SPAC Discussion: Water Supply Needs

December 16, 2020

The SPAC has discussed current conditions, desired future conditions, strategies, and potential performance measures related to Streamflows and Groundwater at the November SPAC meeting. In the matrices below we are beginning to link the key components of the Strategic Plan related to Agricultural, Municipal-Commercial, Industrial, and Rural-Domestic water use (where we are, where we want to be, how we will get there, and how we will measure success).

Today's discussion will focus on potential strategies to address water use needs across different sectors. The list of strategies below was brainstormed by the Water Supply Needs Working Group. The goal of today's SPAC discussion is to give the Working Groups clear direction on how to proceed. Please consider these questions:

1. Which strategy (or strategies) are the **most important** to the interest you represent? Is this strategy suitable for **short-term** (next 5 years) or **long-term consideration?**

2. Are there **strategies you would like added** to the lists for further exploration? Which strategies, in any, should be **deleted** from consideration?

3. Do you have comments on other material in the matrix (current conditions, desired future conditions, gap identification, or performance measures)?

Next Steps:

After input from the SPAC, the WGs will build out the details on the list of potential strategies, as well as conduct a multi-criteria analysis.

NOTE: Items in the matrices highlighted in yellow indicate data that we are in the process of gathering. Data may or may not available.

Agricultural Water Use

Where we are now (Current Conditions / Challenges)	**Where we want to be** (Desired Future Conditions)	**What's missing?** (Gap Identification)	**Potential Strategies to Address Gaps**
Current water supplies for Ag are **adequate for some agricultural producers and not others.** In **Oregon**, irrigation diversions for agriculture account for 93% of annual subbasin water use. **Washington's** agricultural irrigation accounts for 84% of total annual water used in the subbasin, with 60% of irrigation water sourced from surface flows and the remaining 40% pumped from groundwater sources. Of the 133,000 acres of cropland in **Oregon's** subbasin, x is irrigated farmland. Of the xxx acres or cropland in the **Washington** subbasin, x is irrigated farmland Combined average annual diversion by the basin's 3 largest irrigation districts- **WWRID, HBDIC, GFID**- as well as **smaller irrigators** is xxx acre-feet (include years)	Future water supplies are adequate for all agricultural producers in the basin ● Develop anchor project -- pump exchange or reservoir to maintain or increase water supply June-October. ● Increase surface flows down Little Walla Walla River that (1) naturally recharge the alluvial aquifer; (2) naturally enhance flow at springs and in spring-fed creeks; and (3) reduce local need for additional MAR sites. ● Enhance recharge to alluvial aquifer to sustain farmers dependent on its groundwater. ● Improve water supply reliability under increased(ing) climate variability. **Specificity for desired future conditions:** ● Increase Gardena farms water supply Oct-Nov (extra 13 – 20 cfs would be beneficial).	Water supply is not sustainable nor sufficiently reliable to meet future Ag water use in the basin, e.g. currently GFID never has enough water in the fall. Future desire for ecological restoration will place more demand on currently over-allocated agricultural water. **Significant data gaps:** ● Thorough accounting of data gaps is needed on basin scale, e.g. consumptive water use, and irrigation and conveyance water efficiency. There are gaps that are unknown now. The USGS study will help identify and fill gaps. ● Identify how much recharge is needed to stabilize alluvial aquifer water levels and spring branch flow. ● Piping ditches means more water level declines, thus impacting alluvial aquifer water users. There	**Conservation** ● Strategic piping ditches (e.g., pipe Gardena upper ditch, which currently loses 15 cfs in spring); pair with MAR to mitigate impacts. ● Use soil-water sensors to irrigate efficiently; pair with MAR to mitigate impacts. ● Improve soil-water retention capacity (e.g., by using compost, conservation tilling etc). ● Improve on-farm irrigation efficiency, e.g. convert hand lines to higher efficiency methods. **Augmentation** ● Build resiliency and redundancy in the agricultural water supply to meet Ag water demand. ● Construct the pump exchange and new reservoir(s). ● Investigate water availability from the Columbia River that is greater than the 'water neutral' concept of the bi-state flow pump exchange. ● Improve connection between snowpack monitoring data and water management for Ag; potentially use 'water calendar' to communicate this information. ● Develop forecasting tool for precipitation-runoff to capture high flow events for recharge/storage (see below); potentially use 'water calendar' to communicate this information. ● Direct additional flow down the Little Walla Walla River to support existing agricultural water rights and provide additional benefits. **Recharge/Storage** ● Expand MAR strategically; capture more winter-early spring high flows and recharge MAR sites in the winter-early spring making more alluvial aquifer groundwater available in spring – fall.

Major challenges: ● Lack of solution to protecting flow across the border. ● Junior lower basin irrigators have no surface water in summer – fall, e.g. Gardena ditch. ● Declining alluvial and basalt aquifer water levels and storage depletion issues are connected to surface water issues. Water supply problems occur now; irrigators cannot afford to lose more water.	● Add 15-16cfs to the LWWR system via bi-state flow program to benefit WWRID and downstream water uses/rights. ● Pipe ditches and irrigate more efficiently where MAR can be added to mitigate impacts from recharge loss.	is a need to better understand these impacts.	● Capture more winter-early spring high flows and expand basalt ASR. ● Setback levee and protect/restore riparian and wetland areas to allow more passive 'natural' recharge. ● Re-activate WA MAR sites, e.g. Stiller Pond. **Metering** ● Install metering and telemetry to improve feedback about water use, conservation measures, and irrigation efficiency. **Crop Conversion** ● Convert to lower water use crop types. **Regulatory, Admin, Markets** ● More strategic use of the trust water bank in WA. ● Develop robust water market that works for Ag interests while protecting or enhancing ecological functions. **Potential roadblocks to implementing these strategies:** ● Funding challenges for infrastructure upgrades.
	How we will measure success (Performance Measures): • Volume of winter – early spring surface water recharge via MAR. • Trend of alluvial- and basalt-aquifer water levels, basin-wide. • Volume of water conserved from conveyance and irrigation efficiency, and soil management.		

Municipal-Commercial Water Use

Where we are now (Current Conditions / Challenges)	**Where we want to be** (Desired Future Conditions)	**What's Missing?** (Gap Identification)	**Potential Strategies to Address Gaps**
Population and urban development have grown steadily in recent decades around the Walla Walla Basin. City of Walla Walla **relies on water from Mill Creek for ~90% of water demand and 10% for basalt GW, Waitsburg uses both surface water (from Coppei Creek) and groundwater, and other cities use groundwater sources** for municipal, commercial, use. Most basalt well water levels are declining, however City of Walla Walla wells are relatively stable. **Washington** municipalities and Group A and B public water systems account for 13% of annual basin water use. In **Oregon**, the cities of Milton-Freewater and Weston account for 4% of annual water diverted in the watershed. Walla Walla basin jurisdictions **treat municipal wastewater and discharge flows** for a variety of beneficial uses including agricultural irrigation, commercial use, and shallow alluvial aquifer recharge.	Balance commercial and municipal/residential development with water conservation efforts by directing (via incentives or regulation) growth to areas served by existing municipal infrastructure. Distribute cost of new water infrastructure equitably, so that conservation benefits and development burden is appropriately placed. Ensure that landowners are educated about surface water ecology and water quality. Improve landowner knowledge of the responsibilities when living near riparian and wetland areas. Treat wastewater to standards for landscape irrigation use. Continue to establish reliable, stable and redundant water supply through water planning	Conservation initiatives and water supply upgrades and expansion have large capital costs that are challenging to fund. Capacity of basalt aquifer source water may be uncertain. Ongoing growth in urban – rural areas presents challenges for land use and water supply coordination, e.g. municipal versus self-supplied water. There is a lack of information about existing regulations/rules regarding surface water bodies and riparian buffers to existing/new landowners. Buyout and/or source substitution of surface water rights for irrigation currently being used within the City of Walla Walla UGB may facilitate local spring and creek habitat/landscape restoration.	**Conservation:** ● Continued successful conservation by detecting and repairing leaks. ● Local 'purple' pipe to deliver reclaimed water to landscape irrigation. ● Native plant landscaping to reduce water use. ● Tiered water rates, cash for grass, toilet rebates, decreasing irrigated landscapes. **Growth Management:** ● Strategically plan to supply water to development outside city limits. ● Incentives to encourage rural developments to annex. Potentially annex rural development areas into city limits where there are ecosystem benefits. Annexation would create infrastructure efficiency. ● Keep development small and compact in urban growth areas and develop associated incentives. **Recharge:** ● Expand and support municipal ASR. ● Increase infiltration of stormwater rather than discharge to surface water bodies. ● Systematic water quality monitoring for background information. ● Flexibility in water quality sampling plans. ● Groundwater Management District - create collaborative and success. **Public Outreach/Education:**

Key takeaway: Conservation is making up for water use growth. **Key challenges:** • Funding to implement efficiency, conservation and ASR. • There are declining groundwater levels for sole-source cities. • City infrastructure/rural development challenges • Differences in City/County Land Use Planning, specifically in the UGB	and infrastructure operation and maintenance.	Lack of background water quality data for recharge projects. Lack of understanding of groundwater interconnections between wells/geologic units for cities and agricultural wells across the valley. This creates some uncertainty around the long-term sustainability of municipal groundwater supply. However, this will be addressed in the USGS GW Study.	• Real Estate outreach/information for related to stream and wetland health. • Attached riparian buffer/surface water regulations to the property deed. • Modified riparian buffer program for urban streams/creeks. **Other**: • Continue ongoing collaboration with WWT and CTUIR to improve conditions in Mill Creek /Yellowhawk Creeks. • Emergency interties to improve reliability • Develop a pilot water metering and telemetry program between City of WW and local Ag water users to learn from City of WW's program and how to expand throughout the basin.
	How we will measure success (Performance Measures) • Municipal water use per capita (time trend) • Land area irrigated with reclaimed water (time trend) • Water volume stored and recovered via ASR wells (time trend)		

Industrial Water Use

Where we are now (Current Conditions / Challenges)	**Where we want to be** (Desired Future Conditions)	**What's Missing?** (Gap Identification)	**Potential Strategies to Address Gaps**
Water use at the Port of Walla Walla Eastside (**Washington**) accounts for 0.2% for the industrial water use in the Walla Walla basin. **Oregon's** industrial water use makes up 1% of the total annual diversions. The wine industry has grown speedily over the past decade, with 120 active wineries in the basin today (up from 50 in 2000). [insert winery water use #s] The beverage industry creates wastewater challenges for municipal water treatment facilities. **Key challenges:** Limited water supply in some areas.	Balance industrial development with water conservation efforts by directing growth to areas served by existing water infrastructure and physically available water supply source. Develop new approaches for increased wastewater management.	Growth in industrial water use may be limited by physical availability of water.	Understand where legal and physical availability of water currently exists, and direct new water-using industry to location where water supply is sustainable. Expand water treatment operations and beneficial use of reclaimed water; e.g. onsite treatment and landscape irrigation. Expand funding and invest in novel approaches needed for wastewater treatment; e.g. beverage industry collaboration with City of WW.
	How we will measure success (Performance Measures) • Volume of industry wastewater treated for beneficial use (time trend)		

Rural-Domestic Water Use

Where we are now (Current Conditions / Challenges)	**Where we want to be** (Desired Future Conditions)	**What's Missing?** (Gap Identification)	**Potential Strategies to Address Gaps**
Rural-domestic water users who use less than 5,000 gallons per day can **withdraw water from groundwater sources without acquiring a water right permit, however mitigation is required for new permit exempt wells in the alluvial aquifer within the high-density zoning area in WA** PE wells represent a small fraction of annual water use in the basin—3% in Washington and 2.2% in Oregon. Walla Walla county data projects a rural/unincorporated population of 19,445 **by 2038, a 17% increase from 2017**	• Limit/restrict rural development outside Urban Growth Areas to protect undeveloped floodplains, wetlands, and other ecologically significant areas by directing growth to areas served by existing water infrastructure. Increase and incentivize metering, water measurement, mitigation and reporting for rural-domestic water use.	With a growing rural-domestic population, widespread confusion around who in WA-County or ECY--implements and regulates the PEW mitigation program needs to be addressed to ensure mitigation compliance. Land development and water use are not integrated to protect ecosystems while supplying potable water.	**Mitigation Compliance/Enforcement** • Increase compliance with current mitigation requirements for new permit exempt wells and consider expanding mitigation availability voluntarily to wells that are currently not required to mitigate in OR and WA. • Analyze the building permit information/data to look at trends to create proper credits available per area. • Review existing mitigation program for to make sure existing mitigation matches demand. • Establish coordination in WA between the State, counties, and landowners to define the procedural requirements to issue a building permit that will rely on a PEW in the UGA.

(potential new PEWs that will rely on alluvial or basalt groundwater). **Compliance** with PEW mitigation requirements is inconsistent and has proved difficult to enforce in Washington. There are currently no permitting, metering, or mitigation requirements for PEW users in Oregon. The WWWMP has managed and acquired water rights for the mitigation program, but regulation and enforcement are needed at the county level. **Key challenges:** • While mitigation is required for certain new exempt wells, Walla Walla County does not require proof of mitigation to get a building permit and therefore some new permit-exempt wells may not be obtaining required mitigation • Lack of clarity around County need to meet GMA requirements, i.e. ensure water is legally and physically available prior to issuing building permits.	• Provide information to landowners to change water use behavior. **Protentional roadblocks to meeting these DFCs:** • Lack of information and data from the counties makes it hard to have the conversation. • Unclear roles and responsibilities between States, Counties, WWWMP, landowners. • Unclear public understanding of what is required and prohibited under current laws, as well as legal repercussions for non-compliance and the general enforcement process. • There is currently no connection between where water mitigation is bought and sold. It all goes into one pot. There is a lack in mitigation accounting.	**Key missing data:** • Lack of data and information from the counties • Need to determine how much and where mitigation has been acquired and issued. • Need to determine how much and where water rights need to be acquired to meet future growth.	• Define roles and responsibilities and who will “enforce” the requirements for mitigation and at what point in the process. • Increased communication between entities to make sure building permits aren’t issued without completing requirements. Increased mitigation accounting and tracking. • Create a funding structure to support the mitigation certificate implementation and enforcement. This could result from defining the roles and responsibilities for the States and Counties. **Metering** • Adopt the use of telemetry for metering and reporting water use make it easier for rural domestic water users to comply with requirements. **Education and Outreach** • Better communication and outreach to public, including education about community/ecosystem benefits of water conservation and mitigation **Land Use Planning** • Develop county land use zoning and codes that align with protecting water-dependent ecosystems, so rural water development occurs in appropriate areas • Understand the hydrogeology in the basin and consider whether or not to create mitigation areas to better mitigate impacts.
	How we will measure success (Performance Measures) • Count of PE wells mitigated (time trend) • Count of PE wells metered and reporting (time trend)		