INTRODUCTION

At the May 2007 Annual Meeting, the League of Women Voters of Ashland (LWVA) voted to update its 1995 position statement on Ashland's water, since much has changed in the intervening years. A committee of eight members was formed to carry out the work.

The following objectives shaped the study:

1) To ask the following questions and provide the answers to LWVA members and the community:

- **What is the source of our water?**
- **How can we ensure an adequate supply of water at present and in the future?**
- **How can we establish and maintain the highest water quality?**
- **How is Ashland's water connected to the region's water?**
- **How can we as consumers protect our water resources?**

2) To develop a position update based on the study results.

BACKGROUND

Ashland 's early settlers clustered their activities and structures around what is now downtown - because of ready access to the waters of Ashland Creek. Through fires and floods, the downtown remains the civic and economic heart of Ashland. As it flows to join Bear Creek, Ashland Creek forms the spine of Lithia Park. Over the past years, the condition of the stream in Lithia Park has been an indicator of Ashland's concern for its water. Neglect, pollution, inappropriate use, damming, and diversion have negatively impacted the water of this section of the creek. The timeline (*Appendix A)* shows how human activity has affected our water supply in the last two centuries. In recent years, the situation has changed. The City of Ashland, relevant government agencies, and residents are working to improve and sustain our water resources.

Ashland's water source is almost entirely the snowpack on Mt. Ashland. We have a finite supply of water—enough usually, but not profligate amounts. Ashland uses 2 million gallons of water per day in winter, 7.5 million gallons in summer, the difference mostly from landscape irrigation. When water supplies are low, residents respond to calls for conservation. This region experiences a drought approximately every seven years, most recently in 1993 and 2001. Average precipitation in Ashland is 18.68 inches per year; at 7,533 feet on Mt. Ashland, it's 60 inches. The climate is Mediterranean, with hot dry summers and mild, wet winters. The Rogue Valley is the driest valley in western Oregon and Washington.

In the upper watershed, Ashland's water is some of the cleanest in the State. But at each stage of its progress through the system—from snowpack to Bear Creek—its quality can be degraded through siltation, sedimentation, storage problems, human and animal contamination, and stormwater runoff. Good watershed management is critically important to our quality of life and economic viability. Ashland's water impacts Bear Creek's water quality and ultimately that of the Rogue River system. Our water is part of a larger regional picture, however the focus of this report is the Ashland-based resource.

We face new and unknown challenges in dealing with our resources. Governments and citizens are concerned about global warming, growing numbers of citizens protest when environmentally hazardous or unsound projects are proposed, and some communities have made resource sustainability a priority.

STUDY METHODS

The committee prepared questions to serve as the organizational structure of its work and to form the basis for interviews with representatives of agencies, municipalities, and organizations that have direct and indirect impacts on the management of Ashland's water resources: Ashland Public Works Department (PW), Bear Creek Watershed Council (BCWC), Bear Creek Watershed Education Partners (BCWEP), Oregon Department of Environmental Quality (DEQ), Oregon Department of Fish and Wildlife (ODFW), Oregon Water Resources Department (WRD), Talent Irrigation District (TID), Rogue Valley Council of Governments (RVCOG), US Forest Service (USFS), and Water for Irrigation, Streams, and Economy Project (WISE). We were unable to obtain an interview with anyone at the Bureau of Reclamation (BOR). The Bureau of

Land Management (BLM) respondent indicated that, after a review of the questions, they would not be able to add any pertinent information to our study goals.

The committee also examined historical and recent documents, attended relevant meetings, held two informational meetings for LWVA and community members, and toured the sewage treatment plant. We have provided hyperlinks to all agencies or groups we interviewed.

FINDINGS

This section is structured around the organizing questions on which we based our research and which we posed to key representatives of the entities noted above. Complete transcripts of interviews are on the LWVA website, http://ashland.or.lwvnet.org/; they also can be obtained by request.

Our study was well underway when the *Ashland Watershed Assessment 2007* (AWA) was issued. This comprehensive report was prepared by BCWC under a grant from the Oregon Watershed Enhancement Board. It contains valuable information and recommendations. http://www.bearcreek-watershed.org/MN.asp?pg=aws,

QUESTIONS

(1) What factors or circumstances most seriously threaten the quality of Ashland and regional water supplies?

Ashland's primary supply is runoff from Mt. Ashland. The upper watershed, between Mt. Ashland's slopes and Reeder Reservoir, is one of the cleanest sources of water in Oregon. Currently, the main threat to the quality of this supply is sediment from erosion in the watershed, some of it resulting from degradation of early logging roads. Fire in the upper watershed looms as a major potential danger.

Ashland's water suffers occasional algal blooms when the water in two of the feeder creeks is high in phosphorus and low in nitrogen. This is more a problem of taste than health; when necessary, the City adds copper sulfate to the water supply at Reeder Reservoir and is exploring other treatment options.

The lower part of the Ashland watershed, from Reeder Reservoir through downtown to its confluence with Bear Creek, is threatened by various sources of point and non-point pollution. These problems affect the water quality of Ashland and Bear Creeks but not Ashland's drinking water.

Ashland, as part of the larger Bear Creek Watershed system, is responsible for maintaining the highest quality and quantity of water drainage and discharge into Bear Creek. Ashland meters usage by anyone who is billed for water, including irrigation water. The City is required to provide a live flow in Ashland Creek for downstream needs. It is important to improve the quality of summer flows in Bear Creek in order to comply with current regulations.

TID monitors irrigation diversions, and WRD controls and monitors State water rights that are administered by regional Watermasters.
Some Ashland residents regularly use TID water for irrigation. Ashland also occasionally uses TID water to supplement the supply in Reeder Reservoir. When used for human consumption, TID water exhibits some taste and odor problems. Some Ashland residents also use wells, which are threatened by runoff of pollutants from general human activities and commercial sources.

(2) *What changes, policies, or programs are most important in maintaining and improving water quality in Ashland?*

The best way to preserve the high quality of Ashland's water supply is to preserve the watershed. That means reduction of fire risk through careful forest thinning and improved maintenance of logging roads. Specific short-term problems can be treated as they arise, such as adding copper sulfate to control algal blooms, testing a solar-powered circulation system, treating TID water with ozone when it is used as a supplement, and such. Tighter controls over surface water pollutants would lead to improved quality of discharge to Bear Creek.

(3) *What steps will be most effective in ensuring that Ashland and the region meet current and future water demands? Which entities should be responsible, and how will projects be funded?*

Primary long-term threats are overuse and misuse. Ashland's climate is semi-arid so high levels of summer use will increase along with population growth and development. Although Ashland itself is not likely to grow dramatically (+/- 5,000), other areas of Jackson County are expected to double in size by 2050, which could lead to substantial regional water shortages in the future.

The most important long-term steps to ensure meeting future needs would focus on several issues.

- "Right water, right use" such as using different sources of water for different purposes such as substituting TID or gray water for yard irrigation and other uses that do not require high-quality potable water.
- Conservation of all types of water such as improving yard-watering practices, xeriscaping, and reducing household use of potable water.
- Minimizing evaporation from the TID supplies by sealing and covering open ditches and canals.
- Completion of the Talent Ashland Phoenix Intertie (TAP) to assure supplemental supplies for peak demands and drought situations.

Implementation and funding of WISE and TAP will have to come through local, State, and Federal agency involvement and would likely entail partial funding by property owners who use the current TID system.

Virtually all interviewees commented that WISE needs to be authorized, funded, and implemented. WISE is a conservation project which will help the region to respond to increasing water demands by piping, lining, and rerouting existing irrigation canals and, in some cases, constructing new lines. Enabling legislation has been supported in the U.S. House of Representatives, but no funds have yet been appropriated.

(4) *How does Ashland coordinate its compliance with Federal and State water regulations*?

Ashland faces no compliance problems for drinking water. Current practices meet Federal and State guidelines for the treatment plant and current coordination is excellent. However, maintaining adequate storage capacity and excellent water quality in Reeder Reservoir will be a continuing concern.

The principle compliance problems in Ashland relate to meeting Phase II Stormwater regulations, meeting the new TMDL requirements set in July 2007, and controlling the temperature of the discharge into Bear Creek.

The "Oregon Plan" requires all natural resource managers to meet regularly to share information, discuss problems, and coordinate activities; DEQ coordinates many meetings. The Rogue Basin Coordinating Council (RBCC) also meets regularly to coordinate the activities of the regional watershed councils.

(5*) What mechanisms are in place or anticipated to address Ashland's preparedness to deal with future water shortages?*

- Future shortages will be due primarily to drought and secondarily to population growth.
- Conservation is a clear long-term necessity.
- The TAP Intertie could help address short-term deficits.
- Increased long-term storage mechanisms, including cistern, ponds, and off-channel storage will also be helpful.
- Implementation of the WISE Project could improve efficiencies in agricultural water usage.

(6) *What ordinances and policies are in place for watershed protection and pollution abatement?*

TDML standards have recently been developed which require that Ashland measure and report sediment entering Reeder Reservoir as well as its storm drain system. Ashland is still completing its Riparian Ordinance and is updating its Stormwater Master plan. The proposed Riparian Ordinance will require better control of sedimentation, erosion, and degradation. BCWC is promoting increased tree cover in riparian areas and general riparian area restoration; both activities would be encouraged under Ashland's new ordinance.

The City is required to monitor inputs to Bear Creek to ensure compliance with the Clean Water Act, but illicit discharges and non-point-source pollution are very difficult to monitor. Protection of existing wetlands and drainage areas and the development of bioswales can help maintain water quality by reducing non-point source contamination and improving the quality of discharge into Bear Creek.

(7*) What policies and programs are in place or anticipated to reduce demand for water?*

Ashland's current conservation plan could be strengthened. The region must emphasize the "right water, right use" principle. Implementation of this principle would increase the available supply. Residents must be made aware that treated and/or re-used water is acceptable and appropriate for many uses.

Education about measures individuals can take to conserve water is vital throughout the region. While it isn't possible to regulate everyone, it is possible to educate most.

(8*) How should the public be involved in protecting water quality and supplies?*

Citizen participation is the key. Provided full information, Ashland's residents cooperate in conservation efforts. Using less fertilizer and fewer pesticides, washing cars in car washes rather than on streets and driveways, controlling contaminating runoff, and radically reducing irrigation, among other measures would all help improve Ashland's water quality. Conservation pricing has helped to control water usage. The community could appoint more stream stewards to monitor small neighborhood streams and stencil storm drains. Public education about the need to support funding for necessary projects would result in their implementation.

(9) *How do the various agencies coordinate their activities?*

All agency representatives believe that coordination in this region is working. The WISE Advisory Committee has participation from 19 stakeholder groups. RVCOG, a regional liaison between local and State agencies, prepares grant applications for local agencies and helps implement regulations. RBCC facilitates information exchange between the various regional watershed councils.

(10*) How is water usage measured in areas surrounding Ashland?*

Measurement and monitoring of wells in Jackson County is spotty, and many uses of well water are exempt from regulation. Not all wells are monitored and existing records are not complete. Groundwater flow through wells is extremely difficult to measure here. Many wells in the County are monitored for changes in static water level and help to forecast trends in groundwater availability.

TID has gauges at its diversion points where water leaves canals, but summer tailwaters from Ashland and Wright's Creek are not monitored. Privately controlled diversions from Tolman and Ashland Creeks are also not monitored, and this high quality water feeds back into the storm drain system in a degraded state.

Much water monitoring is still driven by individual complaints. Agricultural usage would be monitored if the WISE project were fully implemented.

CONCLUSIONS

The engagement and professionalism exhibited by the public officials and agencies involved in water management in the region and in Ashland are exemplary. The representatives of the agencies we contacted or interviewed were cooperative, informed, and forthcoming. Ashland's handling of water resources has developed considerably over the 13 years since our last study, and the City's residents seem to be inching toward sustainability of its water resources. Increased education and awareness can lead to more careful usage and conservation. Work is underway in watershed protection, wastewater release compliance, stormwater system upgrades, and conservation. Progress is being made toward adoption of a riparian ordinance, authorization of WISE, authorization of gray water uses, monitoring of irrigation withdrawal, completing the TAP Intertie, and other improvements.

RECOMMENDATIONS

The City of Ashland should have access to the water that it needs, but that need must be conditioned by rigorous, voluntary conservation and "right water, right use" principles, including the use of gray water and treated wastewater -- at least for irrigation. The wastewater treatment plant should be continually upgraded as new developments in water treatment systems become available.

The *AWA* Action Plan (Chapter XII) contains detailed, prioritized recommendations for management of the watershed. Implementation of those recommendations will depend on available funding and on competing demands but would help to ensure high quality and appropriate quantity of our water resources.

Although representatives of the agencies we contacted hope for great things from WISE, many believe that this proposal is far from having secure funding and will need substantial support (monetary and political) from municipalities, organizations and the public. An educated public can help move this project forward but the time horizon is long.

Some critical activities are within civic and volunteer capabilities right now since all residents affect our water supply by their use of water and their understanding of the nature of this vital resource.

• Our schools and community groups need to make increased commitments to conservation education; highlighting the needs of water for humans, wildlife, fish, and plants; the right kinds of plants for our Mediterranean climate; the right kinds of water for the right uses; the ways that water can be conserved in the home, and so forth.

• The City could increase its conservation information program outreach and might consider increasing its incentive programs for conservation actions.

• Volunteer groups could consider assuming responsibility for the "Education and Outreach" projects in Chapter XII of the AWA.

• The public should be urged to inform itself by attending relevant council and other policy input meetings to help shape the outcomes.

• Citizens should be encouraged to alert the media about newsworthy water issues (e.g., some of the restoration work done by the USFS and BCWC).

• Restoration of accessible riparian areas should become a top priority for the City of Ashland; with major publicity efforts and the involvement of City employees, organizations, local schools, Southern Oregon University, and adult volunteer organizations, using the expertise of relevant agencies and our local watershed council.

• Stormwater education should be offered to residents in various neighborhoods around Ashland. Many do not realize that they are polluting our water when they let leaves, cleaning solutions, oil, pesticides, fertilizers, car-washing effluents, and general debris wash down storm drains.

• Discussion of TID water distribution and uses should be started, incorporating information on the "right water, right use" concept. Many residents who live on or near the TID ditches and canals have little or no knowledge about the system operation.

AGENCY LINKS

Ashland Public Works Dept:
http://www.ashland.or.us/SectionIndex.asp?SectionID=428

Bear Creek Watershed Council:
http://www.bearcreek-watershed.org/

Bear Creek Watershed Education Partners:
http://www.bcwep.org/

Oregon Department of Environmental Quality:
http://www.deq.state.or.us/

Oregon Department of Fish and Wildlife:
http://www.dfw.state.or.us/

Oregon Water Resources Department:
http://www.wrd.state.or.us/

Talent Irrigation District: http://www.talentid.org/

Rogue Valley Council of Governments http://www.rvcog.org/

U.S. Forest Service: http://www.fs.fed.us/

Water for Irrigation, Streams, and Economy Project (WISE): http://www.wiseproject.org/

Bureau of Reclamation: http://www.usbr.gov/

Bureau of Land Management: http://www.blm.gov/

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GLOSSARY

Bioswale: drainage course designed to remove silt and pollution from surface runoff water.

Drinking water or potable water: water that can be consumed or used without risk of immediate or long-term harm.

Gray water: wastewater generated from domestic processes such as dish washing, laundry, and bathing (water from toilets is blackwater); it comprises 50-80% of residential wastewater.

Groundwater: water beneath the ground surface in soil pore spaces and in the fractures of lithologic formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. Groundwater is the source of wells and springs.

Non-Point Source Pollution: water that runs over the surface of fields, roofs, roads and other impervious surfaces, carrying these materials to water bodies.

Point Source Pollution: direct discharges (end of pipe or ditch) of pollutants that could affect water quality.

Riparian area: a narrow strip of land that borders creeks, rivers, or other bodies of water. Because of their proximity to water, plant species and topography of riparian zones differ considerably from those of adjacent land.

Stormwater: water from precipitation that does not soak into the ground becomes surface runoff (which can carry contaminants) either flows into surface waterways or is channeled into storm drains.

Surface water: water in streams, rivers, or lakes. When rain falls on the ground or when snow melts, much of this precipitation drains across the surface of the earth and collects in ravines, streams, and creeks.

Tailwater: excess surface water from irrigation.

TMDL: Total Maximum Daily Load: defined amount of pollutant that can enter a water and still maintain beneficial use for water.

Watershed: a drainage basin where water from rain or snow melt drains downhill into a body of water, such as a river, lake, reservoir, estuary, wetland, sea or ocean. The drainage basin includes both the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels and is separated from adjacent basins by a drainage divide. The drainage basin acts like a funnel, collecting all the water within the area covered by the basin and channeling it into a waterway.

INTERVIEWS

Paula Brown, Ashland Public Works, 2/1/08.

Richard Best, Bear Creek Watershed Council (BCWC), 1/22/08.

Sam Whitridge, Bear Creek Watershed Education Partners, 3/25/08.

Bill Meyers, Oregon Department of Environmental Quality, 6/10/08.

Jay Doino, State of Oregon Department of Fish and Wildlife (ODFW), 3/5/08.

Craig Harper, Rogue Valley Council of Governments (RVCOG), 1/30/08.

Jim Pendleton, Manager, Talent Irrigation District (TID), 1/22/08.

Chris Park and Susan Maiyo, US Forest Service (USFS), 4/2/08.

Larry Menteer, State of Oregon Watermaster, Jackson County, 4/11/08.

Steve Mason, WISE, 6/9/08.

OTHER SOURCES

Atwood, Kay. *Where Living Waters Flow: An Overview of Ashland's Water Source*, OR, 1998.
http://soda.sou.edu:8081/soda/main.jsp?flag=browse&smd=1&awdid=2

Bastasch, Rick. The Oregon Water Handbook, OSU Press, 2006.

Bear Creek Watershed Council, *Ashland Watershed Assessment*, 2009.

League of Women Voters of Oregon. Water in Oregon—Not a Drop To Waste, Part 1: Regulating Water in Oregon. LWVOR Educational Fund, OR, 2009.

RVCOG. Our Region Final Report. Department of Land Conservation and Development, 1998.

Siskiyou Research Group. Ashland Creek 2000 Level II Stream Survey Report, Rogue River National Forest, Ashland Ranger District, Oregon, 2001.

APPENDIX

Timeline of Human Activities Affecting Streams in the Ashland Assessment Area

1852 - First Donation Land Claims filed for land along Ashland Creek. (Note: gold had already been discovered near Jacksonville.)

1852 - Abel Helman and the Emery brothers build water-powered sawmill on banks of Ashland Creek. (This kind of mill needed a small dam to route water through a flume downhill to the mill. The water powered the mill wheel and then flowed back into the stream. Ashland Creek is a pretty large stream; however, it is possible that this and other water-driven mills almost dried up the creek during the summer months.)

1854 - Helman, Emery and M. B. Morris built a (water-driven) flour mill along Ashland Creek at what is now the open lawn at entrance to Lithia Park.

1855 - Abel Helman wanted to establish a town, so he gave away twelve lots around the open space in front of the mills as a nucleus for a permanent town site. A blacksmith shop, meat market, carpenter

and cabinet shop, and wagon shop moved in. This area is the plaza today.

1855 - Ashland had 23 adult residents and a handful of children.

1861 – Commercial fishing starts on the Rogue River (Prevost et al. 1997).

1867 - The Ashland Woolen Mills was built on Ashland Creek where the building housing Hanson Howard Gallery/Thai Pepper/now stand. It made underwear, hosiery, and shawls and blankets. The mill operated day and night six days a week. Everything was made from wool produced locally. (During the late 1800's, tens of thousands of sheep were grazed in mountain meadows in what are now the Rogue River National Forest and the Cascade-Siskiyou National Monument. Although smaller and lighter than cattle, sheep crop vegetation very close to the ground while grazing. Some local plant ecologists believe that sheep grazing was responsible for significant vegetation changes and erosion problems, especially in the soft granitic soils near Mt. Ashland.)

1874 – Ashland population 300 (only Caucasians counted).

1880's - RR line completed (with stream crossings).

1888 - Ashland Electric Power and Light Company obtained water rights from Ashland Creek and built a power plant where the tennis courts are now in Lithia Park.

1891 - Gold discovered in hills above what is now Park Street. Tunnel dug to follow gold in quartz vein. Only about $500,000 gold found. Mine closed 1942 as wartime measure.

1890's – Chautauqua lecture series incredibly popular. People traveled from all over area to camp along banks of Ashland Creek, now Lithia Park.

1900 – Population 3000.

Early 1900's – There was a water-driven sawmill on Ashland Creek, just above the plaza (next to old flour mill?), and another on Neil Creek, south of town.

1904 - City installed a comprehensive sewer system.

1906/7 - President Teddy Roosevelt expanded area of the Ashland watershed designated for city water production via presidential declaration.

1908 - City voted to dedicate old mill site as well as all city-owned property (except not the quarry and a few other spots) forever as a city park: the beginnings of Lithia Park. Old flour mill and adjacent stock pens torn down. Team hitching and watering area had been near old mill. A new hitching rack was provided on Water Street "where will be found cool shade and plenty of water from Ashland Creek…. "

1910 – Huge forest fires in the upper Ashland Creek watershed (USFS 1995).

1916 - Auto campground established on the banks of Ashland Creek.

1916 – Talent Irrigation District established to serve commercial orchards. Ashland area orchards shipped thousands of boxes of fruit by train.

1921 – Savage Rapids Dam on the Rogue River is built to divert water for irrigation. Fish ladders are poorly designed and to this day only allow limited fish passage.

1924 – Emigrant Dam (smaller concrete version, 110' high) constructed for irrigation.

1928 - Reeder Reservoir constructed. Crowson Reservoir on Terrace Street also constructed as part of same project.

1929 - City and U. S. Department of Agriculture enter a cooperative agreement to conserve and protect the City's water supply.

1935 - The Rogue River closed to commercial fishing (LaLande 1995).

1940 – New Highway 99 constructed from Ashland to California state line (requiring stream crossings at Neil Creek among others.)

1940- Population 4,744.
Post-war II: To serve the post-war housing boom, almost a dozen family-owned sawmills started up in and near Ashland. (These mills all needed log ponds and big flat areas for lumberyards, so tended to be near streams). Most folded in 1950's when large wood manufacturers moved into Rogue Valley.

1948 - Bond passed to build water treatment and filtration plant and a concrete reservoir on Granite Street.

1949 - Sumner Parker leases to the City the 2600' foot gravel airport runway he developed on his farm near junction of Dead Indian Memorial Rd. and Hwy. 66.

1959 - Large wildfire in Ashland watershed. Burned 5000 acres.

1960 – Ashland population 9,119.

1961 – Emigrant Dam (and lake) reconstructed by U.S. Bureau of Reclamation as part of an effort to increase irrigation water supply by capturing water from the Klamath River system.

1963 and 1964 - Mt. Ashland Lodge and ski area constructed.

1964 – Christmas Day, a 100-year flood rages through the area's streams and rivers.

1966 - Interstate 5 opened from Ashland to state line. Construction requires channelizing part of Bear Creek where it crosses under I-5. Culverts to pass Hamilton Creek and Neil Creek cause fish passage and water flow problems to this day.

1968 – City opens new Ashland Airport at site of old gravel runway. Neil Creek channelized as a result.

Early 1970's - Bramble-choked Ashland Creek behind the Plaza buildings became an extension of Lithia Park called Guanajuato Way.

1974 – Another December flood. Although only a 30-year event, water interrupted city's domestic water system, destroyed bridges, and caused an estimated $1.5 million in damage to Ashland city property alone (in 1974 dollars). Guanajuato Way was extensively damaged along with the rest of the low-lying areas of Lithia Park.

1988 – Dissatisfied with a 1978 Federal Emergency Management Agency (FEMA) floodplain study, the City of Ashland conducts its own floodplain study to map the 100- and 500- year floodplains on Ashland and Clay Creeks (City of Ashland, undated).

1993 – Population 16,840 (USFS 1995)

1997 – New Year's Day flood. Another 30-year event in Ashland (severity varied across the region). Ashland Creek completely flooded Lithia Park and all the plaza businesses. $4.5 million in damages in Ashland alone.

2007: Population 21,430
(http://www.co.jackson.or.us)

From: Bear Creek Watershed Council, Ashland Watershed Assessment, 2009.