman Traffic Signal project (CIP #4206).

FINANCIAL REVIEW / COMMENT:

Reviewed by: CAR Date: 3/25/2020

LEGAL REVIEW / COMMENT:

Reviewed by: BAJ Date: 3/25/2020

COMMUNITY INVOLVEMENT PROCESS:

A community involvement process will be defined and incorporated into the work scope for further project design work. Preliminary public outreach occurred when the Year 2000 Urban Renewal Plan was amended to include construction funding for the Project. The Project has been discussed with the community, as the Frog Pond neighborhood was planned and as land use applications have been approved. The community also had the opportunity to learn about the Project during the Transportation System Plan adoption process.

POTENTIAL IMPACTS OR BENEFIT TO THE COMMUNITY:

The adopted Wilsonville Transportation System Plan includes the Boeckman Dip Bridge to replace the existing road. Widening for bike lanes and sidewalks, updating the vertical profile to meet Public Works standards and improving sight distance is necessary to provide sufficient transportation infrastructure to accommodate growth and will also benefit the existing community. The Project plans include constructing a section of the Boeckman Creek Trail. The Project also intends to provide wildlife passage under Boeckman Road.

ALTERNATIVES:

Numerous alternatives are still being considered for the Project. This work session provides Council the opportunity to further learn about and discuss alternatives for the Boeckman Dip Bridge Project.

CITY MANAGER COMMENT:

N/A

ATTACHMENT:

1. Executive Summary from the Council’s February 3, 2020 Work Session

ATTACHMENT 1

April 6, 2020 Wilsonville City Council Work Session

Boeckman Dip Bridge Project Update

ATTACHMENT 1 provides the Executive Summary for the Boeckman Dip Bridge Project Update (CIP #4212) from the February 3, 2020 City Council Work Session Staff Report as background for the April 6, 2020 project update.

EXECUTIVE SUMMARY:

The proposed “Boeckman Dip Bridge” Project will upgrade a section of Boeckman Road that was constructed in the 1960s according to USGS mapping records. At that time the road was straightened from its previous switchback alignment, and a large corrugated metal pipe (CMP) culvert was installed to convey creek flows.

Boeckman Road, one of only three east-west cross-town arterials in Wilsonville, serves an important role in the City’s transportation system; becoming even more important as the Frog Pond neighborhoods build out. The bridge project, included in the Wilsonville Transportation Plan (TSP) as Project UU-01, will upgrade the existing steep and narrow rural roadway alignment to urban standards. The bridge will provide safe bicycle and pedestrian facilities that connect residential neighborhoods, jobs, schools, and commercial land uses. The alignment will improve sight distances through the area, particularly at the Canyon Creek Road intersection, which will be signalized in the near future, and remove the barrier that the steep road creates for bicycles. The bridge will also provide for wildlife passage under Boeckman Road.

The TSP also includes the Boeckman Creek Trail (Projects RT 01A, 01B, and 07), a north-south trail through east Wilsonville that follows Boeckman Creek and will ultimately extend all the way from the Frog Pond neighborhoods to Memorial Park. The Boeckman Dip Bridge project work scope has to date assumed the existing access/maintenance road north of Boeckman Road will remain but will be relocated to the east. Staff recommends the project also address how a future Boeckman Creek Trail alignment can best be accommodated within the project reach.

Over time, the Boeckman Creek basin was significantly altered not only by urban development within the basin but possibly more importantly by modifications to its natural basin boundaries. Substantial drainage areas were added and out-of-basin flows were diverted to the Boeckman Creek basin. These areas are north and west of Boeckman Road including Mentor Graphics up to and including Argyle Square.

Designed to address and manage these out of basin flows in order to protect against flooding and the overall integrity of Boeckman Creek, the main creek culvert is enhanced with flow control infrastructure as illustrated in the photos below. These include a benched embankment on the north (upstream) side of the Boeckman Road with an emergency overflow culvert; a main culvert and flow control structure at the creek level; and an inundation easement. Comparative elevations are:

Boeckman Road surface at low point: elevation = 176+/- feet
Upper bench and emergency overflow culvert: elevation = 154+/- feet
Main culvert near base of flow control structure: elevation = 140+/- feet



Main Large Corrugated Metal Pipe (CMP) Culvert Conveys Creek Flows Under the Road



North to South View from Boeckman Creek up to Boeckman Road – Shows flow control structure for culvert and creek level, upper bench and road (see car)



Emergency Overflow Culvert (42"x66" CMP - Corrugated Metal Pipe) Located on Upper Bench



Profile from Road to Upper Bench



Upper Bench Looking Down at Creek and Flow Control Structure

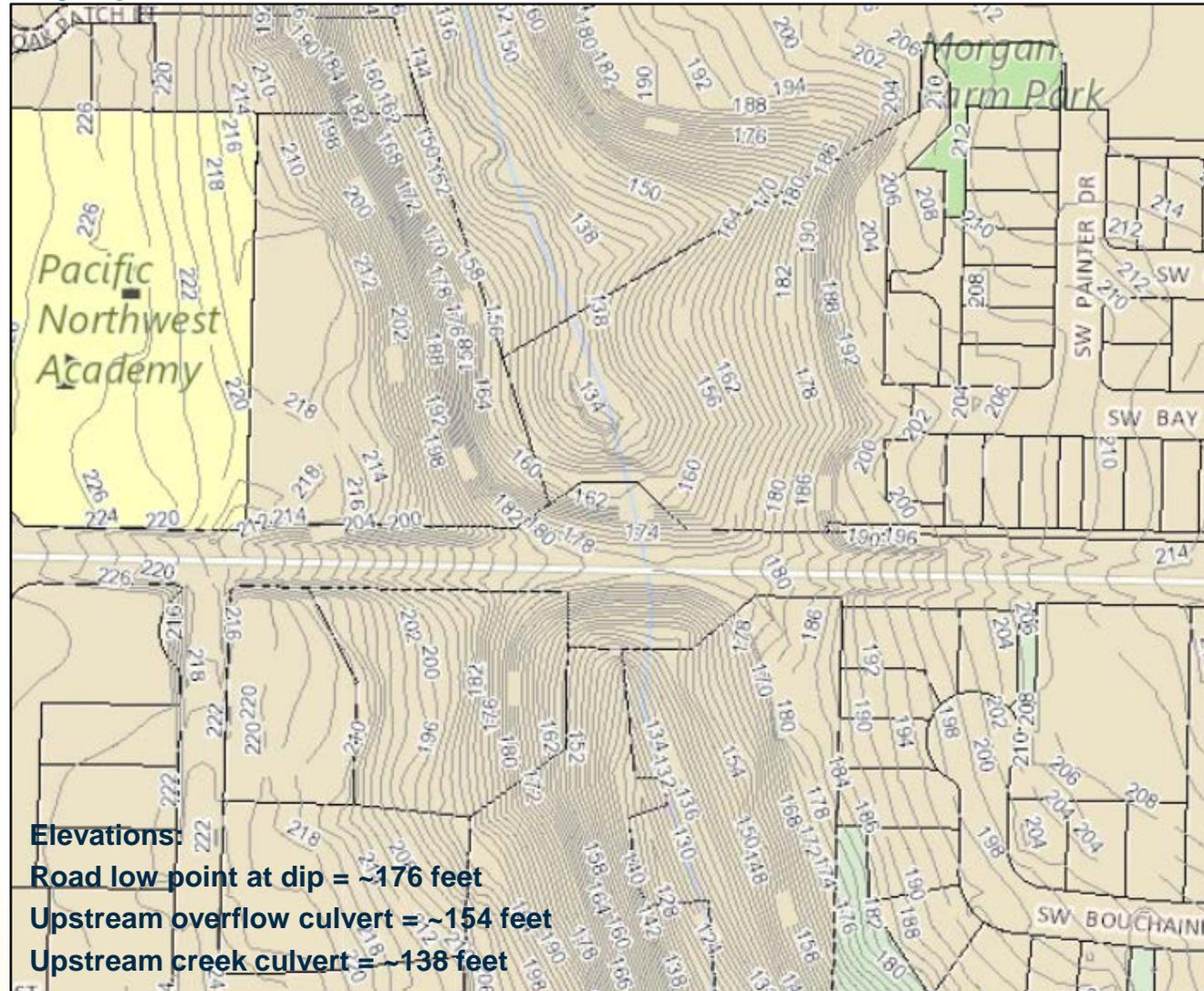


City of Wilsonville
City Council Work Session
Boeckman Dip Bridge Project Update
April 6, 2020

Presented by:

Nancy Kraushaar, PE, Engineer

Council Work Session Goals



Project Update

- Quick recap - past project work
- Preliminary tree survey – north-side temporary road detour option
- Fish passage assessment
- Oregon Department of Forestry and Wildlife (ODFW) fish passage information
- Next steps

Boeckman Dip Bridge Project Goals

- Upgrade Boeckman Road deficiencies
 - Steep grade
 - Two narrow lanes; sidewalk one side
- Construct bridge (TSP)
- Improve sight distance
- Safety and reliability for all modes
- Arterial connection between neighborhoods, jobs, schools, services
- Provide wildlife passage under road





Boeckman Road Culvert and Basin Flow Management System

- Main conveyance culvert – corrugated metal pipe (below);
- Flow control system built to manage flows and basin integrity from ~336-acre diversion (right)





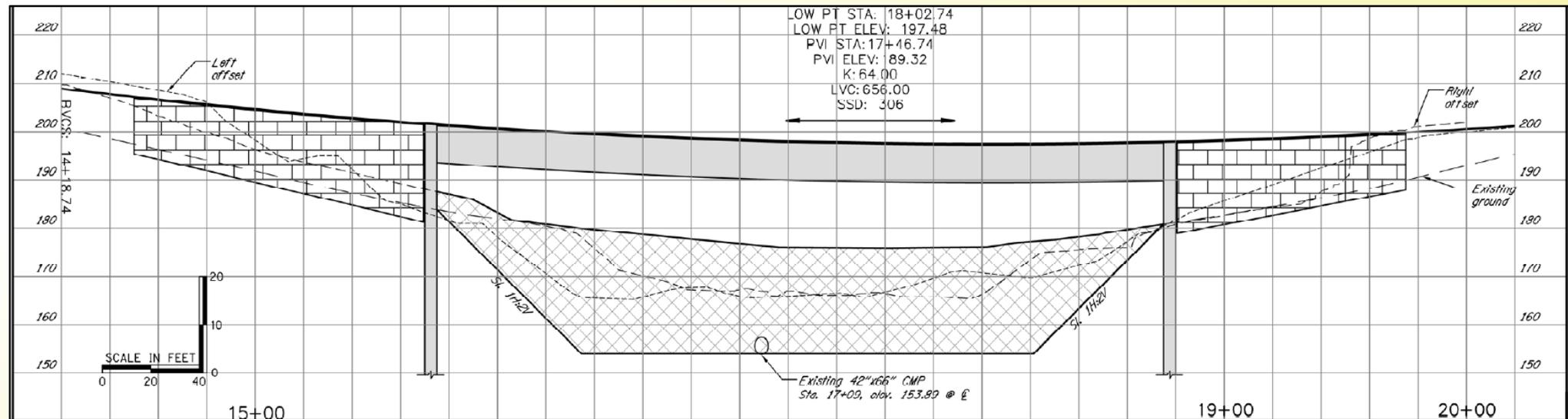
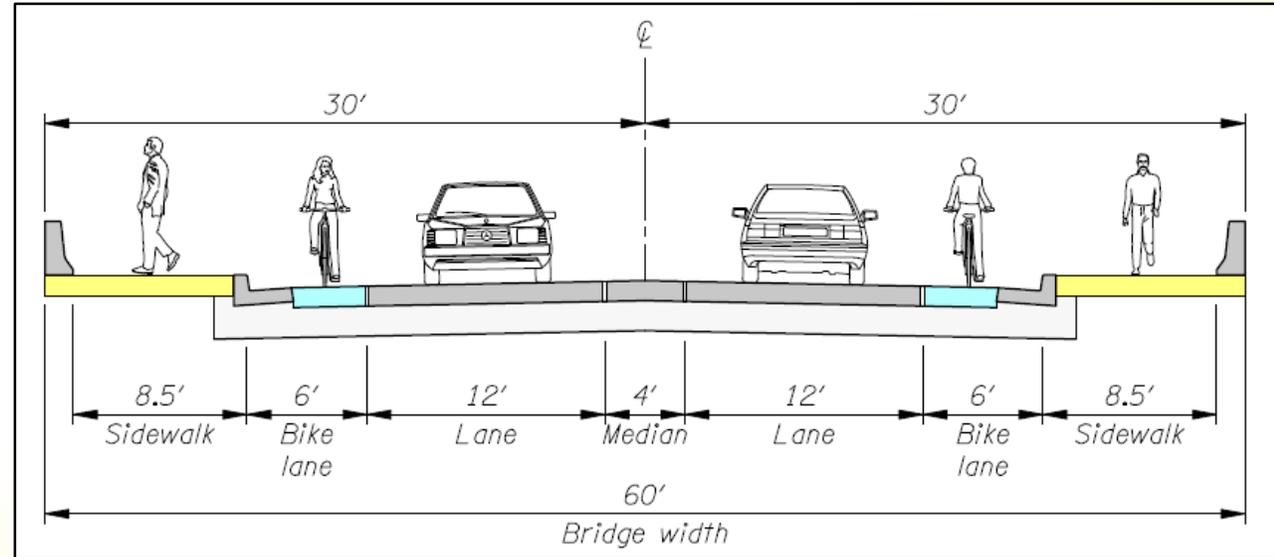
Upper Bench Overflow System

- Emergency overflow culvert
- Initial scope for bridge
 - Remove roadway fill down to upper bench
 - Provide for wildlife passage and Boeckman Creek Trail



May 2014 Planning Design Narrative

- Option A – Shortest bridge (350 feet) at least cost
- \$13.1 M (\$2013)



December 2019 Alternative Analysis – Detours

Concluded preferred options*:

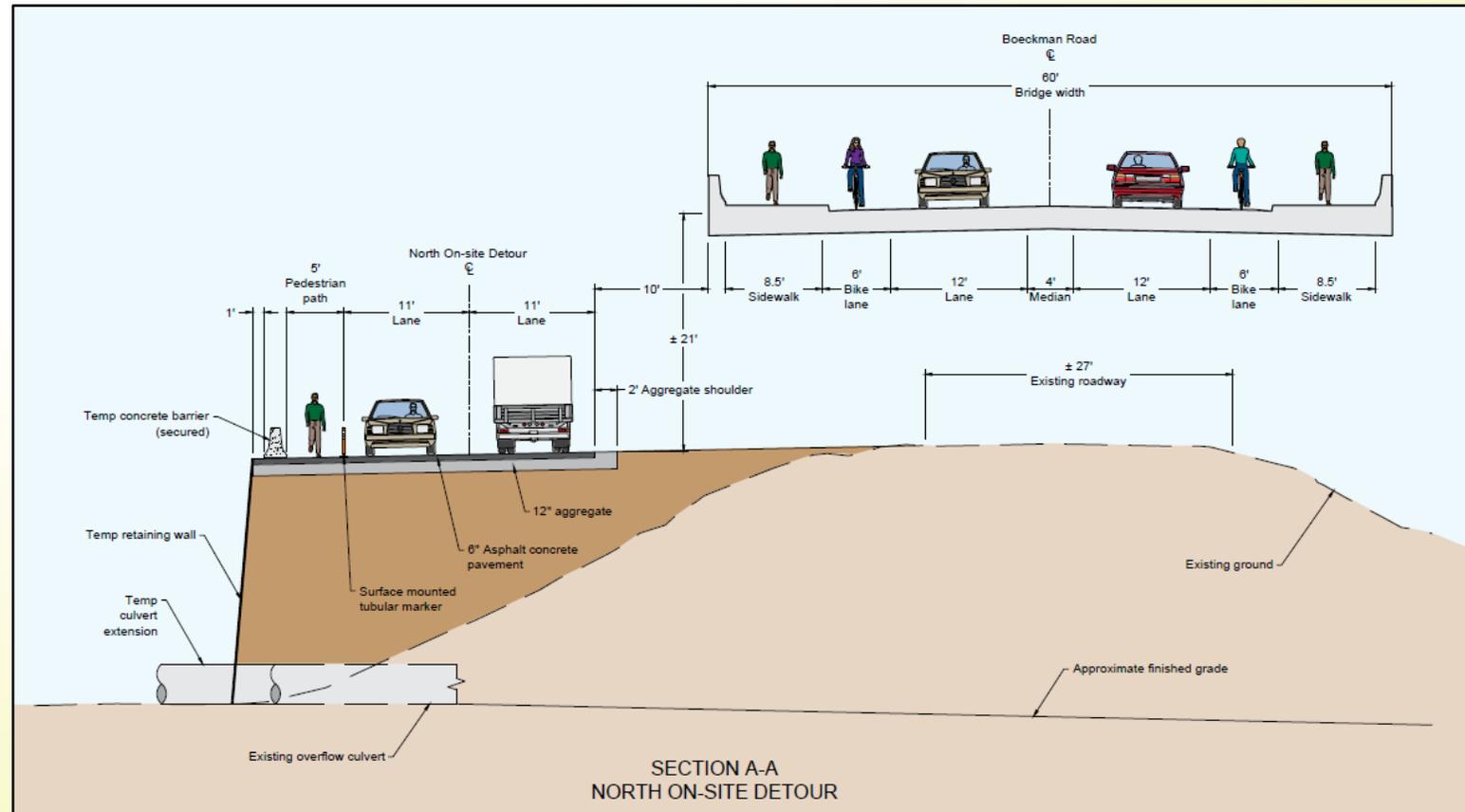
- Full road closure (best)
- Alt. 1 – North-side temporary road (best of detour options)

**Based on contractor constructability, construction duration, tree removal, and environmental impacts*

Future considerations:

Lengthen bridge 80 feet to protect tree.

Main culvert removal (+\$2 to \$4M)

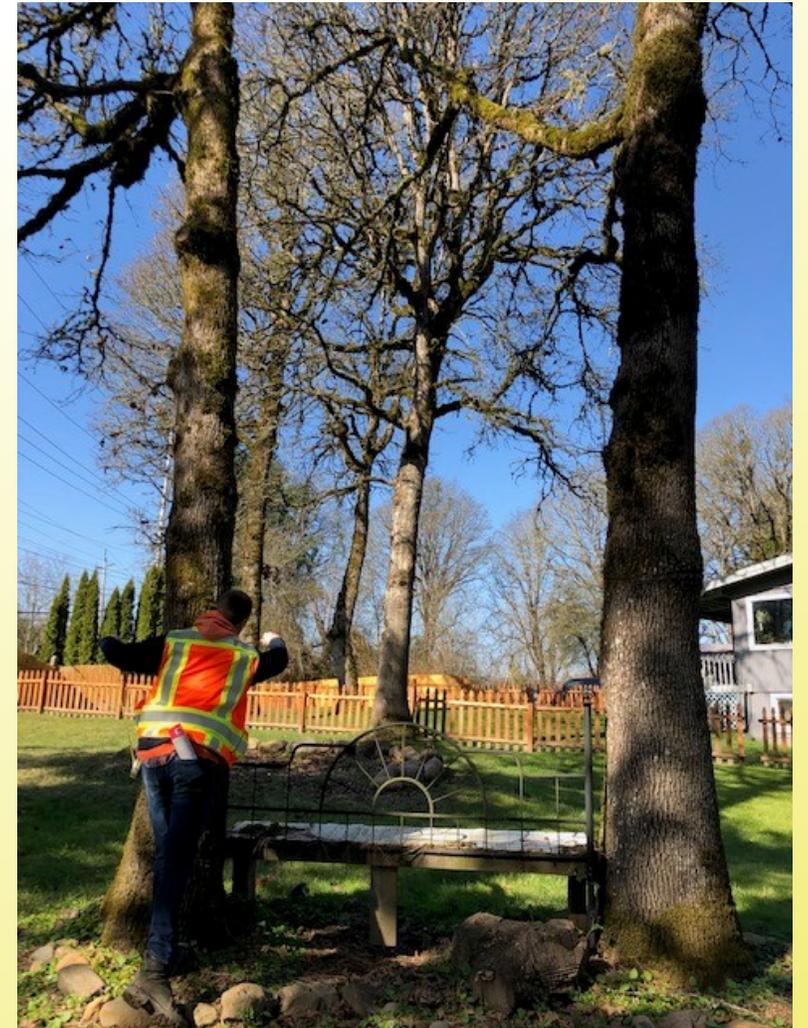
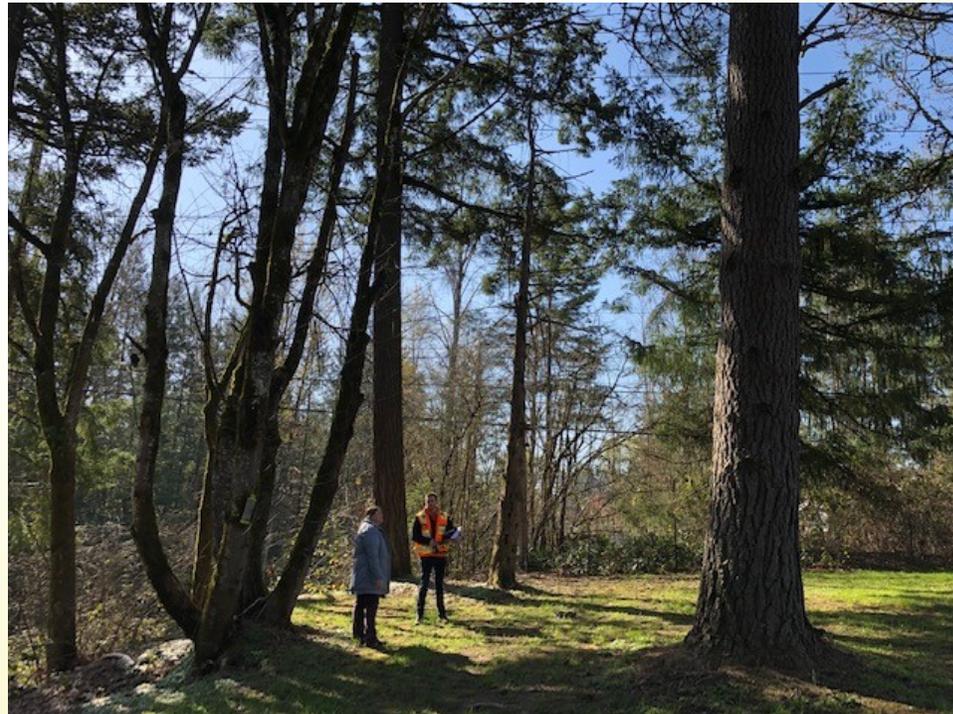


Update – Preliminary Tree Survey

Preliminary Tree Survey – North-side temporary road detour area

>6-inch diameter:

- 7 Oregon Oak
- 6 Douglas Fir
- 10 Big Leaf Maple
- 10 Red Cedar
- 1 Pine
- Misc. Red Alder



Update – Fish Passage Assessment

Fish Passage Assessment for Boeckman Creek

- Habitat for cutthroat trout upstream and downstream of Boeckman Road
- Habitat for rainbow trout/steelhead and Chinook salmon downstream of the road/culvert
- Historically Boeckman Creek could provide habitat for all three species
- Boeckman Road culvert represents a fish barrier - ODFW fish passage requirements apply if project scope invokes a “trigger event”





Update – ODFW Information

Potential “trigger” project elements:

- >50% cumulative removal, fill, replacement, or addition of existing material above historic channel or inundated area
- Modifications to main culvert or upstream flow control structure
- Roadbed installation or replacement:
 - Widens roadfill footprint within a channel
 - Fills or removes over 50 percent by volume of existing roadbed material directly above a culvert
- Fish passage can be “fish-friendly” culvert or bridge



Next Steps – Upcoming Decisions

Next Steps:

- Determine main culvert condition
- If satisfactory, perform volume estimations for “Option A” bridge relative to the 50 percent fish passage trigger
- Refine project scope and budget
- Develop funding plan and project schedule

Upcoming/Future Decisions:

- Project budget
- Contracting approach and solicitation
- Bridge length and cross-section, aesthetics, vertical grade, detour



Boeckman Dip Bridge Project Update

Thank you

Stormwater Master Plan Project List Amendment

Resolution No. 2804

April 6, 2020



WILSONVILLE
OREGON

Pipeline Upsizing on Ridder Road and Peters Road

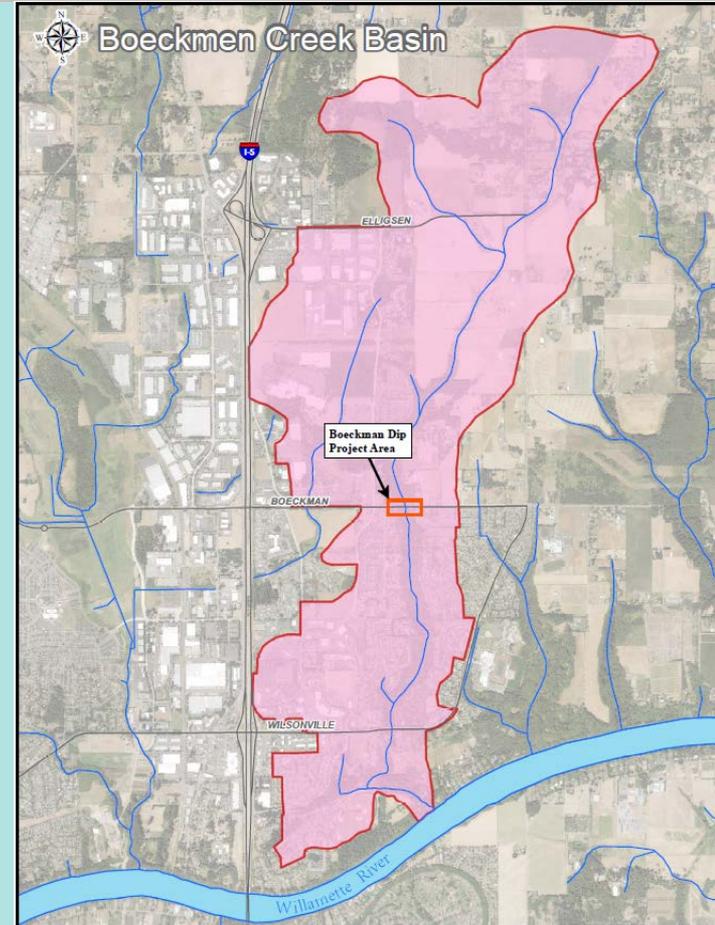
- Serves Coffee Creek Industrial Area build out
- Portion constructed with CIP 4201, Garden Acres – Ridder to Day (\$831,200)
- Remainder with future phase (\$1,770,000)





Boeckman Creek at Boeckman Road Stormwater Study

- Currently in master plan, not on SDC list
- Needed for Boeckman Dip project
- Modifications to current stormwater system may affect detention system
- Assess existing conditions and road realignment options, then identify alternatives for flow and slope stability (\$90,800)





Questions?

Thank you for your time!