4.2 Municipal/Quasi-Municipal

Municipal Water Conservation, Municipal Water Supply, Municipal Policies, ***Municipal Infrastructure,*** *and* ***Education and Outreach*** are the four strategies by which water supply could be generated from municipal and quasi-municipal water use.

4.2.1 Municipal Water Conservation

Cities and quasi-municipal water suppliers could extend existing supplies by continuing, expanding existing, and deploying additional new conservation tools that reduce per capita water demand. Quasi-municipal water providers include Avion and Roats serving municipal water users in the southeast portion of the City of Bend, and Laidlaw and Sunriver Utilities serving users in unincorporated communities of Tumalo and Sunriver, respectively. Any conservation measures, including those that are required by OWRD and those that are voluntarily implemented by water suppliers, are described in municipal Water Management and Conservation Plans (WMCPs). This section focuses on opportunities to expand existing water conservation programs that go above and beyond WMCP requirements, or to develop new conservation programs. Potential tools include:

- Waterwise Landscaping
- Rebates and Incentives for Efficiency Plumbing and Irrigation Systems
- Codes and Standards Requiring Water-Efficient Landscapes
- Incentive Pricing for Municipal Water
- Landscape and Outdoor Water Restrictions

4.2.1.1 Waterwise Landscaping

Opportunity

- Increase funding for rebate programs like the City of Bend's turf removal initiative.
- Convert city green spaces to desert landscaping where suitable. Increased funding may also expedite these conversions.
- Retrofit public spaces with xeriscaping and efficient irrigation systems. Increased funding may also expedite these conversions.

Potential Beneficiaries

- Demand reduction for water suppliers.

Considerations

- Securing funding may be difficult, especially with competing priorities.
- City green spaces may not be managed by the city itself (Bend Parks and Recreation Department is a separate entity from the City of Bend) and many parks are not supplied by city water.
- Community resistance to landscape changes may limit adoption.
- Ongoing education and maintenance efforts are essential for success.

4.2.1.2 Rebates and Incentives for Efficient Plumbing and Irrigation Systems

Opportunity

- Municipalities can establish and expand programs to offer incentives and rebates for the installation of water-efficient appliances and sprinklers.

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Potential Beneficiaries

- Demand reduction for water suppliers.
- Reduced water costs for municipal water customers after efficiency upgrades have been made.

Considerations

- Initial upgrade costs may deter participation and are particularly burdensome for lower-income customers.
- Raising awareness of water-efficient technologies can be resource-intensive.
- Technical assistance to customers/property owners is typically required to ensure proper systems, installation, and operation, which is time-consuming and requires staff and funding resources.
- Expensive – water suppliers must have a funding source and/or rate increases to pay for rebates, education, enforcement activities, and the loss of revenue.
- Potential cost implications for water patrons.

4.2.1.3 Codes and Standards Requiring Water-Efficient Landscapes

Opportunity

- Development codes adopted by cities can restrict the amount of irrigated lawn on new development lots or prohibit inefficient irrigation systems and turf in right-of-way planter strips.
- Some municipalities are currently implementing such development codes; similar codes could be adopted by other municipalities as well.
- This could also be a directive received from the state or federal government.

Potential Beneficiaries

- Demand reduction for water suppliers.

Considerations

- Development codes cannot be retroactively applied to existing development or planned development with already approved plans/permits.
- Resistance can be expected from some property owners and Homeowner Associations who prefer greener, higher water use landscaping.
- Resistance may come from the development community, businesses, and residents who view new regulations and burdensome and who may appeal new development code to the state Land Use Board of Appeals.
- Ensuring compliance with and raising awareness of water-efficient technologies is resource intensive.

4.2.1.4 Incentive Pricing for Municipal Water

Opportunity

- Similar to irrigation water pricing (Section 4.1.4.3), municipal water can be priced to incentivize conservation by rewarding efficient use and/or penalizing inefficient use through higher costs.

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Potential Beneficiaries

- Demand reduction for water suppliers.

Considerations

- Tiered pricing may disproportionately affect low-income households and/or land uses such as school properties where the cost to retrofit landscapes is cost-prohibitive and where lawn areas are needed and used.
- Managing tiered pricing systems requires administrative resources.
- Reduced water use could lead to revenue shortfalls for municipalities.

4.2.1.5 Landscape and Outdoor Watering Restrictions

Opportunity

- One of the largest uses of municipal water is for watering residential lawns or city parks and open spaces. Municipalities can set restrictions to limit or prevent this type of outdoor water use, including limiting watering to alternating days and time of day, and in some cases also include codes disallowing water waste such as water overspray onto paved surfaces.
- Municipalities typically already implement irrigation season restrictions on outdoor water use, though some water suppliers could update their codes to expand restrictions or penalties and/or apply more rigorous code compliance efforts.

Potential Beneficiaries

- Demand reduction for water suppliers.

Considerations

- Enforcement is resource intensive and requires implementing a legal code compliance procedure including civil penalties that can require use of the courts.
- Many water waste cases occur at night or otherwise may be hard to capture/enforce.
- To achieve the best long-term compliance, this is best coupled with technical assistance and incentives to encourage changes to behaviors and irrigation systems. This is expensive and resource intensive.
- Potential cost implications for water patrons.

4.2.2 Municipal Water Supply

In addition to ongoing actions to reduce municipal demand through conservation, municipalities may also need to increase their existing supply of municipal groundwater in order to meet future projected demands (see Sections 3.3.3 and 3.3.4). As mentioned in Section 2.2.3, through the Deschutes Groundwater Mitigation Program, any new uses of groundwater must be offset to mitigate their impact on connected surface water flows. Some cities (e.g., Bend) have existing groundwater permits for which mitigation credits need to be acquired while other cities (e.g., Redmond) have sufficient mitigation credits but need to acquire additional groundwater permits to meet future projected demands. tools to improve long-term municipal water supplies include:

- Access to Groundwater Rights
- Access to Mitigation Credits

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4.2.2.1 Access to Groundwater Rights

Opportunity

- Municipalities may need to acquire new groundwater rights in order to meet future projected demands.
- Municipalities can acquire existing groundwater rights from other water right holders to meet future projected demand (see Section 4.1.2.3).

Potential Beneficiaries

- Municipal water suppliers.

Considerations

- The Groundwater Mitigation Program has a cap of 200 cfs on the cumulative total for final orders on approved groundwater permit applications. Modifying the cap requires a rule change by the Oregon Water Resources Commission. The cap has not been reached.
- Significant groundwater declines in some areas may prevent the issuance of new groundwater rights.

4.2.2.2 Access to Mitigation Credits

Opportunity

- Under the Deschutes Basin Groundwater Mitigation Program, cities must offset any impacts by new appropriations of groundwater by securing groundwater mitigation credits that protect State Scenic Waterway flows.
- Water suppliers can also provide mitigation "incrementally" by providing mitigation credits over time as demand grows.
- To date, the primary mechanism by which permanent and temporary mitigation credits have been created is through the temporary instream lease or permanent instream transfer of the consumptive use portion of existing irrigation water rights.
- There is also a desire by municipalities to expand the types of tools that can generate mitigation credits if they meet the parameters of reducing consumptive use and protecting water instream.

Potential Beneficiaries

- Municipal water suppliers.
- By design, the Groundwater Mitigation Program also protects state scenic waterways flows.

Considerations

- The Groundwater Mitigation Program has a sunset date of January 2, 2029, and a cap of 200 cfs on the cumulative total for final orders on approved groundwater permit applications.
- Extending the program beyond 2029 will require legislative change at the state level.
- Raising the cap requires a rule change by the Oregon Water Resources Commission.
- Credit supply is significantly lower than projected demand (551 credits vs a projected need of 16,000 mitigation credits over the next 50 years, see Section 3.3.3).

4.2.3 Municipal Policies

In addition to the voluntary measures the cities have been and can continue to implement and/or expand (described above), the state can also encourage or require conservation by enacting policies that reduce per capita water demand. Unlike the voluntary tools above, the tools in this section would require legislative or policy changes from the state. Potential tools include:

- Municipal Efficiency Standards
- Enhanced Water Conservation Policy Support

4.2.3.1 Municipal Efficiency Standards

Opportunity

- There are already statewide efficiency standards mandated under the plumbing code that apply to installation of new fixtures like faucets, showerheads, and toilets.
- However, the state could institute updated plumbing code standards that would increase efficiency.

Potential Beneficiaries

- Demand reduction for municipal water suppliers.

Considerations

- Would require state legislation.
- Cost implications for water customers and/or suppliers for appliance upgrades.

4.2.3.2 Enhanced Water Conservation Policy Support

Opportunity

- With targeted state-funded initiatives and strategic partnerships, municipalities can significantly broaden their conservation efforts. State support offers the essential research, training, and financial resources needed to advance water-saving technologies and practices, enabling cities to not only sustain but also elevate their conservation programs.
- Opportunities for state support of water conservation include:
    - Expanding state support for education and certifications in advanced water management (e.g., AWWA Water Use Efficiency Practitioner or M36 Water Audit training and certifications).
    - Leveraging OSU Extension to assist with research and development of integrated waterwise-firewise practices crucial for developing sustainable and resilient landscapes.
    - Establishing state-funded initiatives to develop and transfer water-saving technologies to accelerate the adoption of innovative solutions across communities.
    - Fostering statewide collaboration for sharing best practices and resources.

Potential Beneficiaries

- Municipal water suppliers.

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Considerations

- Expanding, enhancing, and implementing new municipal water conservation programs depends heavily on robust support and collaboration with state agencies and institutions.

4.2.4 Municipal Infrastructure

Cities and water suppliers could extend existing supplies through the creation of infrastructure that stores, recycles, reclaims, or reuses municipal water. Potential tools include:

- Construction of Treated Water Storage Reservoirs
- Recycled or Reclaimed Water Projects
- Greywater and Stormwater

4.2.4.1 Construction of Treated Water Storage Reservoirs

Opportunity

- Construction of additional storage reservoirs (typically tanks) could provide for storing treated water during off-peak use times to be used during peak demand times.

Potential Beneficiaries

- Supply reliability during peak demands for water suppliers.

Considerations

- Design and construction of reservoirs, including piping, valves, land acquisitions, etc., is extremely expensive.
- The amount of storage needed to provide for peak demands likely requires multiple new reservoirs per jurisdiction.
- Operational and water quality issues can result from having excess storage in the water system, requiring additional infrastructure and operational costs that can include extra chlorination, monitoring, or valves/piping.
- Does not control or reduce demands, only shifts around their timing.

4.2.4.2 Recycled or Reclaimed Water Projects

Opportunity

- Many cities are already implementing and operating recycled or reclaimed water projects through combinations of treated effluent infiltration ponds, infiltration wetlands, and effluent irrigation of agricultural lands or golf courses.
- Cities could explore additional opportunities to recycle or reclaim/reuse treated effluent to boost supply or provide water to other needs. Opportunities may include:
    - Diversion of treated effluent into irrigation district canals during irrigation season.
    - Additional construction of purple pipe reuse water systems and treated effluent reuse on additional landscapes or agricultural lands.

Potential Beneficiaries

- Treated wastewater effluent that meets DEQ water quality standards can be reused for some irrigation or commercial and residential landscape applications.

Considerations

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- Most treated effluent is currently infiltrated into the aquifer through effluent infiltration ponds and wetlands, so any effort to reuse this water for other purposes will result in a similar reduction in artificial recharge. In a system like the Upper Deschutes Basin with uniquely porous hydrogeology, the net impact on the water budget is similar to simply expanding groundwater pumping.
- A decrease in return flow (surface or groundwater) could have negative impacts on streamflows and/or recharge.
- DEQ NPDES and Water Pollution Control Facility (WPCF) Permitting.
- High cost of constructing and operating infrastructure (e.g., treatment systems to provide quality effluent, separate pipes, pump stations, etc.) to treat and deliver effluent to receiving sites.
- Negative public perceptions about the safety of treated wastewater.
- If the underlying groundwater permit has a mitigation obligation, the permits require updating the mitigation obligations if consumptive use changes (which would increase with recycled/reclaimed water, meaning more mitigation would be required).
- Must go through the state's recycled water statutes, which require a determination that the project will not harm fish.

4.2.4.3 Greywater and Stormwater

Opportunity

- Greywater ("used" water from sources such as sinks or washing machines) can, in certain circumstances when allowed by state plumbing code, be filtered and used for non-potable uses such as yard watering or, with proper permitting, be used for limited indoor use for toilet flushing.
- Stormwater could be directed from impervious areas such as rooftops onto landscaped areas to contribute a limited supplement to plant water needs.

Potential Beneficiaries

- Some demand reduction benefits for water suppliers.

Considerations

- There is a limited quantity of greywater, and its use would be limited to individual buildings.
- These buildings would require additional, separate plumbing systems entirely for greywater capture and reuse. Local development code and building code changes would be necessary to require this for development and would add cost to housing and other buildings.
- Stormwater capture and reuse is most feasible in areas with considerably more precipitation than Central Oregon.
- Most stormwater in Central Oregon already discharges to underground injection facilities such as drywells, already providing some level of groundwater recharge.

4.2.5 Education and Outreach

Efficient water use can be promoted through education and outreach. This strategy and the corresponding tools could be ramped up following a Drought Declaration. Potential tools include:

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- Customer Education and Outreach

4.2.5.1 Customer Education and Outreach

Opportunity

- Expand on existing educational programs offered by municipalities to educate municipal water customers on water conservation.
- Conduct outreach to customers to increase enrollment in rebate/incentive programs for improving municipal water use efficiency.

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