

Wellhead Protection Zone Sounding Board

Meeting #2 Summary



Time: Tuesday, June 6, 2017 (1:00 p.m. – 4:00 p.m.)
Location: Redmond City Hall, Council Conference Room
15670 NE 85th Street, Redmond, WA 98073

Attendees:

Sounding Board Members and Alternates	Organization
Joe Skewis	Prototron Circuits
Bart Phillips	ONE Redmond
Eric Ferguson	King County DNRP
Tom Markl	Nelson Legacy Group
Mike Johnson	Neighborhood representative
Tom Schmidlin	Postdoc Brewery
Danielle Shaw	Washington Environmental Council
Robert Pantley	Natural and Built Environments
Clarke Jewell	Olympian Precast

Others in attendance:

- Amanda Balzer, City of Redmond, Project Manager
- Becky Range, City of Redmond, Communications
- Andy Rheaume, City of Redmond, Senior Watershed Planner
- Gary Schimek, City of Redmond, Engineering Manager
- Sarah Brandt, EnviroIssues, Facilitator
- Liz Mack, EnviroIssues, Facilitation Support

Summary:

Welcome, introductions, and overview

Sarah Brandt welcomed the Sounding Board members and thanked them for their participation. The members introduced themselves. Then, Sarah reviewed the meeting agenda.

Gary Schimek gave a brief overview of three related planning processes that the Public Works Department is pursuing. These include the Wellhead Protection Zone Delineation, Low Impact Development Business Case, and a Temporary Construction Dewatering Business Case. All three projects have connection to the groundwater model and include a stakeholder involvement component.

Next, Sarah passed out note cards and asked each individual to write their hopes and concerns for the community engagement process. The following comments were shared:

- Eric hopes this process creates a dialogue between King County and the City of Redmond that will reduce the boundary effects of their efforts.
- Danielle hopes this process will support Redmond’s continued leadership on smarter, greener, stormwater management processes.
- Joe would like to see the city find a balance between growth and quality of life.
- Mike hopes this process will create predictability for residents and businesses.

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- Robert is concerned that there's not enough clarity about the outcomes.
- Clarke appreciates the city's goal, but hopes that the city does not ignore impacts to future businesses.
- Bart is concerned about unintended consequences in downtown to Redmond's strong economy.
- Tom M. stressed the importance of infiltration in downtown and hopes to see realistic boundaries for the Wellhead Protection (WHP) zones.
- Tom S. is concerned about the impacts to local businesses.

Information requests

Sarah reviewed a list of information requests received during the last meeting. She noted that many of these will be covered during the presentation.

Amanda asked for additional clarification about the request: "What are the City's long-term plans for growth, especially in upper Bear Creek?" Joe explained that he would like to understand how growth will be managed by King County in this area since it is part of the upper aquifer.

Amanda addressed the request: "Could regulations allow dewatering projects to recharge the aquifer?" She noted that the city tried this with a project about two years ago and ran into logistical challenges. However, the city is not opposed to dewatering projects recharging the aquifer.

Amanda said she would revisit this list at the end of the meeting to make sure all requests have been addressed.

Guiding principles and criteria

Sarah reviewed the list of guiding principles and criteria provided in the meeting packet. This list is a combination of items discussed at the last meeting and additions from the city. As the sounding board progresses, the team will cross-check their products with these criteria.

Group discussion:

- Tom M. asked what "cost vs value" means. Amanda explained that it is an effort to capture how much the city is protecting versus how much they spend. The city wants to understand the impacts to business when applying regulations.
- Sarah noted that Mike's request for predictability is not captured in the list and should be added.
- Robert noted that the challenge is in the details and he would like to see standards or metrics for the criteria. He also expressed concern that development is often viewed as a problem and noted that redevelopment can be very positive for the environment. Lastly, he asked for additional details about how this aligns with the city's comprehensive plan.
- Tom S. said he would like to know about the city's contingency plan in the event that groundwater is contaminated and the cost associated with implementing this plan.

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- Eric noted that the comment about Redmond’s continued leadership on stormwater management is not included.
- Tom M. asked if the sounding board will be able to suggest a reconfiguration of the system, such as relocating a supply well. Amanda said she’s open to hearing and documenting feedback, but noted that it can take a long time to change water rights. For the time being, the city needs to figure out a protection plan for the current configuration. Tom M. responded that reconfiguration might be part of the solution and it would be beneficial to get these ideas in front of the city’s leadership in order to start the process. Mike added that moving a well upstream of downtown could reduce some of the protectionary impacts to downtown.
- Tom S. asked if the existing water infrastructure is adequate to cover the predicted growth. Amanda said the city pumps their wells almost to their maximum water right during the summer months. If the demand increases, they’ll need to purchase more water from the Tolt Reservoir. Tom S. asked about the cost of purchasing water versus producing water. Amanda said she will calculate this for the next meeting.
- Robert asked if Amanda could provide numbers for what the city pumps now versus where they want to go so they could weigh the environmental versus economics impacts. Amanda said she would see what she could provide for the next meeting.
- Clarke noted that the criteria currently only refer to downstream impacts and should also include upstream impacts.

Sarah and Amanda will work to revise the list of guiding principles and criteria based on this feedback. At future meetings, the group will use the tracker document to further dive into the details.

WHP zones regulations

Amanda provided a refresher on the Redmond aquifer and background information presented at the previous meeting.

Several members asked questions about groundwater flow. Amanda explained that the flow is caused by a change in elevation or a change in pressure. If the aquifer water is not captured by one of the wells it flows into the Sammamish river or continues to flow north up the Sammamish River Valley. If there were more infiltration from downtown, the groundwater elevations would be higher and the water could move slower. In this case, the time of travel zones may be shorter.

Amanda passed out a table of regulations associated with the WHP zones and walked through a few examples. She clarified that this list is not comprehensive, but includes the regulations that are most common.

Mike asked if there were regulations on septic takes in WHP zones. Amanda explained that septic tanks are regulated through the utilities and not the WHP program. However, new septic tanks are not allowed in a WHP zone. The city has a map showing the location of septic tanks.

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Setting modeling “dials”

Amanda presented results from two model runs that used the level of service bookends. These results display the range of impact on the zone delineation and do not include policy buffers. The model assumptions for the bookend runs include:

	Pumping rates	Effective porosity	Climate change
Proactive level of service, low risk tolerance	Pump at full water right year-round plus 10%	0.15	Climate projections that predict more precipitation
Reactive level of service, high risk tolerance	Pump at the Water System Plan demand forecasted to 2027	0.25	Climate projections that predict a longer dry season

Robert noted that using the system demand forecast for 2027 as the reactive bookend seems problematic. Amanda explained that water system plan identifies a 1.6% increase in water demand per year. For the model, they calculated this increase over 10 years. The city currently pumps near their full water right for the summer season, so this increase only applied to the shoulder seasons. Robert expressed interest in the city creating a policy regarding water conservation, separate from the modeling effort, and was concerned about the city increasing the amount of water they pump.

Amanda presented the model results overlaid across the existing WHP zones. Based on the results, two new industrial parcels would potentially be impacted (though Amanda plans to confirm whether these parcels are already regulated). Tom S. asked about an area that appears to be impacted to the north. Amanda explained that those parcels are part of King County and the city does not have jurisdiction to regulate them. Eric explained that King County takes the WHP zones into consideration when determining their requirements.

Sarah opened the floor for discussion on the model results:

- Bart noted that the proactive and reactive model runs looked quite different and asked for clarification about the buffers. Amanda agreed that the runs are different with no buffers, but once buffers are added the two would likely become very similar.
- Joe asked if the city had a model run that was between the two bookends. Amanda explained that so far, they’ve only run these two scenarios, but they could look at a median run.
- Bart noted that the assumptions used by the model are really important and the city should be careful about applying buffers on top of buffers. Amanda acknowledged that the additional 10% pumping could be considered a buffer, although it’s not a policy buffer. She explained that effective porosity changes the length of the zones, pumping changes the width, and climate change has minimal impacts on zone delineation.
- Tom S. asked what data were used to create the original zones. Amanda answered that the model was created in the late 1990s and did not consider the interaction between surface

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water and groundwater. The new model also has a larger domain and uses better information on the region’s geology.

- Sarah asked the group if they were okay moving forward with the results based on the proactive assumptions or if they would like to see another model run.
- Joe said he would like to see the median model run to understand how it is affected by the buffers.
- Clarke said he would like to see more about the two industrial parcel impacted by the new run. Amanda said she will look into this.
- Bart explained that he would also like to see the additional model run, and then see the buffers applied.
- Mike cautioned that to increase predictability, they should make sure the zones aren’t too reactive (or small) and have to be readjusted in 10 years. This would support selecting the more proactive model bookend.

Sarah asked the group to reevaluate where they stand on the model risk tolerance scale. The group was distributed between ratings of 3 and 5, with an average of approximately 4:

Rating	Sounding Board Initial Rating
5 – Most protective / proactive	Three members
4	One member
3.75	One member
3.5	One member
3 – Balance proactive / reaction	Two members
2	
1 – More reactive	

Amanda asked the group what model assumptions they would like to see used in a third run. After some discussion, the group agreed to use the following assumptions for the next run:

Pumping rates	Effective porosity	Climate change
Full water right year-round	0.15	Median climate change impacts

The groups also requested that Amanda present the next model results as a line overlaid on top of the other results for easier comparison.

Understanding policy “dials” and buffers

Amanda transitioned to a discussion on policy buffers. She explained that changes to the alluvial aquifer system can impact the travel time even if they are outside of the travel bands delineated by the model.

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She presented examples from Vancouver, WA, and Renton, WA, which showed different approaches to identifying buffers.

Amanda noted three main reasons to consider buffers:

- Dewatering
- Impervious surfaces
- Stormwater/surface water conveyance

Tom M. asked if the model accounts for the current amount of impervious surface. Amanda confirmed that the model estimates the amount of impervious surface based on zone and use. She clarified that buffers could account for future increases in impervious surface.

Robert noted that this perspective does not consider conversion from bad development to good development. He said the buffer profile should encourage redevelopment that could improve existing structures and conditions. The city should avoid constraining redevelopment with overly restrictive regulations, because an unintended consequence could be preventing environmental gains through more environmentally favorable projects.

Tom M. asked for clarification on how dewatering would translate into a buffer. Amanda explained that temporary construction dewatering pumps out more gallons per minute than the wells' water rights. During a time of dewatering, the capture zones and groundwater flow can change and the wells may pull water from a new source area. This could be problematic if there was a contaminated site that usually sits outside the source area, but becomes part of the source area during dewatering. Contamination could be pulled into the city's water supply.

Amanda added that the city is currently doing model runs to better understand how much dewatering and subsurface structures impact the groundwater flow and the source area. This modeling should be completed by the end of the summer. The sounding board would like to consider these model results and the location of dewatering sites and contaminated sites as they develop policy buffers.

Outreach update

Sarah noted that the team is exploring ways to increase their outreach about this effort. Amanda explained that the timing didn't work to put an insert in the utility bills, but they created a *Focus* magazine article and will have a booth at the Redmond Derby Days.

Someone asked if the *Redmond Reporter* will be used to spread information. Amanda said they can pursue that option as well as social media. Sarah noted that the project team would also like to have a discussion with Clarke about reaching out to the industrial community.

Liz briefly introduced the online tool that accompanies this process. Sarah said she would send out the link to the sounding board so they can share it with their networks.

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Wrap up and next steps

Amanda quickly revisited the information requests and noted that she still needs to discuss how waterbodies affect the groundwater. Tom M. clarified that he's interested in knowing if the groundwater can cross waterbodies since the current zones cross creeks and rivers. He would also like to know where streams are gaining or losing groundwater.

Amanda asked if she had adequately addressed the question about reinjecting water into the aquifer from dewatering projects. Tom M. asked her if it was possible to use high pressure injection wells. Amanda explained that this is challenging because you are adding water into an area that you are trying to dewater, which usually doesn't work well.

Amanda noted that she still needs to show the policy changes that are associated with each level of risk tolerance and said she'd put together a matrix showing what applies to each of the five levels. Mike added that it would also be helpful to see what policy changes might be considered going forward.

Sarah and Amanda thanked the group for their participation. The next meeting will be mid- to late July and the facilitation team will send out a scheduling poll to determine the date.