

The Eugene Millrace

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Ownership and Usage History

In the early 1800s, each settler in Oregon country would be given 640 acres by the government. Hilyard Shaw was one of these settlers, and the land he claimed for his own is the land that the Eugene Millrace is situated on today. Shaw saw the potential of what had been two sloughs, and decided to develop it into a millrace to produce power for mills. The development of the ditch we now call the Millrace – which was probably done with teams of oxen pulling a scraper – was completed in 1851. By 1856, the millrace was powering Shaw’s sawmill and grist mill ⁷.

In 1856, Joseph Brumley and M.W. Mitchell bought land surrounding the millrace. However, in regards to the millrace, the sale only included “the water power upon said premises with the right of way over said Shaw’s claim to bring all the water that may be required” ²⁶. The land changed hands between Shaw, Brumley, Mitchell, and another settler, William Smith, before being sold to W.T. Osburn, J.B. Underwood, and A.W. Patterson in 1870. In 1870, the population of Eugene surged with the construction of the Oregon-California Railroad. Eugene was selected as the location for a state university, and the University of Oregon was opened in 1876 ⁷.

Until 1884, the millrace had been exclusively used for utility purposes, such as providing power to the mills. It was also used “as a highway by which farmers could bring their produce to market in the City center” ⁷. In 1884, the millrace was used for recreational purposes for the first time, when it froze over and was used for ice skating ⁷.

Between 1877 and 1898, the millrace was owned by William Edris, A.S. Patterson, J.G. Gray, and Samuel Swift. During these years, the millrace powered several mills and plants, and “additional tailraces were built to accommodate the increasing industrial demand” ⁷. In 1890, a flood tore out rock walls and changed the course of the river. The damage also deepened the millrace by about 5 or 6 feet ⁷.

In 1886, a parcel of the property was sold to the Willamette Lumber Manufacturing Company. In 1891, another parcel and the easement for power were sold to George Midgley and F.L. Chambers. Other parcels were sold to the Eugene Canning and Packing Company and the Eugene Mill and Elevator Company.

In 1906, Chambers opened a boathouse on the north side of the millrace, further increasing the recreational use. In 1911, another boathouse was opened by Paul Bond. This boathouse was moved in 1913 to 997 Franklin Boulevard, across from Villard Hall. It later became known as the “Anchorage” and the popularity of canoeing down the millrace surged. The Canoe Fete was developed, and became a huge success.

The popularity of the Millrace for recreational purposes coincided with talk of abandoning the millrace for industrial purposes, “because of the expensive upkeep of the race” due to a series of “recurring floods” requiring the construction of a new intake channel and a diversion dam. These problems were alleviated by the creation of the first Millrace Protective Association in 1913, with around 100 members ²².

Midgley and Chambers envisioned using the millrace to create a self-supporting power company, independent of the mills. They took several steps to increase the flow of the millrace, which irritated new residents in the area, who had built fancy homes with backyards facing the river. Their irritation led to a Supreme Court case. The 1916 case “set definitive limits to the easement that had been handed down from Shaw”⁷.

After the court decision, Chambers sold the property and the power easement to the Eugene Woolen Mill and Patterson & Royse, the Eugene Excelsior Company. Both companies continued to use the millrace for power until 1928, when another serious flood shut down all industry in the area.

Around this time, the Canoe Fete surged in popularity, and was included in movie newsreels and coast-to-coast radio broadcasts in 1937⁷. However, with the progression of World War II, the festivities of the Canoe Fete slowed down significantly, until “a series of floods in the early 1940’s destroyed the intake channel and diversion dam, and left the millrace dry”⁷. The Canoe Fete became a float parade down the city streets.

Around 1947, the City of Eugene bought the millrace with the intention of constructing a new highway and the Ferry Street Bridge on its lower bed and allowing for recreational use along the rest^{7,22}. The intake channel that had been damaged in the floods was repaired in 1949 and the millrace was refilled. However, the pipes used by the city were too small to accommodate the adequate flow, and the millrace was simply a muddy slough clogged with debris⁷. By this time, all of the industry had left the area, and The Anchorage was demolished by the University of Oregon.

In 1950, the University bought the property that The Anchorage had been sited on, and developed the millrace properties, including the heating plant, on the north shore. This included realigning the course of the millrace. Then, in 1954, “a committee consisting of citizens of Eugene, city officials, and officials and students of the University of Oregon was formed to discuss the problems attendant on the abandonment or restoration of the Millrace”. They were “aided by reports made by the City Engineer’s Office, and relying upon an engineering study embodied in a report by Cornell, Howland, Hayes, and Merryfield, Consulting Engineers” of Corvallis, Oregon. The study recommended certain improvements to improve the flow of the millrace and to restore it.

The Canoe Fete returned in the late 1950s, because students became interested in reviving it for recreational purposes. They “hired an engineering firm to investigate the possibility of increasing the flow of the race, and, upon the advice of the report, convinced the University and the City to install pumps to increase the race’s flow”⁷.

The investigation and subsequent pump installation resulted in the Millrace Agreements of both 1957 and 1968, in which the recommendations of the engineers resulted in improvements made to the millrace, and passed millrace water rights from the City of Eugene to the University of Oregon, who retains the water rights to this date.

Legal History of Usage and Easements

Patterson v. Chambers' Power Co.

81 Or. 328, Supreme Court of Oregon, August 1, 1916

In 1916, 20 residents of the City of Eugene brought forth suit against the Chambers Power Company and Frank L. Chambers to prevent the widening of the Millrace for utility purposes. According to legal records on this case, the plaintiffs owned property in “an attractive residential portion of Eugene” and the widening of the Millrace was “cutting away and destroying the plaintiff’s property”¹. The defendants claimed it was their right to widen the Millrace due to their deed which allowed for expansion in order to power their mills, based on the amount of expansion. The outcome found in favor of Chambers and the right to use it for industrial purposes:

The deed of land, “together with the water-power upon said premises with the right of way over Shaw’s land claim to bring all the water that may be required to run the mills thereon, and other mills or machinery that may, at any time or times, be placed upon the above-described premises of whatever kind or nature; also the right to dig the present raceway as deep as may be necessary, and to bank the dirt and stone on either side; also to include sufficient dirt and stone lying adjacent to the dams for the purpose of keeping them in repair” – conveys a sufficiently present and future easement or right sufficiently definite to be valid in view of the circumstances surrounding the grant.

– *Patterson v. Chambers Power Co., 81 Or. 328*

Ultimately, the case found that “the defendants will be permitted to widen their ditch so as to bring it up to 50 feet in width, and will be enjoined from further widening it, and from throwing mud and silt from the bottom upon adjacent property”¹.

City of Eugene v. Chambers' Power Co.

81 Or. 352, Supreme Court of Oregon, August 1, 1916

Shortly after the decision in *Patterson v. Chambers Power Co.*, the City of Eugene also brought forth suit against Chambers' Power Co. “to prevent the defendants from widening their ditch passing through the city”, referring to the agreement to widen the Millrace up to 50 feet. No changes to the original case were made. “Every question involved in this case is fully considered in the case of *Ida Patterson et al. v. Chambers' Power Co. et al.* [...] this case will take the same course”². The right to widen the Millrace to 50 feet was therefore maintained.

Stewart v. Koke and Chapman

Case #38123, Oregon Circuit Court, 1951

The City of Eugene acquired the easement of the millrace from the Eugene Power Company in 1947⁴. In 1949, Joseph Koke and Thomas Chapman, who were owners of the property just southeast of the intersection of Broadway and the millrace, extended the pipe portion of the millrace and filled their section to build a gas station and parking lot. Anena Stewart, who owned the property abutting to the west, sued Koke and Chapman in 1951 to prevent them from further filling the millrace and to dig out the pipe and the portion they had filled. The result of this case “was the dismissal of the plaintiff’s complaint, based on the fact that she did not own the channel, or have any riparian rights, because the channel had been man-made”³.

The case found that “the mill race is an artificial, dug and constructed power ditch, having its origin in the development of power upon the 23 acre tract, and is in no sense a natural water course”⁴. Additionally, there was “considerable testimony confirming that there were originally certain sloughs, swamps and low lands along parts of the course through which it now flows. However, the evidence, including the early history, the maps, etc., fail to show that it was a natural watercourse in any sense of the term”. It was noted that “it was constructed and dug by Hilyard Shaw, his employees and associates, for the purpose of diverting waters from the Willamette River”, and “there is no doubt that they took advantage of the natural terrain and used the low places to advantage to avoid excessive digging, but it does not prove, nor necessarily indicate, that they followed any natural water course”⁴.

Additionally, at the time of the document, the Circuit Court found “that the City of Eugene has succeeded by mense conveyances and is now the owner of the water power and the right of way over Shaw’s land, [...] limited, however, to the three foot conduit established by the City itself”⁴.

The Millrace Agreement of 1957

Agreement between the City of Eugene and the State of Oregon (as the University of Oregon)

On December 15, 1957, “the city of Eugene, acting by and through its Common Council, hereinafter referred to as the City; The City of Eugene, acting by and through the Eugene Water and Electric Board, hereinafter referred to as The Water Board; and the State of Oregon, acting by and through the State Board of Higher Education for and on behalf of the University of Oregon, hereinafter referred to as the University”, entered into the Millrace Agreement²².

The original Millrace Agreement was the first agreement to mention the potential consequences for “abandoning” the millrace. This was the fourth finding of “particular interest in the Committee discussion”²²:

Results if Millrace abandoned. Previous studies also developed the cost of abandoning the millrace. The millrace is used as a storm sewer for a portion of the City of Eugene and if the millrace is abandoned, additional storm sewers will need to be constructed and the channel through the City will need to be filled. There is a question as to the legal position of the City regarding the filling of the millrace since the City does not own the right-of-way. It is understood that the land is granted to the operator of the millrace for millrace use only. Whether private individuals fill the millrace or the city fills the millrace, the filling represents a cost.

- The Millrace Agreement, 1957

The operator of the millrace is the University of Oregon, who as of today also holds the water rights.

The agreement goes on to provide a budget breakdown for “Proposed Improvements Plan C”, including the cost of the pumping station, outlet control station, and channeling of the upper and lower sections. Of the three plans presented by the engineers, “a modification of Plan C was suggested at a meeting of the Millrace Committee of the Associated Students of the University of Oregon on October 19, 1955”²².

The Millrace Agreement of 1968

Agreement between the City of Eugene and the State of Oregon (as the University of Oregon)

On September 23, 1968, the City of Eugene and the State of Oregon, “acting by and through the State Board of Higher Education for and on behalf of the University of Oregon, hereinafter referred to as the University”, entered into the Millrace Agreement²². The agreement is as follows:

1. *Purposes. The purposes of this agreement are:*
 - a. *To maintain the extent economically feasible the recreational use and scenic appeal of the millrace;*
 - b. *To maintain the functional use of the millrace as an integrated part of the storm sewer system of the City of Eugene; and*
 - c. *To provide cooling water for the University’s heating and power plant.*

The University at its expense agrees to:

1. *The University will have full responsibility for filling the millrace with water, operating the pumps, gates, and any other necessary control equipment, and for the normal maintenance of the pumps, and other control equipment, including replacement of component parts thereof in order to maintain the channel within its banks and to the capacity of the two existing pumps.*
2. *The University will pay for power for the pumps according to the Eugene Water and Electric Board C-3 Schedule, a copy of which is attached to this agreement.*
3. *The maintenance of the millrace channel as to cleaning of the brush and debris in order to maintain proper flow will be the responsibility of the University where the channel borders University owned land.*

4. *The University will maintain its own bridges (those not serving a public street).*
5. *The University is not obligated to maintain a standby pump, and if a pump breaks down it will be repaired as quickly as possible by the University.*
6. *No penalty will be assessed for the University failing to maintain flow level if the pumps are inoperative and are being repaired as agreed in one [(1)] and five [(5)] above.*
7. *The University assumes no responsibility for the cleaning of the upper channel that does not border University land and further does not guarantee proper flow if impeded by obstructions in this part of the channel. However, the University will take reasonable steps to obtain permission from the bordering property owners to allow the University to clear this upper part of the channel.*
8. *The University may at any time withdraw water from the Upper Millrace for any purpose, provided that such withdrawal shall not materially interfere with the flow of the channel.*
9. *This agreement is subject at all times to the availability of state funds as budgeted for the University.*

The City at its expense agrees to:

1. *The City will maintain and clean out the lower channel as required to maintain a level flow, the lower channel being that part from the east end of the Franklin Boulevard culvert nearest the north end of Kincaid Street to the channel exit at the Willamette River.*
2. *The City will be responsible for the maintenance of all City owned bridges over the millrace channel.*

General Provisions:

1. *It is agreed that either party may ask that this agreement be reconsidered after five years have elapsed from the date of starting.*
2. *It is understood by both parties that if the portion of the millrace needs to be drained, the City Engineer's Office will notify the Director of the University of Oregon Physical Plant if the drainage is for the lower millrace and the Physical Plant Director will notify the City Engineer if it involves drainage of the upper millrace; and in either case, every attempt should be made to give at least one week's notice. The cost involved in drainage will become the responsibility of the agency or party which desires the millrace drained.*
3. *Nothing herein shall be construed as a grant of water rights by the City to the University except insofar as such a grant shall be within the power of the City. The parties recognize that the use of the millrace water is subject to control by the appropriate authorities of the State of Oregon.*

- *The Millrace Agreement, 1968*

This final agreement appears to still be in use and valid to this day.

Tax Lot Delineation

According to the Lane County Assessment and Taxation GIS data on local tax lots, the tax lots bordering the millrace intentionally avoid it, creating a permanent easement. Another way of saying this is that the millrace lies within its own tax lots.

Water Permits, Certificates, and Usage Concerns

The University of Oregon owns two water rights, Certificate 29374 for the “right to the use of the waters of Willamette River for the purpose of condenser cooling in University heating plant”⁵, and Certificate 29375 for the “right to use the waters of Willamette River for the purpose of recreational, including swimming, boating and scenic enhancement”⁶. As of May 26, 2016, both rights are currently listed as NC, a Non Canceled status⁷. This differs from the ideal “active” status needed to maintain the water rights without issue⁸.

Proper usage to maintain the rights is a concern. According to the Water Resources Department, in the water usage reports, “zeroes indicate that a report was received, stating that no water was used during those months”⁷.

According to the Oregon Water Laws, “any governmental entity that holds a water right shall submit an annual water use report to the Water Resources Department”¹¹. This is a concern because “The Director may order regulation or termination of deliveries of water to and use of water by any water right holder who fails [...] to submit a report required”, however, “Notice of intended regulation shall be served on the person by certified mail, return receipt requested,” so the University should already be aware of the missed reports¹². If these water rights are still needed or desired, the past water use reports should be filed to avoid their potential loss.

Certificate 29374

Condenser cooling in the University heating plant

For Certificate 29374 – condenser cooling in the University heating plant – 0.00 acre-feet was used from 2012-2015. Additionally, “if a year is not listed, no report of water use was received for that year”⁷. Older records show that 0.00 acre-feet were used from 1989-1993, and no reports were filed from 1993-2001⁷.

Because of upgrades to the university power plant, the water is reportedly no longer being used for utility purposes. In a 2011 KVAL article entitled *What mucked up the Eugene Millrace?*, Randy Collins, operations supervisor at the Central Power Station, reportedly stated that the Department of Environmental Quality asked the university to stop using the millrace water, based on “thermal pollution” into the Millrace caused by utility use⁹. According to the Office of Sustainability at the University of Oregon, the upgrades to the university power plant include “a new 12,000 ton chilled water plant”, which is likely being used in place of the Millrace water¹⁰. Determination should be made if the Millrace can be used for any utility purpose, to decide the necessity of continuation of this water right.

Certificate 29375

Recreation: Swimming, boating, and scenic value

For certificate 29375 – the recreational water right – there appears to be a seasonal pattern to water usage in recent years. In the months of December through May 2013, 0.00 acre-feet were used. Additionally, in 2014 and 2015, the exact same usage numbers was reported for both years, including an apparent seasonal pattern, with 0.00 acre-feet used from November through April of both years ⁷. No reports were received for 2010 or 2011 for both certificates.

City Land Use Zoning and the Goal 5 Water Resources Conservation Plan

Despite the 1951 Circuit Court decision that the Millrace is “in no sense a natural water course” ⁴, and the 1916 Supreme Court determination that the deed rights to widen the Millrace for industrial use superseded the importance of beautification and land value of residential lots ², in the Eugene Zoning Map created by the Department of Planning and Development in the City of Eugene, the Millrace is zoned WR, in the Water Resources Conservation Overlay ^{13, 14}.

According to the City of Eugene Land Use Code, the purpose of this zone is “to provide conservation of significant riparian areas, wetlands and other water-related wildlife habitat areas included on the city’s adopted Goal 5 inventory” ¹⁴. The Millrace is also included in the Special Area Zone S-RP, known as Riverfront Park ^{13, 14}.

Though the Riverfront Park zone partially includes the Willamette River ¹³, the Millrace is specifically highlighted as WR-4, “Riverfront Park/Millrace Wetland”, in the Wetland Sites Table ¹⁶. Much of the surrounding area is listed as E40, “Riverfront Park”, in the Riparian Corridor Sites Table ¹⁷. Both are separate entities from the Willamette River in the Adopted Goal 5 Designations Map ¹⁸. This designation may be inaccurate based on the Criteria for Determining the Significance of Riparian Corridor and Wildlife Habitat Resources Sites Within the Eugene Urban Growth Boundary (hereafter “Criteria”) to be included in the Goal 5 Water Resources Conservation Plan ¹⁹. The qualifying Criteria depend heavily on the Willamette River’s inclusion in the Special Area Zone of Riverfront Park ¹³, and the Millrace’s inclusion in this zoning may need to be evaluated separately from the Willamette River.

As part of the Criteria, the Millrace must fulfill certain qualifications. In the Goal 5 Water Resources Conservation Plan, the Millrace is listed as:

1. being partially mapped on the State/National Wetland Inventory,

2. containing fish according to the Oregon Department of Forestry or the Oregon Department of Fish and Wildlife,
3. containing natural vegetation in an area larger than one acre,
4. being an undeveloped area contiguous with a water feature, and,
5. being partially mapped on the Federal Emergency Management Agency floodway and 100-year floodplain ¹⁹.

To verify the accuracy of these criteria:

1. Indeed, part of the Millrace is mapped on the National Wetlands Inventory Map created by the U.S. Fish and Wildlife Service ²⁰. It is listed as a PUBHx – a freshwater pond with permanent surface flooding, excavated by man ²¹. However, the permanent surface flooding is artificial – according to the Millrace Agreement of 1968 with the Department of Public Works of the City of Eugene, “the University will have the full responsibility for filling the millrace with water, operating the pumps, gates, and any other necessary control equipment [...] to maintain the channel within its banks” ²². Additionally, some water from the Willamette, and storm water from campus and several nearby streets, travels directly into the Millrace, further artificially filling it ²³.
2. According to the Criteria, Riverfront Park contains fish-bearing streams. The Willamette River is of course mapped as a fish-bearing stream on the Oregon Department of Forestry Stream Size and Data Map, however, the Millrace has an “unknown” fish presence on the same map ²⁴. With obstructions such as pipes and grating preventing large fish from entering the Millrace from the Willamette River, the Millrace should not be considered a fish-bearing stream.
3. The Millrace does indeed contain natural vegetation in an area larger than one acre.
4. Portions of the Millrace banks are “undeveloped”, but most of the area contains houses, streets, University buildings and the power plant, and much more. It can’t be considered fully undeveloped.
5. Riverfront Park is also listed as being partially included in the Federal Emergency Management Agency floodway and 100-year floodplain. However, no part of the Millrace falls in these flood areas ²⁵.

This zoning affects the usage of this area. The area cannot be filled, graded, or excavated, and the “natural drainage way” cannot be channelized or straightened ¹⁴. This contradicts the prior Supreme Court decision allowing widening up to 50 feet for utility purposes, despite any effect this may have on beautification efforts ¹. Under this zoning, even the storage of building materials and machinery, which may be required by Campus Operations, requires prior approval from the City ¹⁴.

Potential Constructed Wetland Designation

Analyzing the Eugene Millrace as its own entity, treating it as a constructed wetland may be a more appropriate designation than a natural wetland. A man-made water feature is not a natural wetland and should not fall under protected zoning. While the Millrace is used by wildlife, again, it has been established through the Supreme Court that the millrace is manmade. More appropriately for the Millrace, a constructed wetland is “a facility that exhibits wetland characteristics but was constructed for the express purpose to perform a utility need, such as a sedimentation pond”¹⁴. It has been said that there may be “a plan to let Mother Nature take its course” on the Millrace due to its new status as a “natural wetlands”⁹. Designating the Millrace as a constructed wetland would be more appropriate due to its original construction purposes, usage history, and legal background.

Allowing the Millrace to fulfill a purpose, such as additions to allow filtration of storm water before its entrance to the Willamette River, would keep it relevant despite it no longer being needed to power grist mills or to serve as cooling for University power plants. Stormwater filtration could better preserve the wildlife and environment of both the Millrace and the Willamette River, versus other options, such as filling it and using the land for other purposes. However, this designation should of course be thoroughly investigated before making any decisions. Designating it as a constructed wetland would mean that it would then be “not eligible for mitigation credit or subject to the jurisdictional requirements of federal and state wetland law”¹⁴.

Potential Stormwater Bioswale

Independent study recommends stormwater bioswale

In 2013, an independent group (Ashley Bender, Shelby Meyers, Alex Page, Angela San Filippo, and Torrent Sanders)²⁷ put together a study and report entitled “Eugene Millrace: A Report to Inform Future Use”. The report goes into extensive study about the Millrace, including history, geology, hydrology, property ownership, potential contamination sites, water rights, interviews, and case studies.

The conclusion of the study was:

Through a careful document acquisition and analysis, the project team concludes that the University is merely providing aesthetically pleasing scenery by pumping water into the Millrace, but limits the natural hydrology potential of this stormwater conveyance system by maintaining it

at a minimum level. Enhancing the water body by creating a bioswale or creating large riparian areas would be advantageous to the University and community, while also staying in accordance with the water rights permit.

Additionally, the University is wasting energy and resources to maintain a minimum level of water within the Millrace. There continues to be a high level of interest in the Millrace, as indicated by interviews with the University and City of Eugene staff, existing University classes and projects, and opinion of owners adjacent to the Millrace. It is and will continue to be seen as an asset to the community, as it has been for over 150 years.

Furthermore, the University of Oregon is eager to find a new use for the Millrace after disassociating from the Millrace's last remaining industrial use. University classes and service learning projects on campus could create high student involvement, potential research projects, and symbiotic partnerships between students and potential University and City of Eugene clients.

- Eugene Millrace: A Report to Inform Future Use

The report went on to recommend a formal partnership between the City, the University, and the Eugene Water and Electric Board to create a stormwater bioswale. A stormwater bioswale would filter the stormwater collected in the nearby streets before it entered the Willamette River, providing both a long term purpose to the Millrace and the potential for many perks to the University of Oregon.

Conclusion

The Millrace is a man-made/constructed pumped water body. The University of Oregon has water rights of its use. Goal 5 zoning of the Millrace (i.e., natural wetland) may be in error because it has been established through the Supreme Court that the millrace is man-made, for the purpose industrial use and recreational use and not for purpose of a constructed wetland.

Of significant importance, the University of Oregon has two water rights for pumping from the Willamette into the Millrace of Industrial and Recreational uses. As of August 2016 it appears, due to Industrial water right not being exercised in past five years (following the construction of a new chiller plant, making obsolete the use of Millrace in the University's industrial cooling), this water right is forfeit. The University's Recreational water right remains in-place and to-date sufficient documentation has been submitted to the Oregon Water Resources Board to maintain this right. The University must continue its water right reporting as required to maintain this Recreational water use right.

If the University of Oregon's water rights of the Millrace are forfeited to the state, the Millrace would be abandoned, allowing landowners, where Millrace passes through their properties, to abandon and fill in (e.g., dirt) its banks, therefore, requiring the City of Eugene to reroute its storm drainage. Again, though, the Millrace is used as a storm sewer. And from the Agreement of 1957, "If the Millrace is abandoned, additional storm sewers will need to be constructed and the channel through the City will need to be filled. There is a question as to the legal position of the City regarding the filling of the Millrace since the City does not own the right-of-way. It is understood that the land is granted to the operator of the Millrace for Millrace use only." The operator of the Millrace is the water rights owner, which is the University of Oregon. Note that while both 1957 and 1968 City of Eugene/University of Oregon Millrace Agreements allow for the Millrace to be used for stormwater purposes, once water rights are forfeited (i.e., no party having ownership of water rights) to State, landowners, where Millrace passes their properties, have the right to fill in the banks of the Millrace.

Finally, the Millrace is identified as a component of the City's history and, with its myriad of beneficial uses: economic development, stormwater conveyance, environmental components (e.g., vegetation, wildlife), and recreational activities, the periodic attention expressed over the many decades to 'revitalize' the Millrace underscores a concern for its continued existence. A possible combination of attention applied toward the Millrace's importance as a scenic, recreational, stormwater conveyance (and resulting water pollution mitigation resulting from conveyance) may allow for funding from multiple sources to maintain and improve the Millrace existence.

Acknowledgement: This report was prepared by Campus Operations, Exterior Department, GIS Office's Heather Ketten, 2016, with informational assistance from the City of Eugene, Oregon Water Resources Board, and Campus GIS..

Appendix

Maps and Images

Goal 5 Designations and Wetlands Zoning

Fig. 1	Millrace marked as “Wetland Designated for Protection” and “Riparian” <i>City of Eugene, Goal 5 Water Resources Conservation Plan</i>
Fig. 2	Millrace marked as “Wetland Designated for Protection” and “Riparian” <i>City of Eugene, Goal 5 Water Resources Conservation Plan</i>
Fig. 3	Part of the Millrace is mapped as “a freshwater pond [...] excavated by man” <i>U.S. Fish and Wildlife Service, National Wetlands Inventory Map</i>

Fish Presence

Fig. 4	Presence of fish in Millrace is “Unknown” <i>Oregon Department of Forestry, Stream Size and Data Map</i>
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Flood Zoning

Fig. 5	Western portion of the Millrace does not appear within any flood zones <i>Federal Emergency Management Agency (FEMA) flood zoning map</i>
Fig. 6	Eastern portion of the Millrace does not appear within any flood zones <i>Federal Emergency Management Agency (FEMA) flood zoning map</i>

Tax Lot Delineation

Fig. 7	Tax lots are drawn with the Millrace as a boundary, creating permanent easement <i>Lane County Assessment and Taxation, GIS data</i>
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Stormwater into Millrace

Fig. 8	Calculation of stormwater entering the Millrace from city streets <i>University of Oregon, Campus Operations, Exterior GIS</i>
Fig. 9	



Fig 1. Millrace marked within Goal 5 inventory. Green portions are Category C Riparian and Upland Wildlife Habitat Sites, and striped blue portions are Category A Wetland Sites. From City of Eugene Goal 5 Map.

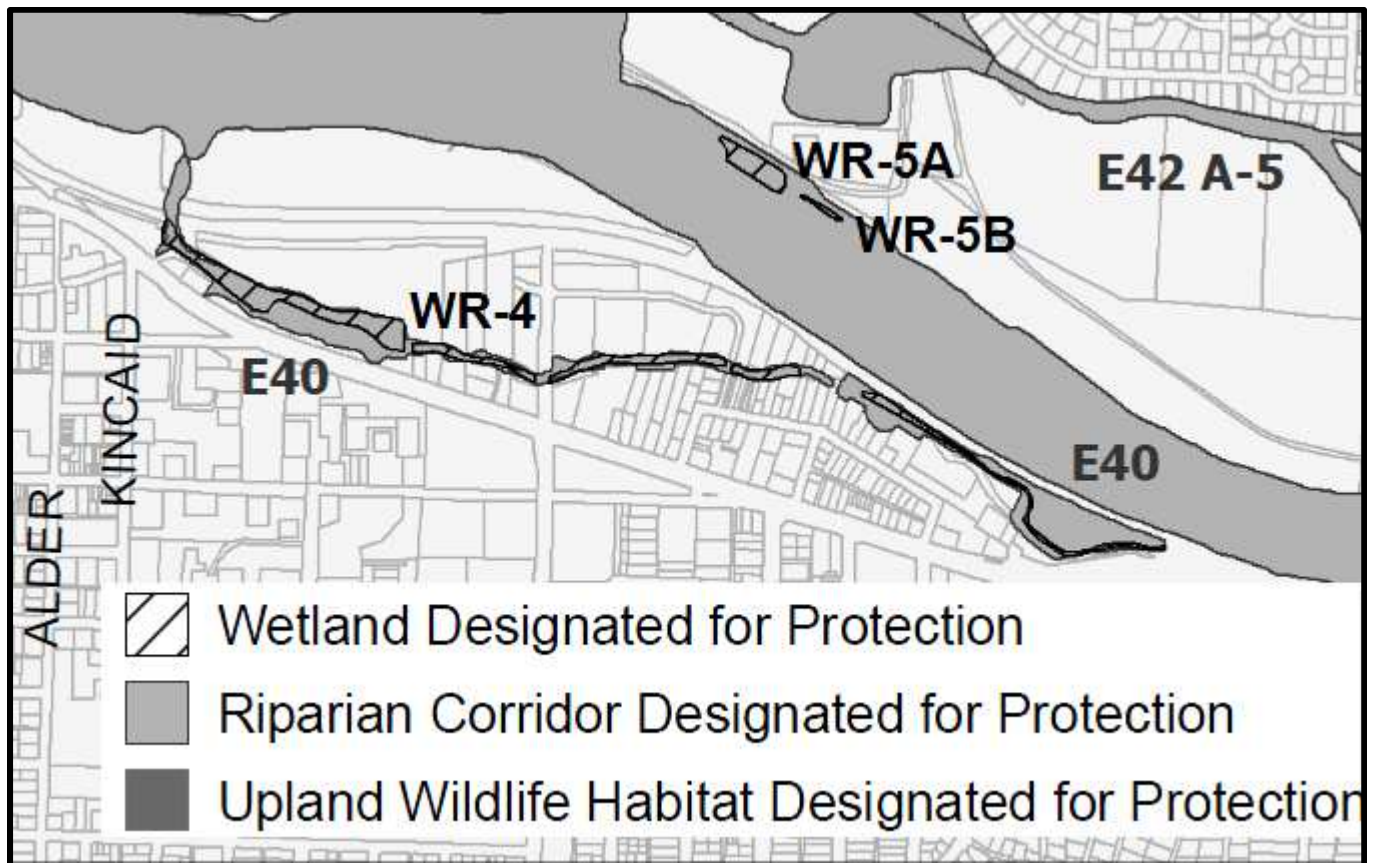


Fig 2. Millrace within WR-4 and E40. Portions of the Millrace marked as “Wetland Designated for Protection”. From the Eugene Goal 5 Water Resources Conservation Plan, Section IV, Map 13

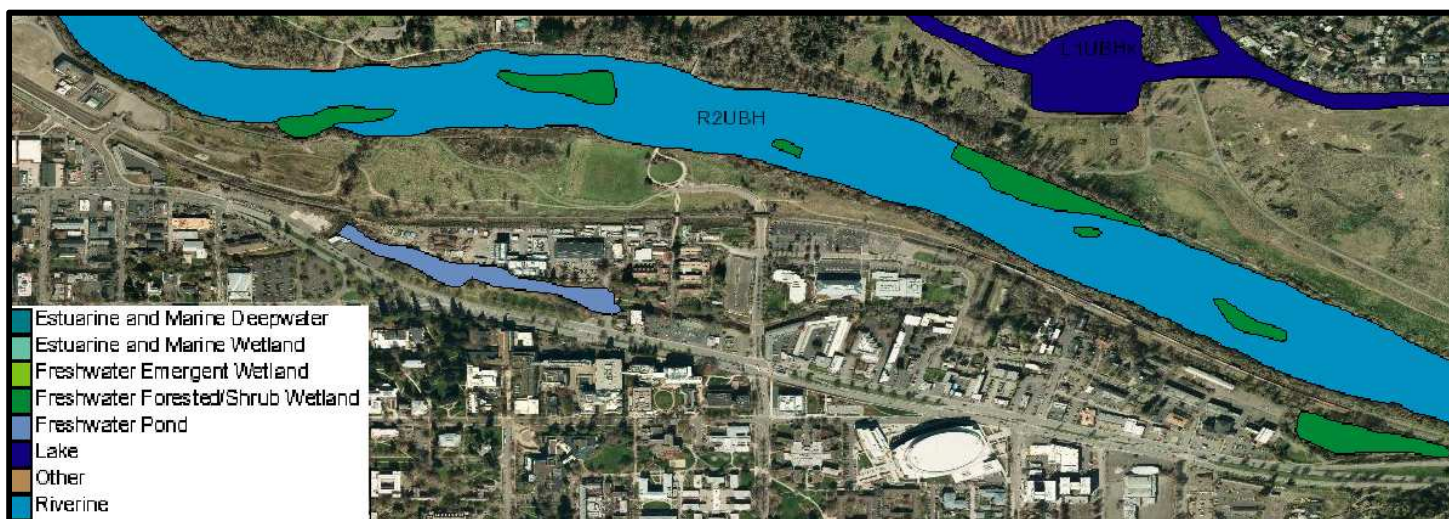


Fig 3. Part of the Millrace is mapped as PUBHx, “Freshwater Pond”, “a freshwater pond with permanent surface flooding, excavated by man”, according to the National Wetlands Inventory Map from the U.S. Fish and Wildlife Service

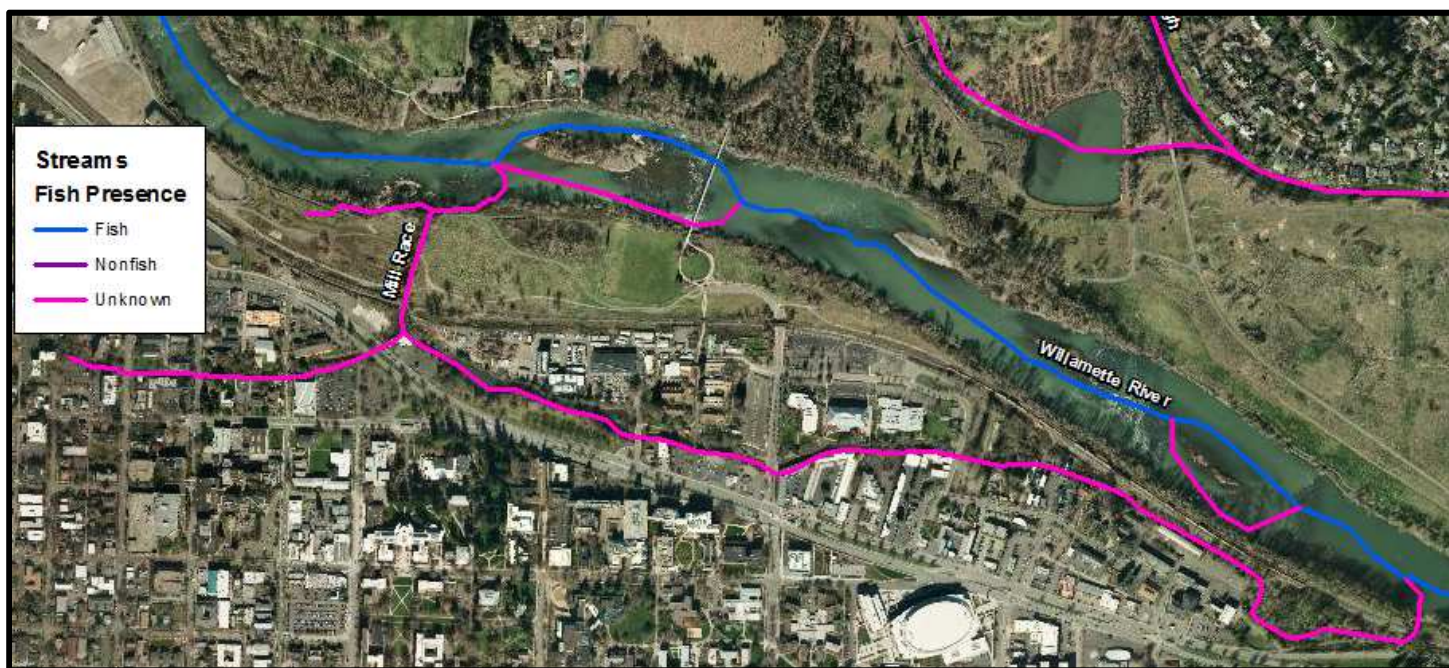


Fig 4. Presence of fish in Millrace is “Unknown”, according to the Oregon Department of Forestry Stream Size and Data Map

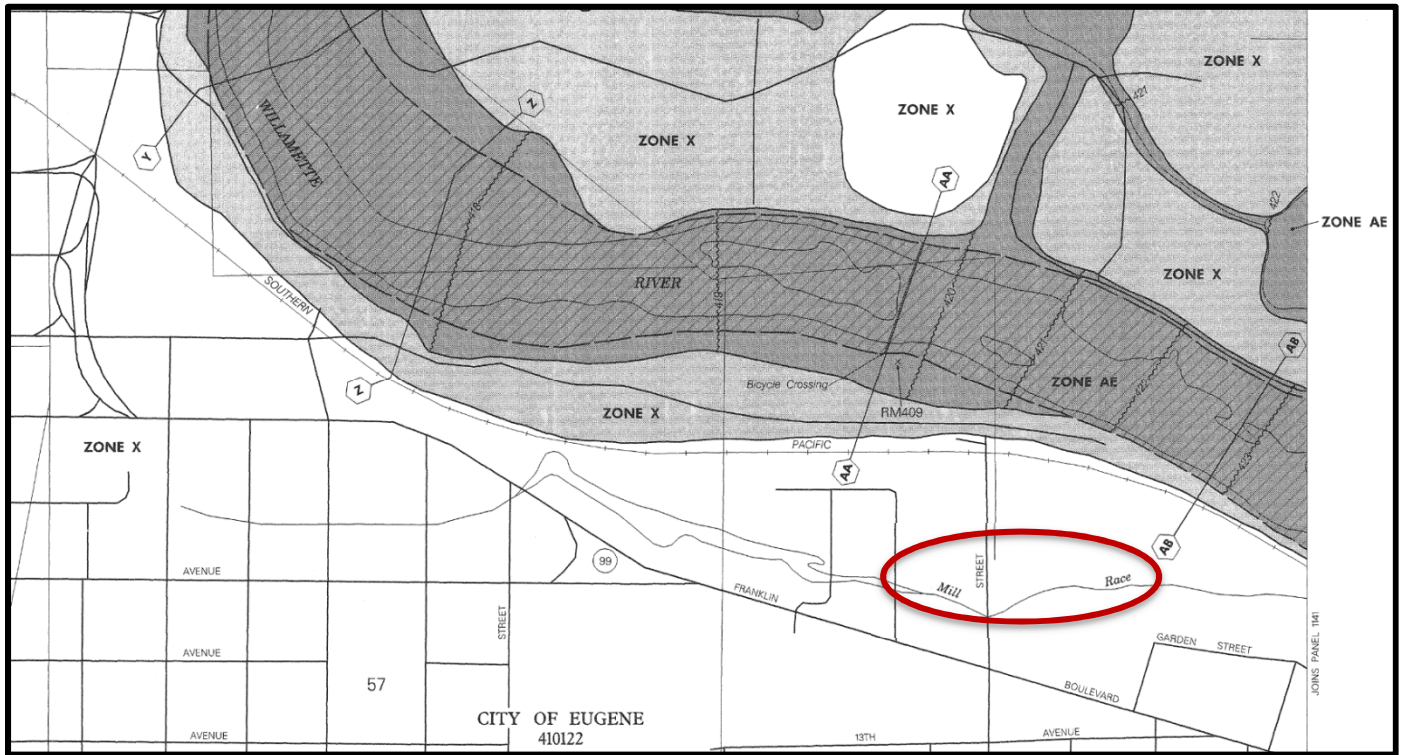


Fig. 5 and Fig 6. FEMA flood zoning maps. The shaded Zone X refers to “areas of 500-year flood” and “areas of 100-year flood with average depths of less than 1 foot”. The unshaded Zone X refers to “areas determined to be outside 500-year floodplain”. The Millrace does not appear within any flood zones.



Fig. 7. Lane County tax lots (shown with black outlines) are drawn with the Millrace (shown in blue) as a boundary. Note the permanent easement where the Millrace passes through the tax lots

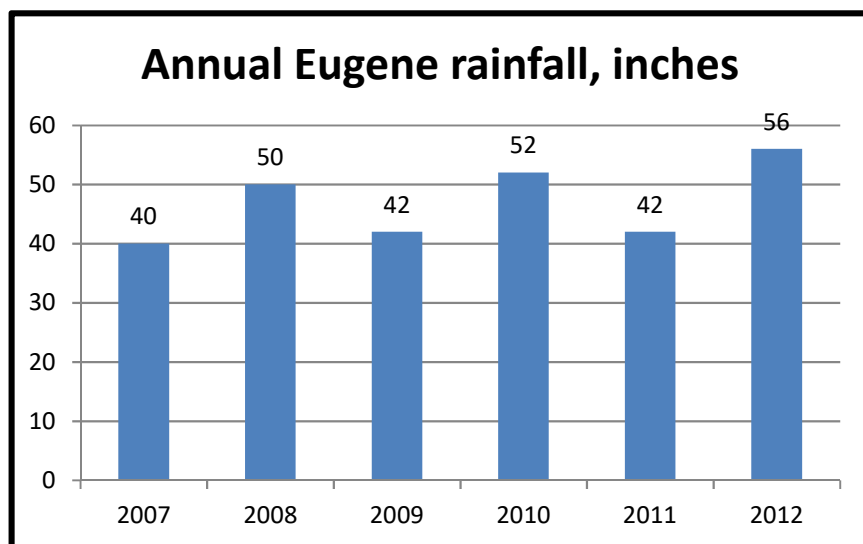


Fig. 8 and Fig. 9 – Calculation of stormwater entering the Millrace. The total area of streets diverting storm water into the Millrace is 3,510,358 square feet, which is 0.126 square miles. Averaging the highest and lowest rainfall years, the Millrace is subjected to City street storm water runoff equal to about 105 million gallons.

Notes

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