

# Council Study Session

February 4, 2019

<b>Agenda Item</b>	Ashland Canal Piping Project Status Update (PW #2015-17)	
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<b>Item Type</b>	Requested by Council <input checked="" type="checkbox"/> Update <input type="checkbox"/> Request for Direction <input type="checkbox"/> Presentation <input type="checkbox"/>	

## **SUMMARY**

Before the Council is a status update on the Ashland Canal Piping Project and staff findings from the last 12 months of work. Staff has worked closely with a team of very capable engineers, surveyors, and technical experts to analyze the complexities of this project. Staff relied on the Ashland Canal Advisory Group to assist through the process. Tonight, staff will present Council with a summary of the engineering and natural resources challenges, and a summary of the public comments that have been heard throughout the preliminary engineering phase and those from the most recent January 31, 2019 listening session facilitated by public works staff.

## **PROJECT GOAL**

The goal of the canal piping project is to replace approximately 2 miles of the open channel concrete lined canal with a below ground pipe to reduce the amount of contaminants that can enter the canal, conserve a significant amount of water to assist with our water conservation and efficiency goals, and update a vital piece of water infrastructure that delivers an alternate raw water supply to the City's water treatment plant.

## **POLICIES, PLANS & GOALS SUPPORTED**

*City Council Goals:*

- 29 *Promote conservation as a long-term strategy to protect the environment and public utility needs.*
- 30 *Deliver timely life-cycle capital improvements.*
- 31 *Maintain existing infrastructure and plan for future improvements to meet regulatory requirements and minimum life-cycle costs.*
- 32 *Implement recommendations of adopted master and capital plans.*
- 22 *Prepare for the impact of climate change on the community.*

## **BACKGROUND AND ADDITIONAL INFORMATION**

The City of Ashland places priority on improving water quality and efficient water management. As identified in the City's adopted 2012 Comprehensive Water Master Plan, piping the front section of the Ashland Canal (approximately 10,000 lineal feet) from Starlite Place to Terrace Street is intended to meet the goal of improving water quality in Ashland Creek and overall water efficiency. In years when water supplies are limited, the Ashland Canal is used as a supplemental water source. The water is treated to drinking water standards at the City's Water Treatment Plant (WTP). Raw water in an open canal is vulnerable to contamination from a variety of sources. These contaminants reduce the water quality of Ashland Creek.

Ashland Creek routinely exceeds the State's maximums for E. coli bacteria in the summer months. Additionally, open canals are susceptible to water losses through seepage and evaporation. Water losses in the Ashland Canal are between 23% and 30%.

At the [August 1, 2017 business meeting](#), Council authorized a DEQ Clean Water State Revolving Fund (CWSRF) loan of \$1.3 million to complete the Ashland Canal Piping project. Staff advertised the request for qualifications for phased engineering services and received proposals in November 2017. At the January 16, 2018 business meeting, staff received Council approval to award a professional services contract to Adkins Consulting Engineering, LLP (\$192,257). In addition, staff entered into a contract with StingRay Communications (\$31,000) to assist with strategic communications and public outreach, and with Siskiyou BioSurvey for a tree health assessment (\$14,790). The Southern Oregon University assisted with a wildlife survey. To date, the preliminary engineering and miscellaneous project expenses total \$238,047.

### **PROJECT BACKGROUND**

This project has produced a significant amount of research and information. Along with the attached detailed staff project summary, links are available to all reports on the engineering options, ecological analysis of the trees, wildlife impacts, ACAG meeting presentation and meeting summary notes, answers to frequently asked questions, the project map and current trail easements locations.

### **FISCAL IMPACTS**

Due to the complexities of working in a very narrow maintenance easement area and anticipated additional expenses, the preliminary engineering cost estimate has grown from the original budget estimates of \$1.3 to \$1.8 million. Current project estimates; design, permitting, and construction, have grown to a range between \$2.4 to 3.9 million. This range identifies the cost differences for three project alternatives including full pipe replacement, partial piping and partial rehabilitation, or full canal lining and rehabilitation. The project costs have increased largely due to a very constricted easement area of only 20 feet in width and the amount of tree removal and property protection. Costs will be refined during final engineering as the engineering team can get a better and more complete picture of the specific impacts for each property owner along the canal during the construction phase.

The 2017-19 Biennium Capital improvement Project (CIP) budget includes System Development Charges (SDC) funds for contracted services in the amount of \$1,452,000 for this project. This project is 100% SDC eligible. Expenses for this project will be reimbursed through a low interest (1%) Department of Environmental Quality (DEQ) Clean Water State Revolving Fund loan of \$1.3 million authorized by Council at the August 1, 2017 business meeting. As noted above the preliminary engineering and miscellaneous project expenses current total \$238,047. Should Council move forward to final engineering (staff anticipates bringing this before the March 5, 2019 Council business meeting), staff will identify additional sources of funding for the selected alternative.

### **DISCUSSION QUESTIONS**

Discussions will likely surround the pros and cons of water quality and watery conservation benefits as compared to cost and the need to remove a significant number of trees. Council is not being asked to make a decision tonight, but this discussion is in preparation for the business meeting discussion in March. Staff and the consulting team will be available to discuss the project in detail and to discuss options available as Council moves toward a decision in March.

## **SUGGESTED NEXT STEPS**

Staff anticipates bring this item to Council for a decision to move to the next phase for final engineering on March 5, 2019. Staff is available and can schedule tours of the canal with Council members to better understand the concerns of community and existing conditions within the canal easements.

Should this project move forward, the alternatives will be narrowed to a preferred alternative, final engineering will be completed with more detailed drawings, impacts and any additional right-of-way identified, and a final cost estimate will be prepared. Staff will identify additional revenue options prior to returning to council for approval on construction.

## **REFERENCES & ATTACHMENTS**

1. Staff Summary (attached)
2. [Atkins Engineering executive summary](#) (Full reports available at [www.ashland.or.us/ashlandcanal](http://www.ashland.or.us/ashlandcanal))
3. [Siskiyou BioSurvey executive summary](#)
4. [SOU Letter \(Wildlife\)](#)
5. [ACAG presentation](#)
6. [ACAG meeting notes](#)
7. [FAQs](#)
8. [Project Map](#)
9. [Trail Easement Map](#)

# Update – Ashland Canal Piping

February 4, 2019 – Council Study Session

Before the Council is a status update on the Ashland Canal Piping Project and Staff findings from the last 12 months of work. The goal of the canal piping project is to replace approximately 2 miles of the open channel concrete lined canal with a below grade pipe. This will reduce the amount of contaminants that can enter the canal, conserve a significant amount of water and update a vital piece of water infrastructure that delivers an alternate water supply to our water treatment plant. With Council’s authorization, staff has worked closely with Adkins Engineering and surveying to complete the preliminary engineering phase of the Ashland Canal Piping Project. We are prepared to report the findings of the preliminary engineering as well as additional efforts that the project team has completed at the request of staff and the Ashland Canal Advisory Group.

## **Project Background:**

The City owns and operates a gravity fed concrete lined canal constructed in the early 1900s, which was originally intended for irrigation purposes. The Ashland Canal receives water from the Talent Irrigation District (TID). This water originates at Hyatt and Howard Prairie Reservoirs. The City has a contract to receive up to 1,369 acre feet of water from the TID. Currently the City purchases this water for \$51.17 per acre foot of water delivered to the City’s point of delivery at Starlight Terrace.

The City’s section of the canal is located primarily within easements on private property. The majority of the easements describe a tract of land that is 10 feet on either side of the canal centerline for a total width of 20 feet. These easements allow for the construction, maintenance and operation of the canal across private property, and only grants the City access to the property. The City’s canal section within the project area is approximately 2 miles in length beginning near Starlite Terrace and terminating at the wet well at the Terrace Street Pump Station. The existing concrete liner varies in condition from fair to poor with isolated sections of cracking mostly caused by tree roots or failing subgrade. Currently there are some sections that are piped under roads or driveways, they consist of several segments totaling 3,350 linear feet. In addition to the City’s public utility easement, portions of the Ashland Canal also have recreational trail easements granted to the Ashland Parks and Recreation District from property owners. However, there are large sections of the Canal without trail easements.

The Canal is in operation seasonally from April through October in most years and is based on TID’s water availability. When the Canal is in operation there is continuous flow into Ashland Creek from the Terrace Street Pump Station, which is necessary to account for the fluctuating canal flows into our wet well, as well as fluctuations in the demand for water from the irrigation customers along the canal.

It is a common misunderstanding that residents think they have “water rights” to the Canal water. The City and Southern Oregon University (SOU) have water rights, whereas, the residents who receive water from the Ashland Canal are purchasing the irrigation water from the City, but do

not have actual water rights. Being a municipal water right, the City can supplement the raw water supplied to the City's Water Treatment Plant with canal water to help offset the use of Reeder Reservoir (Ashland Creek water) and treated water purchased from Medford Water Commission through the Talent Ashland Phoenix (TAP) pipeline. All raw water is treated through the City's Water Treatment Plant. In recent years, Canal water has been pumped to the Treatment Plant in 2009, 2013, 2014, 2015 and 2018.

Raw water in an open canal is vulnerable to contamination from a variety of sources and reduces the water quality of local waterways. Additionally, open canals are susceptible to water losses through seepage, evaporation and transpiration by vegetation. Like many other local waterways, Ashland Creek routinely exceeds the State's maximums for E. coli bacteria in the summer months. The City regularly samples Ashland Creek for bacteria and posts public health notices along the Creek when Oregon Health Standards are exceeded. The Ashland Creek E. coli Bacteria Study (2011 Rogue Riverkeeper) shows that the Ashland Canal is a major contributor of E. coli into Ashland Creek. The Study also shows that E. coli concentrations increase gradually from Tolman Creek Road to the Canal outfall into Ashland Creek. It is suggested that pet and/or animal waste adjacent to the Canal may be contributing the higher than normal levels of bacteria in the Canal which is then conveyed to Ashland Creek.

#### **Ashland Canal Advisory Group (ACAG)**

ACAG is a voluntary informal advisory group formed by members of the general public, property owners along the Canal, members of various City Commissions and local experts on natural resources and regional Canal piping efforts. Goals of ACAG are to provide input to Staff through project design and ultimately make a recommendation of piping alternatives.

#### **Project Benefits:**

- Improved water quality: Minimize contaminants from entering the Canal, and therefore local waterways.
- Improved water conservation: Reduce water loss to seepage, evaporation and transpiration by vegetation.
- Maximize water resource: Right Water Right Use. More water will be available for our irrigation customers, helping to conserve our potable water supplies.
- Improving a supplemental water resource: The canal water is an important supplemental water source during times of drought and has frequently been diverted to our Water Treatment Plant as an alternate drinking water supply.
- Reduced maintenance/operation costs: currently we spend approximately \$75,000/year for canal operation and maintenance. We expect this cost to be reduced substantially after project completion.
- Vegetation restoration to a more ecologically stable and natural condition and reduced fuel loading in a wildfire hazard area. The vegetation along the Canal has been artificially augmented with water from seepage, allowing un-natural large tree growth adjacent to the Canal.

#### **Project Concerns:**

- Aesthetic impacts: loss of open water channel that is attractive to neighbors and the community

- Tree removal: It's recommended that we remove nearly all vegetation within the Canal easement (20 feet). This equates to approximately 284 trees, some of them quite large.
- Trail impacts: There is concern in the trails community that the piping project may result in less future trail easement opportunities and/or additional sections closed to the public.
- Property owner disturbance: Removal of foot bridges, fencing, vehicle bridges and landscaping within the easement as well as construction noise and disturbance.
- Project costs: Estimates to finish the engineering/permitting and construction are \$3,095,000, based on Staff's recommended piping alternative.
- Funding gap: our loan from DEQ is for \$1.3 million to complete the project, some additional funds still need to be secured.
- Lack of seepage from the Canal can contribute to unintended tree mortality on private property, outside of the Canal easement.

#### **Other Concerns from Community:**

- Loss of property values from the removal of the open water source.
- Loss of property values from the removal of trees.
- There are 10+ miles of open canal before it becomes City ownership, piping the last 2 miles will have little if any impacts to water quality.
- Tree removal is very sensitive to the public, some prioritize trees over everything else.
- Negative impacts to wildlife that use the Canal as a summer water source.
- Contamination from E Coli is overstated and not really an issue.
- Water losses are overstated, actual losses are much lower than our estimates.
- Project costs outweigh any benefits, funds should be spent elsewhere or not spent at all.

#### **Public Outreach:**

Due to project complexities staff has made public outreach a priority. We hired StingRay Communications to assist us through the public outreach process. The efforts of staff are summarized below:

- 17 individual backyard meetings with adjoining property owners March – June 2018
- Neighborhood meeting with adjoining property owners 3/6/18
- Community meeting 4/18/18
- Trails Association Open House 5/2/18
- Formation of the Ashland Canal Advisory Group (ACAG) and meetings on 4/2/18, 10/9/18, 12/20/18
- Canal tour with Advisory Group 11/13/18
- Project website: [www.ashland.or.us/ashlandcanal](http://www.ashland.or.us/ashlandcanal)
- Created a project status notification sign up – 65 citizens currently
- Interview with Jefferson Public Radio 1/28/19
- Community meeting 1/31/19
- Two City Source articles about the project
- Media interviews with newspapers and television
- Multiple meetings and email/phone communications with community members and stakeholders.

### **Results of Preliminary Engineering:**

Preliminary engineering and was performed by Adkins Engineering and Surveying. This included survey, site review, wetland determination, preliminary geotechnical study, seepage study, preliminary plans and cost estimates. The site review identified numerous constraints that need to be addressed in design of this project. There are 86 properties that the Canal crosses. Project constraints include trees, fences, bridges, driveways and vaults. Trees are the largest project constraint with approximately 284 conflicts. 195 of those trees are between 6-12 inches diameter at breast height, 75 are between 12-24 inches and 14 trees are 24 inches and larger.

Seepage testing results indicate that the Canal is losing 23% of its flow to seepage and evaporation. This equates to 190 acre feet or 62 million gallons of water loss in a typical irrigation season. This amount of water is equivalent to the summer irrigation water need for over 800 quarter acre lots.

Four project alternatives were evaluated and presented to the City:

1. Alternative 1: Replace the entire existing canal with 24-inch corrugated HDPE pipe. Cost for engineering/permitting/construction; \$3,095,000. Recommend removing nearly all trees within the easement; approximately 285 trees total.
2. Alternative 2: Replace only the open sections of canal with 30-inch corrugated HDPE pipe, replace small road/driveway crossings with 24-inch pipe and retain/rehabilitate the large piped section between Elkader Street and Beach Street. Cost for engineering/permitting/construction; \$3,950,000. Recommend removing nearly all trees within the easement, some can be left near the large piped section, approximately 260 trees total.
3. Alternative 3: Replace the canal liner with a new concrete liner and urethane underliner and retain/rehabilitate the existing crossings. Cost for engineering/permitting/construction; \$2,429,000. Recommend removing nearly all trees within the easement, some can be left near the large piped section, approximately 260 trees total.
4. Alternative 4: Do nothing. This alternative will not alter the current condition of the canal. Pollutants will continue to be added to nearby waterways, water loss will increase as the liner and piped sections degrade, deferred tree maintenance/removal will continue to degrade the liner and the safety of the canal and downstream properties could be compromised. Current expenses are \$75,000 annually for operation and maintenance costs, however staff has identified some expensive repairs in the near future. One quote for relining a small portion of the canal is \$36,000 to refurbish 500 lineal feet. It is anticipated that there will be tree removal with some of the canal maintenance and spot refurbishments.

Of the four alternatives, staff recommends that the City complete alternative one. This alternative has the lowest costs of the piping alternatives, prioritizes water quality and efficiency, replaces all of the outdated system with new materials and results in a robust, low-maintenance water delivery system. Seven of ten ACAG members chose alternative 1 as their preferred

alternative, the remaining 3 members voted for Alternative 4 or do nothing as their preferred alternative.

In addition, ACAG members identified their priorities for the more subjective impacts related to this project. Eight members prioritized their desires for project success and impacts based upon the seven influences as shown in the table below. Five of the 8 prioritized water efficiency (saving) as their number 1 priority; 4 members identified water quality as their second priority (one member had this as their top priority), and while trees did not make the first or second priority on any member’s list, it was a significant #3 priority for the group.

Priority	1st	2nd	3rd
<b>Water Quality</b>	1	4	2
<b>Water Efficiency</b>	5	1	0
<b>Trails</b>	1	0	2
<b>Trees</b>	0	0	3
<b>Wildlife</b>	0	0	0
<b>Costs</b>	1	1	1
<b>Aesthetics</b>	0	2	0

**Results of Vegetation Study:**

The City contracted with Siskiyou BioSurvey to complete a vegetation analysis along the canal corridor, to better understand the impacts the project would have on surrounding vegetation as well as impacts to wildlife. Results of this study are as follows:

- Significant large conifer and hardwood trees occur along the canal right of way. These trees are expected to be negatively impacted from construction primarily because their root systems extend underneath the existing Canal.
- It is recommended to remove all large conifers within the easement prior to construction, it’s much more difficult to manage tree removal after construction.
- Some small conifers and hardwoods can be left within the easement and have a greater chance at survival than the large conifers, future monitoring is recommended.
- Large conifers downslope of the canal will be negatively impacted by the loss of canal seepage. These trees should be evaluated regularly by a qualified arborist/forester following construction to determine tree health and safety concerns.
- Mitigation measures can be employed to encourage forest health during and following construction. These include thinning, placing mulch, limiting soil compaction, etc....
- It’s recommended to have qualified staff or consultants monitor construction and natural resource impacts daily during construction. It is also recommended to monitor the forest health in the canal corridor for several years following construction and to work closely with adjoining property owners regarding vegetation health and maintenance.



- The canal provides incidental summer watering opportunities for wildlife and does not function as a riparian corridor. Wildlife in the area will shift to alternate water sources as they do when the canal does not have water.
- Use trail softening techniques to help the Canal access road blend with the existing landscape. Manage the vegetation after construction as a fuel break to increase wildfire resilience in the area.
- The piping of the Canal can improve the forest resilience along the canal corridor, helping to meet the environmental stresses associated with climate change and selecting for more appropriate species composition and spacing.

**Wildlife Impacts:**

We asked the SOU Biology Dept. for assistance to further understand the project impacts to wildlife. They found that the Canal does not represent important wildlife habitat. Instead, the Canal, as an artificial water source may serve as an attractive nuisance artificially increasing the local abundance of wildlife and artificially influencing the movement of wildlife. In addition, the Canal does not represent a resource for native aquatic species, but instead harbors a number of undesirable non-native species like the invasive ringed crayfish, Himalayan blackberry and English ivy.

**E. Coli Testing:**

This piping project was originally recommended based on the Ashland Creek E. coli Bacteria Study (2011) and the concerns for water quality. Staff wanted to understand the current E. coli concentrations, so we contracted with RVCOG to complete weekly E. coli sampling at the beginning of the project and the outfall into Ashland Creek (15 samples per location). As the following graph shows, there is still E. coli present but there are lesser concentrations entering Ashland Creek compared to the 2011 study. However, testing does show that the concentrations continue to increase as the canal travels through the City, as the 2011 study suggested.

