

# Wellhead Protection Zone Sounding Board

## Meeting #3 Summary



**Time:** Wednesday, August 9, 2017 (1:00 p.m. – 4:00 p.m.)  
**Location:** Redmond City Hall, Trestle Conference Room  
15670 NE 85<sup>th</sup> Street, Redmond, WA 98073

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### Attendees:

Sounding Board Members and Alternates	Organization
Joe Skewis	Prototron Circuits
Eric Ferguson	King County DNRP
Tom Markl	Nelson Legacy Group
Mike Johnson	Neighborhood representative
Sophia Ressler	Puget Soundkeeper Alliance
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.

Sarah asked the Sounding Board to share what they've heard from their colleagues about this process. The following comments were shared:

- Eric noted that most of his King County colleagues are interested to see the direction Redmond will take with its wellhead protection
- Joe has not heard feedback on the business side, but has heard from community members that they really like the greenbelts around Bear Creek
- Clarke is working to setup meetings with the industrial community
- Mike has had a few conversations and did not hear many concerns
- Tom has heard very little and thinks there's low awareness about the process

Gary Schimek gave a brief update on the three related planning processes that the Public Works Department is pursuing. These include the following:

- Wellhead Protection Zone (WHP) delineation Sounding Board
- Low Impact Development (LID) Business Case
- Temporary Construction Dewatering Business Case

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All three projects have connection to the groundwater model and include a stakeholder involvement component. The LID project team just completed a preliminary business analysis on roof runoff in relation to stormwater permits and will be sharing that information with the LID stakeholder group. The dewatering project may include a stakeholder group in 2018. Amanda noted that she is still working with the Cascade Water Alliance (CWA) to get details on the cost of purchasing water.

### Information requests

Sarah reviewed a list of information requests received during the last meeting. She explained that the city has created a matrix (*Relationships to Other Regulations, Policies, and Planning Processes*) to explain relevant current regulations and to help participants navigate between related processes. The matrix will be updated, as needed.

- Tom asked if there are any plans to reexamine the conservation programs in the future.
  - Amanda noted that the city's Water System Plan update is starting next year and includes conservation. Information about conservation discussed by the Sounding Board will be shared with the plan update team. She also noted that the current water conservation goals come from the CWA.

### Guiding principles and criteria

Sarah shared the updated guiding principles and criteria document that incorporates the Sounding Board input from the last meeting.

- Sophia asked if there is any documentation on how to quantify costs versus benefits.
  - Amanda explained that some of this is still being further developed.
  - The WPZ Sounding Board will not go through a business cases study like the LID process.
- Tom noted that the mayor recently discussed a vision to concentrate development in Downtown and Overlake; Tom thought it would be important to capture this in the principles.
  - Becky explained that part of her role is to make sure the comprehensive plan, which includes this vision, is reflected in all of the city's work.
  - The project team will bring relevant information to the fourth meeting regarding the comprehensive plan vision.

### Model results

#### *Groundwater / surface water interaction*

Amanda acknowledged a lingering question about how groundwater and surface water interact. She presented maps from a study by Ecology that showed the Sammamish River gaining groundwater in eight of nine locations. Groundwater was only lost in one location during a major flooding event.

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### *Model calibration to level “4.0”*

Next, Amanda presented results from the model run using the new model dials calibrated to the Sounding Board’s recommended 4.0 rating (on a scale of 1 = more reactive to 5 = most proactive). With these model dials, 35 residential parcels would change from WHP Zone 3 to Zone 2, and no new industrial parcels would be impacted. There would not be discernible impacts on residential properties that experience a zone change, as education and outreach are the primary tools used to address those parcels, which already happens city wide.

### Discussion:

- Tom asked why the city would establish protections on the west side of the Sammamish River when the Ecology study showed the river gains groundwater.
  - Joe noted that his business on Willows Road works with a lot of chemicals. Even though a spill would be negligible, there may be political reasons to protect and extend the buffer zones so those businesses handling chemicals are monitored.
  - Amanda noted that it’s also important to consider changes to the natural flow of groundwater and reminded the Sounding Board about the additional buffers. Dewatering can change groundwater flows, impervious surfaces can impact aquifer quantity, and stormwater/surface water conveyance can transport water into tributaries that can impact the aquifer.
- Mike noted that based on the Ecology study, the last buffer may not be necessary. Amanda pointed out that this is true for the Sammamish River, but less information is known about Bear and Evans creeks, and they may contribute water to the aquifer.

### **Policy dials and buffers**

#### *Temporary construction dewatering*

Amanda presented a map showing the 6-month time of travel under natural groundwater flow. Next, she presented a map showing an aggressive dewatering project and how this altered the groundwater flow.

- Tom asked what data were used to calibrate and test the model.
  - Amanda explained that the city has data on how much water construction projects are pumping and the depth they are dewatering.
  - The city did not use dewatering project data to calibrate or validate the model. Instead, the city used a decade of field data for calibration and validation.
  - Eric added that the amount of precision achieved by the model is very high.
- Mike asked why Well 4 had a big disparity between the  $Q_a$  (annual pumping) and  $Q_i$  (instantaneous pumping) values.

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- Amanda explained that the geology causes some of this difference. Evans Creek is a glacial outburst channel and highly transmissive deposited in the vicinity of well 5. In contrast, historic aerial photography shows an oxbow in the river in the vicinity of well 4 that likely resulted in finer grains deposits.

Amanda presented four more model outputs from dewatering projects showing changes in the groundwater flow.

- Tom suggested that the dewatering buffer should be based on the model results and not be a uniform distance added to the entire area.
- Tom also asked if it made sense for the city to continue to maintain Well 4 since it is most impacted by dewatering.
  - Amanda agreed that moving the well would make it easier for development, but noted that it can take decades to change the water rights and relocate a well. She said the city is opening this conversation but will not be able to do anything immediately.
  - Several board members agreed that moving Well 4 would be advantageous to consider for the future.

Amanda proposed a buffer for dewatering that would include the increased flow areas from the case studies. She noted this would probably be a level 3 on the risk tolerance scale.

- Joe stated that he would like to know the growth plan within the city limits before committing to that buffer. The depth of the dewatering should be a key factor. If there's something in the code that only allows dewatering to go 10 feet down, then the city should only use that depth.
- Tom explained that the code does not allow for permanent dewatering and there is no regulation on dewatering depth. However, there's a natural impediment that keeps developers from going any deeper.
- Eric noted that permanent dewatering is allowed outside of WHP Zone 2 and that the group is considering shrinking Zone 2.
  - Amanda suggested that no permanent dewatering be permitted in the Critical Aquifer Recharge Area (CARA).
- Tom asked if time of year impacts the dewatering flow.
  - Amanda explained that they started most of these projects in the summer in the model run, but the projects continued into the fall. In the winter, these project draw water from a greater distance due to a steeper gradient in the groundwater.
  - Joe suggested including a seasonal component to dewatering regulations.



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### *Stormwater/surface water conveyance*

Amanda presented three levels of service for the stormwater/surface water conveyance buffer. These buffers would not be part of the WHP Zone 2; instead, these would be an entirely different layer of protection that would focus on business inspections.

- Level 5 would include the Bear and Evans Creek watershed.
- Level 4 would include the Redmond-Bear Creek Groundwater Management Area (GMA).
- Level 3 would include Bear and Evans Creek watersheds within the Redmond-Bear Creek GMA.

### Discussion:

- Clarke asked if these would be new business inspections.
  - Amanda explained that most of these areas are getting inspections already. In King County, they are National Pollutant Discharge Elimination System Phase 1 and are inspected. However, Redmond does inspections different than other jurisdictions.
- Tom asked if there would be restrictions on use in these areas.
  - Amanda noted that the city is uncertain at this time, but is leaning towards not adding restrictions.
- Clarke clarified that this would require businesses that aren't already inspected to have a spill plan and secondary containment in place, which can be costly.
  - Amanda noted that she hasn't looked at which businesses may be impacted, but she thinks the impacts would occur in King County and not in Redmond.
- Mike noted that it may be helpful to change the language since this area wouldn't be an actual "buffer."
- Tom asked if the city has jurisdiction to regulate these areas outside the city limits.
  - Amanda explained that Redmond would have to negotiate with King County in these cases.
- Tom asked how these regulations would impact Education Hill which is mostly residential.
  - Amanda explained that as long as someone isn't operating a business out of their home, the buffer would not impact them.
- Joe asked about the timeline for businesses to meet the requirements.
  - Amanda explained that the last time the City made a change like this, they gave businesses five years.

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- Clarke noted that five years may not be reasonable based on his past experiences with permitting and constructing additions to comply with WHP and groundwater ordinances.
- Sophia asked if the city has looked at the economic impact or staff time associated with these different buffers.
  - Amanda replied that they have not at this point. The city does business inspections city-wide but focuses on WHP zones.

Amanda asked the group to share their initial thoughts on these options. The following ratings and comments were shared:

Rating	Description	Sounding Board Initial Rating
5	Bear and Evans Creek watershed	One member
4	Redmond-Bear Creek Groundwater Management Area (GMA)	No members
3	Bear and Evans Creek watersheds within the Redmond-Bear Creek GMA	Two members
2		One member
1	No buffers for stormwater infrastructure	One member

- Tom was leaning towards a 3, especially because Education Hill is outside of the watershed boundary.
- Mike said a 3 or less, noting that this buffer seems overly aggressive and less grounded in scientific information. He suggested using a distance around each creek where contamination could realistically enter the surface water as a buffer.
- Sophia would like to know how many businesses are included in each buffer and would support the one that includes the most businesses.
- Clarke would like more information on the business impacts and costs before answering.
- Joe suggests staying in alignment with King County and adjacent water districts to make enforcement more feasible.
- Eric was unsure if King County would be able to increase inspections in the area and was leaning towards a 1.

### *Impervious surfaces*

Amanda explained that the third buffer, impervious surfaces, is designed to protect water quantity not quality.

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- Level 5 would be the CARA which is a culmination of WHP Zones 1-3.
- Level 4 would be the Redmond-Bear Creek GMA.
- Level 3 would use moderate and high soil susceptibility to define a critical recharge area. This is the area where 85 percent of recharge happens in the months with precipitation.

### Discussion:

- Tom noted that Downtown is not considered critical to aquifer recharge and the city is allowing 100 percent lot coverage.
  - Amanda said the city modeled one square mile of impervious surface as part of the LID work and it had very little impact on recharge. However, if the city continued to allow this paving in the entire recharge zone, they would lose recharge. The key objective is to maintain recharge in the area as a whole.
- Mike asked what the city is planning to do with this designated area.
  - Amanda explained that they need to maintain infiltration of this areas as a whole and acknowledge that they will have to give up some areas. However, it is possible to get more infiltration in a developed area than a green space.
- Tom noted that simply using soils seems inaccurate. Some areas are impossible to infiltrate because of high winter groundwater or proximity to the Sammamish River.
- Mike would prefer to create an area based on physical characteristics, then acknowledge that some policies may not apply.
- Eric suggested buffering the city. In the county areas, the city will have no control. Redmond could compare the current county CARA coverage relative to the city.

Amanda thanked the group for the input and said they would continue some of these discussions at the next meeting.

### Next steps

The next meeting will likely be in September. The facilitation team will send out a scheduling poll to determine the next meeting date.

The following action items and questions were also captured for further discussion:

- Check the validation run for the model regarding temporary construction dewatering results.
- What are the growth plans within the city limits?
- How many businesses would experience new requirements or other impacts per the buffers discussed?

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- What other jurisdictions border the GWM area? Are there border or coordination issues to consider?
- What is the Mayor's vision for Redmond / Overlake, and should alignment be added to the guiding principles? Bring information from the comprehensive plan to next meeting.
- Questions remaining from past meetings:
  - CWA cost of water
  - Definitions of costs / benefits