

- Admin asked which meeting time the Stakeholders would prefer, 5-7pm or earlier? Dana will send out a poll asking which time is preferred, 1-3pm or 12-2pm

Municipal Demand Brainstorm

1. Water is community property
 2. In drought, municipality gets water first
- Every 10 years WMCP needs to send to OWRD our concerns :
 1. Population growth, Bend issues...
 2. System efficiency- determines water use over the month, finds leaks, loss for hydrants etc. When we don't know what is in our system, can we figure out how to fix it correctly? 5% lead rule, means throw out all lead parts, huge cost
 3. Industrial – LaGrande gets a letter of interest for industrial users, what if one moved here? We'd need to drill a new well?
 - Does the drought benefit apply to industrial users? Could monitor industrial users.
 - Governor could have a state of emergency/drought "book", with rules that may say cities get water first. Priorities would be: human, then health and then water rights.
 - How legally, doo cities have the right to call out water rights? Is that considered beneficial use? Livestock takes precedent over agricultural needs?
 - Are there exceptions in the rules for priority water rights?
 - Cities could narrow it down to a real emergency (cut off grass watering) possibly call it a "curtailment plan".
 - Contamination in water – what would we do if the groundwater was contaminated? (We do have a vulnerability analysis)
 - We (locally in the UGRR Basin) have three supply sources. Not all cities do (example: Pendleton lost 2 wells, needed to ration)
 - How does GPC compare to other cities within planning area and state averages – gain a relative sense of efficiency and consumption?
 - Personal water containment on their own property (not legal in LaGrande) economical for watering lawn/plants

Agricultural Demands

- How we define ag water demand? Should we take the sum of irrigation water rights/season, or should we try to estimate actual crop water use acres of each crop and use evaptrans model to see true use?
- Timing: different crops use water at diff times of the season. Actual use will not correspond with irrigation season or hydrograph.
- Water rights likely to remain static over 50 years. Actual crop water use may change a lot over the next 50 years.
- Differences in cropping schemes – farmers are at the mercy of global markets (for example, currently wheat prices down, half of our valley is growing canola instead). Cropping regimes may change based on markets over 50 years.
- Crops could change with consolidation of small farms to large farms.
- Political mandates are not predictable, trade policies influence crop profitability.
- Changes in local climate
- On the other side: we might have improvements in efficiency (tech tools, no till drilling can improve, better irrigation/application methods ex: buried drip tape).
- Could see changes in tillage regimes (more organic matter retains water better).
- In 50 years, better soil amendments, technologies could produce better crops that use less water.
- Changes to local climate (we are in a snow pack dominated area, shifting hydrograph, worse droughts (1 degree F 5 percent increase in evapotranspiration)).
- Methods of estimating demand: ET models or other models must first develop a good understanding of what those models involve. It is really important to understand assumptions built into these models.
- Data put into the model is important “garbage in, garbage out”.
- Geospatial analysis: with that we do not have as much data as it looks like on maps (interpolation/derivation from models) need to understand what information is on your

map (is it genuine observations that are actually measured, or is it something that came from a model).

- Climate: inherently variable, changes complicate things. One hopeful thing is that we are starting to understand physics behind natural variability. This allows us to improve our forecast, and get more timely forecasts and more accurate.
- Utilizing water rights would be a mistake. That would overestimate water use. ET models underestimate, without exception, with efficient application and monitoring people can reduce water use. Usually we use more water than needs to be. NEED to do a survey of acres irrigated and then have efficiency of irrigation, then see management system. Easy to over irrigate, (aerial photograph how many acres under pivot, flood etc.) – Brett at Freshwater Trust has this data.
- Still need to look at water rights. We also may want to take a look with respect to the hydrograph and when water comes, and also analyze different crops in the valley and see what the demand is. Then we can see difference between when water is needed. Get this documented in the study.
- If we use ET model, when we forecast demand, examine possibility of shifting to higher water use crops in the future if within the water right. Cannot apply water at ET rates (always need to over apply to prevent crop stress).
- Model will need to be multivariate– sometimes most glaring problem is not the biggest problem. Utilize cover crops to increase organic matter will increase water capacity on every acre.
- How can we use water rights (report shows legal demand on system) and also need to show crop use?
- We design systems for crop needs – alfalfa and mint not water rights (also reservoirs are not designed for peak use, just for demands).

Natural Hazards

- JB brock union county emergency management services – drought and floods.
- Water for late summer fire season (where to get it to contain fires). In spring the floods.
- LaGrande and hospital is on a fault line.

Ecological Demand

- Fish life stages – adults in, smolts out, spawning, egg incubation, rearing. Water needs vary based on size of fish and need at time.
- With salmon and steelhead – need water with certain quality attributes (temp, and DO) affected by flow. Need cool water and water with oxygen.
- Habitat needs – deep pools, different kinds of cover, to maintain this we need high flows in the winter time to flush spawning gravel, and maintain pool depth, and to maintain complexity (wood is a large component of complexity – comes into the system from storms).
- Analysis of departure (diff between existing flows and existing instream water rights) where are needs not met.
- Identify data gaps (where do we need instream studies to figure out the needs).
- Stream flow restoration priorities map (ODFW and OWRD made map in 1990s, needs to be updated).
- We know what fish need in ideal conditions, but did the Grande Ronde system ever produce those conditions? Estimated annual natural flow to see if these instream flow studies are in the ball park.
- 50 years ahead, life stage needs don't change, but if climate change occurs, there will be change in where fish live, and change in timing (bull trout probably have a smaller distribution range).
- Forest: structure, composition, and density of the forest will have different water demands – conifers for example shut down, others are okay – how trees arrange have a big effect on snowmelt systems, and how snow is captured and released.
- Natural hazard: wildfires will continue to impact watersheds positive, negative. This will impact water supply and quality.
- 1/3 of county is federal land, and that is the 1/3 that gets the most precipitation. If we could compare species composition and see water retention.

- Demand is not just for water, but that is for functioning ecosystems (overstocked forest at risk for fire and at risk for sublimating snow).
- Floodplain connectivity has water retention benefits and fish habitat benefits – identify opportunities to improve ecosystem function.
- Fix riparian systems may restore species like beavers.
- Bring in EOU experts to help with these questions, students could help.
- Water quality, quantity, time & space – the foundation is in soil organic matter.
- Need someone to provide information to this group from the Wallowa Whitman forest collaborative.