

*Appendix C*

*Public Involvement and Participation*

---





**City of Bend**  
**Stormwater Public Advisory Group (January 2017)**

CITY OF BEND

|    | Last name                 | First Name | Organization                                  | Representing                                    |
|----|---------------------------|------------|---|---|
| 1  | Anderson                  | Katie      | Bend Chamber of Commerce                      | Business/Industry: Large                        |
| 2  | Palmer                    | Gretchen   | Palmer Homes                                  | Business/Industry: Small                        |
| 3  | Rich                      | Barbara    | Citizen, Richcraft Studios                    | Citizen At Large                                |
| 4  | Norgang                   | Galen      | DEA   | Consulting/Engineering                          |
| 5  | Headley                   | Tom        | Century-West                                  | Consulting/Engineering                          |
| 6  | Gustafson                 | Karna      | COBA  | Developers--<br>Excavation/Homebuilding         |
| 7  | Hart-<br>Henderson        | Chris      | Heart Spring Design                           | Developers--Landscape Architect or<br>Design    |
| 8  | Reuter                    | Ron        | OSU Cascades                                  | Environmental Group--<br>Education              |
| 9  | Richter                   | Joanne     | Upper Deschutes Watershed Council             | Environmental Group--Watershed                  |
| 10 | Ellington                 | Mark       | Bend Park and Recreation District             | Intergovernmental Coordination                  |
| 11 | Cleveland                 | Todd       | Environmental Health,<br>Deschutes County     | Intergovernmental Coordination                  |
| 12 | Klein                     | Lawrence   | Wylder Solutions, LLC                         | Neighborhood Association or<br>Citizen at Large |
| 13 | Ratliff                   | Krista     | Oregon Department of Environmental<br>Quality | Regulatory Liaison                              |
| 14 | Edde                      | Wendy      | Stormwater Program Manager<br>City of Bend    | Stormwater Staff                                |
| 15 | Buchanan                  | David      | Stormwater Program Analyst, City of<br>Bend   | Stormwater Staff                                |
| 16 | Sabourin                  | Garrett    | Project Engineer, City of Bend                | City Staff                                      |
|    | <b>Interested Parties</b> |            |   |   |
| 17 | Nichols                   | Rick       | COID  | Irrigation/Canals                               |
| 18 | Ockner                    | Gillian    | Senior Policy Analyst<br>City of Bend         | City Staff                                      |
| 19 | Rheault                   | Paul       | Utility Director, City of Bend                | City Staff                                      |
| 20 | Prazak                    | Steve      | Water Quality Manager<br>City of Bend         | City Staff                                      |



# Stormwater Quality

## Public Advisory Group Meeting

Wednesday, October 26, 2016

8:00 AM – 9:30 AM

City Utility Annex—Eisenhower Conference Room  
62975 Boyd Acres



### Proposed Agenda

- I. **Welcoming Remarks and Introductions**, All, 5 minutes  
*Objectives: Introductions, review agenda; provide comments on June meeting summary.*
- II. **General Updates**, All, 10 min.  
*Objectives: Receive updates on Stormwater Program activities since our last meeting including regulatory issues (e.g. NPDES permit reissuance; UIC permits), infrastructure improvement projects; UIC retrofit project update, summer outreach, Clean Water Works Partnership Program timeline revision, new compliance technician position, etc.*
- III. **Review: DRAFT FY2015-16 Annual Report** All, 15-20 minutes  
*Objectives: Provide comments on draft FY2015-16 Annual Report, a final version of which is due to Oregon DEQ by November 1, 2016.*
- IV. **Sweeper Efficiency Discussion**, Wendy, All, 10-15 minutes  
*Objectives: Review and help refine ideas to improve street sweeping efficiency*
- V. **Monitoring Program**, All, 10-15 minutes  
*Objectives: Review current monitoring program and discuss potential special projects.*
- VI. **Future Meetings Preparation: Long term Drainage Post-Construction Controls in an Increasingly Densifying Environment**, All, 10-15 minutes  
minutes  
*Objectives: Receive introduction to topic issues and discuss next steps.*
- VII. **Upcoming Trainings**, Wendy, 5 minutes  
*Objectives: Review upcoming trainings; discuss additional needs.*
- VIII. **Roundtable Discussion**, All, 5-10 minutes  
*Objectives: Open discussion, sharing of ideas.*

City of Bend  
Stormwater Quality Public Advisory Group  
Meeting Attendance Sheet  
October 26, 2016

| Name:                   | Organization:                  | Check if Yes, request final AR hardcopy:           |
|-------------------------|--------------------------------|--|
| 1. Wendy Eide           | City of Bend                   | <input checked="" type="checkbox"/>                |
| 2. Tom Headley          | Century West Engineering       | <input checked="" type="checkbox"/>                |
| 3. Christhart-Henderson | Heart Springs Landscape Design |  |
| 4. Steve Prazak         | City of Bend                   |  |
| 5. Jeff Buystedt        | COB                            |  |
| 6. Ron Reuter           | OSU                            | switch address to<br>1500 SW Chandler Way<br>97702 |
| 7. Karina Gustafson     | CBA                            |  |
| 8. Gretchen Palmer      | Palmer Homes                   |  |
| 9. Barbara Rieh         | Riehcraft Studios              | <input checked="" type="checkbox"/>                |
| 10. Todd Cleveland      | Deschutes Co. EDD              |  |
| 11.                     |                                |  |
| 12.                     |                                |  |
| 13.                     |                                |  |
| 14.                     |                                |  |
| 15.                     |                                |  |



CITY OF BEND

## Stormwater Quality

### Public Advisory Group Meeting

Wednesday, October 26, 2016

8:00 AM – 9:30 AM

#### Attending

Todd Cleveland (Deschutes County); Tom Headley (Century-West), Kelly Walker (Resonant Agency), Chris Hart Henderson (Heart Spring Design), Joanne Richter (UDWC); Krista Ratliff (DEQ), Wendy Edde (City of Bend)

#### Key Items Discussed

- **General Updates:** DEQ released the statewide NPDES MS4 Phase II permit for a 35 day public review in July and early August. Several comments were received and DEQ is currently evaluating the comments and next steps. The City has been moving forward on the drywell retrofit project—and is evaluating the first year dry-well catch-basin inserts incorporating a 36” sump in freeze-thaw conditions for quality assurance before purchasing additional. They appear to be performing well with the ring welded on for more support. Other infrastructure improvement projects for stormwater include the Awbrey Butte study, and drill hole reconditioning. The City is postponing the Clean Water Works Partnership Program until 2017 given the lack of contest entries making the original kick-off date obsolete. The City is in the midst of conducting interviews for the new stormwater Environmental Compliance position.
- **Future Meetings Preparation: Long term drainage Post-Construction Controls in an Increasingly Densifying Environment:** Wendy introduced the concept of having the PAG meet bimonthly and examine the strategies Bend uses to handle stormwater in light of the recent UGB passage that includes plans for Bend to increase in density by 67% over the planning period. Concepts to be evaluated will include lot level, neighborhood scale, and regional solutions, and considerations such as our geology.

On the near term, Karna provided an overview of the Central Oregon Builder Associations concerns about onsite drainage reviews for residential properties. COBA has been working with Community Development Department personnel to formulate solutions to procedural project delays. But there is also interest to examine abilities to keep stormwater on site in situations with larger lot coverage and smaller lots.

- **Annual Report.** The PAG reviewed the draft annual report and provided comments for improving the report and the program.
- **Street Sweeping Efficiency.** City staff are working together to determine ways to improve Street Sweeping Efficiency. Concepts being considered include finding ways to clear streets of cars (via email notification, or voicemail notification, or sign boards).
- **Monitoring Program.** City staff walked through changes to the UIC monitoring program plan related to Changes in the sub-contractor changing for laboratory services, which requires revisions to the sample container sizes, shipping procedures, and chain of custody form; the need to change a sampling location on the Boyd Acres Corp Yard site to the UIC at the low point on the site due to the installation of a drywell insert; and removing temperature, PH and connectivity analytes from the monitoring plan and changing flow monitoring to optional as they were not required by the WPCF permit.
- **Trainings.** The City recently participated in a rain garden workshop, with Chris Hart-Henderson's assistance, and a stormwater tour as part of the Pacific Northwest Clean Water Agency conference. The City is providing year-end on-demand webinar trainings again this year, focused on erosion and sediment control and post-construction controls. The City is planning to host a Certified Erosion and Sediment Control Lead training in early 2017.

### **Key Decisions Made/Key Action Items**

- The next meeting will focus on near-term solutions to stormwater drainage procedural and lot sizing drainage issues. Future meetings will focus on a series of post-construction control strategies. The goal will be to hold regular meetings every other month.
- Wendy will work to fill vacancies prior to the post-construction meeting series kick-off.
- The City will make modifications to the annual report and send the final to DEQ by the November 1 regulatory deadline.



## Stormwater Quality

### Public Advisory Group Meeting

Thursday, February 2, 2017

1:30 PM – 3:00 PM

**City Utility Annex—Eisenhower Conference Room  
62975 Boyd Acres Rd.**



CITY OF BEND

### Proposed Agenda

- I. **Welcoming Remarks and Introductions**, All, 5-10 minutes  
*Objectives: Introductions, review agenda; provide comments on June meeting summary. Welcome new members. Introduce City's new Stormwater Utility Program Compliance Specialist, Sean Mulderig.*
- II. **General Stormwater Updates**, All, 5-10 min.  
*Objectives: Receive updates on Stormwater Utility activities since our last meeting: annual report submittal; NPDES permit reissuance status; monitoring plan; budget; UIC Retrofits; Awbrey Butte Drainage Study, private database development, Clean Water Works Partnership Program; public outreach pieces, sweeper efficiency.*
- III. **Waterwise Landscape Manual and Irrigation Dry Weather Flow Reduction Activities**, Michael Buettner, 5-10 min.  
*Objectives: Receive final guide that PAG reviewed last spring and brief overview of City's efforts to increase irrigation efficiency and reduce overspray that leads to dry weather flows and water waste. Receive update on additional new guides under preparation.*
- IV. **Certified Erosion and Sediment Control Lead Training**, 5 min.  
*Objectives: Receive brief update on upcoming CESCL training open to public and City staff, coming up February 27<sup>th</sup>-28<sup>th</sup>. Brief discussion on what problem areas PAG members are seeing that would be good to address/emphasize in the training.*
- V. **How Stormwater Drainage is Handled in Bend**, Wendy Edde, 10 min.  
*Objectives: Receive a brief overview of how stormwater drainage is handled in Bend, given our geological and climatic influences, and regulatory compliance needs. This presentation will provide a baseline understanding as we discuss post-construction controls and future strategies over the coming months.*
- VI. **Review 2017-2018 PAG Schedule and Focus** All, 5-10 min.  
*Objectives: City staff have outlined a schedule for future meetings on a bimonthly basis. Discuss content and timing. Agree to standing meeting date.*

VII. **Near Term Residential Drainage Inspection Compliant and Proposed Solution Discussion**, Joe McClay, Ryan Oster, Karna Gustafson, Russ Grayson, All 30-40 min.

Objectives: Understand drainage review process and goals, concerns regarding, and steps taken to date to address. Provide input on benefits of, areas still needing consideration, and ideas for consideration to resolve any outstanding issues related to proposed approach (-es).

VIII. **Meeting Effectiveness Check-in/ Roundtable Discussion**, All, 5-10 min.

*Objectives: Review what worked and areas to improve for next meeting.*

*Open discussion, sharing of ideas.*



CITY OF BEND

City of Bend  
Stormwater Quality Public Advisory Group  
Meeting Attendance Sheet  
February 2, 2017

Name: Organization: Place Checkmark if Public Attendee:

- 1. RYAN OSTER COB ✓  
David Zarate Jr. N/A ✓
- 2. Todd Cleveland Deschutes County CDD
- 3. David Buckner City of Bend
- 4. Dennis Collins Stormwater Services
- 5. Greg Bridges Stormwater Services
- 6. Rondo
- 7. Lawrence Klein Wylder Solutions ✓
- 8. Steve Prazak City of Bend
- 9. ~~Sean~~ Sean Mulderig City of Bend
- 10. Gillian Oesterer city of Bend
- 11. Mike Bortner city of Bend
- 12. Wendy Stille City of Bend
- 13. Gretchen Palmer Palmertomas
- 14. Katie Anderson chamber ✓
- 15. Karra Gustafson COBA
- 16. Krista Petraf DEQ
- Barbara Rich N/A ✓
- Jim Lord Ashby & Vance Engineering ✓

OVER



17. Tom HEAREY CENTURY WEST ENGINEERING

18.

19.

20.

21.

22.

23.

24.

25.



CITY OF BEND

## Stormwater Quality

### Public Advisory Group Meeting

Thursday, February 2, 2017

1:30 PM – 3:00 PM

#### Members and City Staff Attending

Katie Anderson (Bend Chamber/Aperion Management Group), Gretchen Palme (Palmer Homes), Barbara Rich (Citizen at Large), Karna Gustafson (COBA), Lawrence Klein (Wylde Solutions), Todd Cleveland (Deschutes County); Tom Headley (Century-West), Krista Ratliff (DEQ), David Buchanan, Mike Buettner, Wendy Edde, Brad Mandal, Sean Mulderig, Gillian Ockner, Ryan Oster, Steve Prazak (City of Bend)

#### Key Items Discussed

- **General Updates:**
  - Sean Mulderig was introduced as the City's new Stormwater Program Utility Compliance Specialist. His work will focus on assisting with inspections for erosion and sediment controls, and post-construction controls operation and maintenance verification.
  - City submitted the Stormwater Annual report by the November 1 deadline and also received approval from DEQ for the changes to the UIC Monitoring Plan that the City submitted last fall—the changes were in response to (a) need to move one location at the Utility corporation yard due to a conflict with an open grate UIC upgrade; (b) changes as a result of changing lab; and (c) removal from the plan of optional items not required by permit.
  - City staff have been working on next year's budget and that process will continue to higher levels including Budget Committee and Council review through the spring.
  - UIC Drywell Open Grate Retrofit Project—City has installed 26 upgrades with a drop-in catch-basin (36-inch sump) to date. The City has tracked these through cold and wet weather as part of a quality assurance process, and is happy with the results given some in-field adjustments crews are able to make. The City will be placing another order soon.
  - Awbrey Butte Drainage Study. Staff provided an overview of this study and how it ties in with the need to replace the Newport stormwater line.
  - City is working to hire a temporary employee to help compile existing data in developing a private stormwater facility database to help (a) know locations for protection during emergency situations, and (b) to help refine our understanding of the amount of stormwater being managed by means other than public discharge to the river.

- City is working to kick off the 2017 Clean Water Works Partnership Program in April with Earth Day. Student video and poetry contests are occurring with an April 29 due date. The program will focus on similar partners as the original but we are looking to increase reach to RV rental/dealers, landscapers, and pressure washers as well.
- **Waterwise Landscape Manual and Irrigation Dry Weather Flow Reduction Activities.** Mike Buettner provided a one page overview of the water conservation program and distributed copies of the Waterwise Landscape Guide that the Public Advisory Group had reviewed a draft text version of in 2016. Mike indicated that 40 of the City's water supply is used for irrigation. The water conservation program is working towards code changes in 2017, and continuing their sprinkler inspection program, which helps reduce dry weather flows that can pick up and carry pollutants to the storm drains. They will also conduct outreach to landscape contractors and are working on additional educational materials. Karna (COBA) expressed interest in potentially reducing landscaping requirements which she indicated would help reduce irrigation water needs.
- **Certified Erosion and Sediment Control Lead Training.** The training is open to the public and City staff, and will take place February 27-28. The training includes an in depth overview of erosion and sediment control needs and best management practices both in classroom and with a field component. The certification is good for both Washington and Oregon for three years.
- **Overview of How Stormwater Drainage is Handled in Bend.** Presentation provided a baseline overview of how stormwater is handled in Bend, including piped system to the river, underground injection controls, and surface infiltration.
- **Review 2017-2018 draft PAG Schedule and Focus.** Attendees reviewed a handout for key focus topics and standard meetings for the upcoming years. Attendees discussed best meeting times and days. The PAG group is proposing to change from an as needed basis, to a schedule every other month on a fixed day schedule. The plan is to meet for the next year and a half to review the onsite drainage requirements and options available. Site tours may be included.
- **Near Term Residential Drainage Inspection Complaint and Proposed Solution Discussion.** Ryan Oster (City Engineer) and Karna Gustafson (COBA) provided an overview of recent efforts address concerns brought by COBA regarding City inspection review of onsite drainage facilities. City is working with COBA. Smaller lots, more density and a couple field experience issue have risen to the surface.

Per Bend Code Title 16, single family residential/duplex developments adding 5,000 sf need to submit a drainage submittal to manage that stormwater. There are additional instances where a drainage submittal is required for duplex or single family including if the project part of a land division or a phased development, if the project proposes a UIC facility, or if a clearing, grading and erosion control permit is required.

The permit process for reviewing those plans can slow down Certificate of Occupancy from being issued as the contractor modifies the onsite drainage plan for necessary in-field adjustments (e.g., since the plans are so rudimentary they do not include key items such as topographical information. This can result in a plan showing an infiltration swale at the high point of the lot.) The loss of time has been costly for developers, so COBA approached the City.

Ryan Oster indicated that short term solutions discussed include:

# Stormwater Quality

## Public Advisory Group Meeting

Thursday, April 6, 2017

10:10 AM – 12:00 PM

**Deschutes County Library—Brooks Room**  
**601 NW Wall Street**



### Proposed Agenda

- I. **Welcoming Remarks and Introductions, All, 5-10 minutes**  
*Objectives: Introductions, review agenda; provide comments on February meeting summary.*
- II. **Near Term Residential Drainage Inspection Compliant and Proposed Solution Update, Ryan Oster 5-10 min.**  
*Objectives: Understand status and changes to drainage review process and goals, concerns regarding, and steps taken to date to address*
- III. **Post-Construction Stormwater Controls—Overview of Scales and Problem Definition, Wendy Edde, 15 min.**  
*Objectives: Review goals. Receive a brief overview of the three scales of long-term stormwater drainage facilities that the PAG will be considering in the upcoming months. This presentation will provide a baseline understanding as we discuss post-construction controls and future strategies over the coming months.*
- IV. **Post-Construction Stormwater Controls and UGB Changes—Filling out the Problem Definition, All, 45-50 min.**  
*Objectives: Frame and define the problem(s) and underlying causes related to planned increases in density related to stormwater management. Discussions will lead to improved understanding of potential obstacles and potential options.*
- V. **Review Revisions to 2017-2018 PAG Schedule, Wendy, All, 5 min.**  
*Objectives: City staff have outlined a schedule for future meetings on a bimonthly basis. Discuss revisions to timing.*
- VI. **General Stormwater Updates, All, 5-10 min.**  
*Objectives: Receive updates on Stormwater Utility activities since our last meeting: Clean Water Works Partnership Program; NPDES permit reissuance status; UIC Retrofits; CIP projects, private database development, CESCL Training results, upcoming training opportunities.*
- VII. **Meeting Effectiveness Check-in/ Roundtable Discussion, All, 10 min.**  
*Objectives: Review what worked and areas to improve for next meeting. Open discussion, sharing of ideas.*



CITY OF BEND

City of Bend  
Stormwater Quality Public Advisory Group  
Meeting Attendance Sheet  
April 6, 2017

| Name:                   | Organization:        |
|-------------------------|----------------------|
| 1. Wendy Elde           | Utility - Stormwater |
| 2. Lawrence Klein       | Wylder Solutions     |
| 3. Brad Mandal          | COB - SCDD           |
| 4. Garrett Sabourin     | COB - EIPD           |
| 5. Joanne Richter       | UDWC                 |
| 6. Dawn Beuhm           | COB                  |
| 7. Karna Gustafson      | COB/A                |
| 8. Chris Hart-Henderson | OLCA                 |
| 9. MARK BLINBSON        | BPRD                 |
| 10. Gillian Ockner      | COB                  |
| 11. RYAN OSTER          | COB                  |
| 12.                     |                      |
| 13.                     |                      |
| 14.                     |                      |
| 15.                     |                      |
| 16.                     |                      |





CITY OF BEND

## Stormwater Quality

### Public Advisory Group Meeting

Thursday, April 6, 2017

10:10 AM – 12:00 PM

#### Members and City Staff Attending

Joanne Richter (UDWC), Karna Gustafson (COBA), Chris Hart-Henderson (Heart Springs Landscape Design), Mark Ellington (BPRD), Lawrence Klein (Wylde Solutions), David Buchanan, Wendy Edde, Brad Mandal, Gillian Ockner, Ryan Oster, Garrett Sabourin (City of Bend)

#### Key Items Discussed

- **General Updates:**
  - Clean Water Works campaign is scheduled to kick off on Earth Day (April 22, 2017). The City is scheduled to host a booth downtown at the Environmental Center Earth Day Fair and Parade. Stormwater staff will be handing out discount cards and working with OSU Graduate Students to mark storm drains with the “Do Not Dump” markers.
  - The City has contracted with a local graphic designer to develop several new fact sheets including; RV Waste Disposal, Pressure Washing and How to Select a Landscaper. Copies of the fact sheets were handed out to the attending PAG members.
  - The NPDES MS4 permit re-issuance is still under negotiation with Oregon DEQ. A new public draft version of the proposed general permit is currently scheduled for release at the end of September 2017.
  - The City is working to develop a private stormwater facility database. A temporary employee is currently reviewing private drainage plans and entering stormwater facility data into database along with coordinate data. Once complete the data will be uploaded into a GIS layer.
  
- **Near Term Residential Drainage Inspection Compliant and Proposed (Ryan)**

The City has a long-term goal of developing revised guidelines for residential stormwater controls. Infill projects with smaller lots are making it harder to keep stormwater onsite. City staff have identified some procedural issues with the existing residential stormwater inspection process that have resulted in delays. Builders are having projects delayed due to in-field changes made to the approved drainage plan. This interim process is design to fill the gap and transfer liability of those changes to the contractor. The City hopes to officially implement the revised process in the near future. Prior to finalizing the process, Karna would like to present the draft memorandum at the next COBA meeting.

- **Post-Construction Stormwater Controls—Overview of Scales and Problem Definition**

(Wendy)

Wendy gave an overview presentation on the varying scales of stormwater management including regional basin, neighborhood/street, and lot level design considerations. She showed several examples of regional stormwater retention ponds, street level planter boxes and on-site rain gardens; along with geologic and climatic considerations. With the upcoming UGB changes and smaller lot requirements, stormwater is going to play larger role in shaping development. The presentation focused on the importance of accurately and thoroughly defining the problem and set up the group exercise.

- **Post-Construction Stormwater Controls and UGB Changes**

**Filling out the Problem Definition**

Wendy provided a brief overview on the group exercises, designed to help the PAG identify the stormwater problems associated with increasing density, what is causing the issues, and what is the effect. Several large paper pads were placed throughout the room and PAG members split up into five groups to examine the issue through different perspectives: Design/Builders, Property Owners, Operations and Maintenance, Environmental Quality, Public Safety. The results of this exercise have been attached for your review.

- **Key Questions and Answers**

- How will drainage information be carried through the subsequent property owners?
  - Commercial developments are required to have recorded stormwater maintenance agreements on the title. Residential needs improvement.
- It would be helpful if homeowners had access to drainage plans.
  - City staff will look into available options given current and upcoming software.
- Is there any way to notify new customers about stormwater facilities?
  - City utility staff are starting work on a new customer booklet/brochure that would be sent out to all new customers that might prove to be a vehicle for this.
- How do road cinders that City crews put down (for winter traction) affect water quality?
  - City switched from cinders to a crushed basalt about 8 years ago; this material is much harder and doesn't turn into dust. The City has sweeping and catch basin cleaning programs to remove this material. The basalt is currently reused.
- What is a TMDL?
  - A Total Maximum Daily Load (TMDL) is a regulatory term, describing a plan for restoring impaired waters that identifies the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.
- Would a goal to pave unpaved roads and alleys result in increased runoff?
  - Gravel roads are compacted and considered impervious. Gravel roads will have a slow time of concentration, but generate similar amounts of runoff; it just takes more time for it to reach the drainage structures. There are a lot of good pervious surface options that could be used on alleys, such as pervious pavements.

- **Meeting Effectiveness Check-in**

- Keep on topic, the first topic ran a little long.
- The group provided positive feedback on the group activity.

## Key Decisions Made/Key Action Items

- Attendees provided minor corrections to the February meeting summary. Wendy will make the changes.
- Next meeting is tentatively scheduled for June 1.
- Staff will work to improve communication of on site stormwater drainage facilities to subsequent landowners, especially for residential.
- Wendy asked the group if they would like to schedule an optional stormwater facility field visit in conjunction with the next meeting or would the group prefer it on the off month? The group consensus was to schedule the optional tour on the off month.
- Wendy will send out upcoming training opportunities.
- Wendy will send out the meeting group exercise to get input from public advisory group members who were not able to attend prior to the next meeting.
- The upcoming schedule of PAG meetings will be modified to examine regional controls first, then neighborhood, then onsite.

---

## Attachment - PAG Group Brainstorm Exercise Results

**Hypothesis: Increasing density will result in increased runoff and the associated problems if not properly addressed. What set of controls should the City promote/require to address in a pareto efficient and equitable manner?**

**Examine: what is the issue(s), what is causing the problem, what is the effect/opportunity**

### Design/Builders

- Affordable housing
- Lack of usable garden space
- Wheel chair accessibility
- Precipitation (historical vs. projected)
- Soil Capacity, rock, tuff, etc.
- One size does not fit all "codes"
- Code needs to address full variety of conditions.
- Readily available access to soil infiltration conditions and accompanied acceptable strategies
- Too many hard surfaces
- Lots too small, loss of usable outdoor space (swales)
- Impervious surfaces are connected directly to or on top of soil surface (tree house, stilt house & bridges)
- Last infill developer should not be responsible for entire pervious development stormwater
- Building codes limit potential solutions
- Snow storage areas are limited, not melt of areas

### Property Owners/ Lifecycle Issue

- Onsite drainage control awareness
- Useful life / Maintenance
- City vs. Owner Responsibility
- Individual site vs. regional controls
- Timing of drainage controls if SDC vs. onsite (private)
- Initial cost / limited space/ varying infiltration rates
- Alternative designs

### Operations and Maintenance

- Responsibility/ owner awareness
- Stormwater Maintenance Agreements (public/private interaction)

## Environmental Quality

- Too much impervious surface resulting in untreated stormwater going to the river and groundwater
- Water quality protection, need pre-treatment.
- Need more storage of stormwater (to meet water shortage needs)
- We don't charge enough to deal with stormwater treatment and volume control
- Need more incentives.
- Need more regional / neighborhood storage and treatment
- Need more pilot projects build by City (education opportunities)

## Public Safety

- Impervious surface → increases runoff volumes → road flooding
- Impervious surface → increases flow rates → road flooding
- Natural geology → lack of infiltration → increases runoff → road flooding
- Leaf litter → clogging of facilities → road flooding
- Soil/Sediment → clogging of facilities → road flooding
- Road cinders → clogging of facilities → road flooding
- Snow → clogging of facilities → road flooding
- Narrow grill hole → facility-types → clogging of facilities → road flooding
- Underground (out of sight out of mind) → facility-types → clogging of facilities → road flooding
- Facility placed in wrong location (high point) □ road flooding
- Not enough facilities/ undersized drainage area → road flooding
- Road flooding → Emergency staff operation center
- Road flooding → minimizes access
- Road flooding → contribute to accidents

# Stormwater Quality

## Public Advisory Group

### Regional/Neighborhood Facility Tour

Monday, May 15, 2017

9:00 AM – 11:30 AM

**Gather at: City Utility Annex—Lobby  
62975 Boyd Acres Rd.**



### Proposed Agenda

- I. **Franklin's Garden**, Cheryl Howard, COB Volunteer Coordinator, 9:10-9:20 AM  
*Objectives: Volunteer effort neighborhood facility—community garden, ADA, stormwater*
- II. **Bear Creek Swales and Craven Way Private Streetside**, 9:25-9:40 AM  
*Objectives: 100-year design, and O&M*
- III. **Third Street Neighborhood and Regional Controls**, 9:40-10:05 AM  
*Objectives: Capital Improvement Project: Integrated 55-acre Drainage Basin*
- IV. **River Canyon Estates**, 10:15 AM  
*Objectives: HOA Subdivision*
- V. **Discovery Park**, 10:35 AM min.  
*Objectives: Regional Subdivision-Park Facilities.*
- VI. **Drainage Concept at College and Saginaw**, Jim Guild, 11:05 AM  
*Objectives: Hillside, conceptual public-private*
- VII. **Tour Effectiveness Check-in/ Roundtable Discussion**, All, 11:25 min.  
*Objectives: Review what worked and areas to improve for next meeting.  
Open discussion, sharing of ideas.*



**Stormwater Quality**  
**Public Advisory Group**  
**Proposed Agenda**

Thursday, June 8, 2017

2:00 PM – 3:30 PM

City Utility Annex—Eisenhower Conference Room  
62975 Boyd Acres Rd.



**Proposed Agenda**

- I. **Welcome and Introductions, All, 2:00-2:10 PM**  
*Objectives: Introductions. Review agenda and previous meeting summary. Provide brief overview of result of May tour of neighborhood and regional controls.*
- II. **Regional Controls: SWOT Analysis Brainstorm, 2:10-2:30 PM**  
*Objectives: Conduct a brief brainstorming session on the strengths, weaknesses, opportunities, and threats/barriers to regional stormwater controls in Bend considering water quality and increasing density projections.*
- III. **Review and Discussion: Regional Controls, 2:30-3:15 PM**  
*Objectives: Consider regional controls as a potential solution to addressing density increases. Explore brainstorm results and discuss; determine perspective differences (City, builder, private owner); (Geological area; drainage outfall; topography); capture questions and additional data needs.*
- IV. **Roundtable Discussion, 3:15-3:22 PM**  
*Objectives: Open discussion: e.g., recent program and member updates, upcoming events.*
- V. **Meeting Summary and Effectiveness Check-ins, 3:22 – 3:30 PM**  
*Objectives: Ensure consistency in the key messages communicated. Improve future meetings with analysis of this one. Confirm next meeting.*



CITY OF BEND

City of Bend  
Stormwater Quality Public Advisory Group  
Field Trip Attendance Sheet  
June 8, 2017

| Name:                   | Organization:           |
|-------------------------|-------------------------|
| 1. Wendy Cole           | City of Bend            |
| 2. Karna Gustafson      | COBA                    |
| 3. Barbara Rich         | @ large                 |
| 4. Brad Mandal          | Bend CDD                |
| 5. Chris Hart-Henderson | Heart Springs Landscape |
| 6. Joanne Richter       | UDWC                    |
| 7. Steve PRAZAK         | City of Bend            |
| 8. Krista Patz          | DEQ                     |
| 9. David Buckner        | City of Bend            |
| 10. MARK ELLINGTON      | BPRD                    |
| 11. Gillian Ockner      | City of Bend            |
| 12.                     |                         |
| 13.                     |                         |
| 14.                     |                         |
| 15.                     |                         |
| 16.                     |                         |





## Stormwater Quality

### Public Advisory Group Meeting

Thursday, June 8, 2017

2:00 PM – 3:00 PM

#### Members and City Staff Attending

Joanne Richter (UDWC); Karna Gustafson (COBA); Chris Hart-Henderson (Heart Springs Landscape Design); Mark Ellington (BPRD); Barbara Rich (Citizen-at-Large), Krista Ratliff (DEQ), David Buchanan, Wendy Edde, Brad Mandal, Gillian Ockner, Ryan Oster (City of Bend)

#### Key Items Discussed

- **General Updates:**
  - Wendy provided an update on the Clean Water Works Video Contest. The City received 17 video submissions this year--a significant increase over last year. The videos were posted on the City's website and the public was encouraged to vote for their favorite film. The video web page received more than 4,000 hits, most of which came in the last several hours of voting. In comparison, the City had approximately 1200 hits to its stormwater pages in the entire year before. This year the City also added a poetry contest that ran in conjunction with the video contest, and received one entry. Grand prize winners will be announced at the City Council meeting on June 21, and posted to the web thereafter.
- **PAG Group Regional Stormwater Controls SWOT Exercise – See Attachment Below**
- **Key Questions and Answers**

Attendees discussed the following:

- What scale is regional scale? Neighborhood, major basins, minor basins? For this effort, regional could take a subdivision(s), or may be at the end of a street. It typically stays within a subbasin.
- Why can't parks be built in the low point of a development? Parks are built by developers and given to the Parks Department. Developers selects the least desirable / valuable land and turn that area into the park.
- Can sports fields be used as a stormwater retention pond? Yes, but it was noted that sports fields have a lot of pressures to be usable during all weather conditions. Central Oregon hosts many tournaments. Limiting access to fields during storm events could

have an economic impacts on the region. Determination of how long they might be out of action or need for backups in case of a scheduled event should be determined.

- What information can the City provide the designers and developers to help them better address stormwater? Addressing the common misconception that “It doesn't rain here” and providing more incentives could help. Contractors tend to build to the minimum requirements.
- Managing runoff on infill lots is a big issue, the last-to-build builder should not be responsible for correcting previously approved problems.
- Does the City have a map showing the overlays where infiltration is better? The Stormwater Master Plan includes some basic infiltration zones and identifies several areas of perched groundwater. There is a lot of variability in Bend when it comes to infiltration rates, even on a single taxlot. One size doesn't fit all, need to plan for each geographic area and master plan.
- Bend is not that unique and looking outside the area is good. We do not need to reinvent the wheel every time. The City of Reno has a great program and similar climate.

### **Meeting Effectiveness Check-in**

- The group provided positive feedback on the SWOT activity.
- Appreciation was expressed for all the varying viewpoints.
- Where is all this information going? The City will continue with this SWOT exercise for neighborhood scale and on-site, and then work with the PAG to provide and refine a written summary, revisiting areas as needed and developing recommendations for direction and/or additional study needed to help determine best direction.

### **Key Decisions Made/Key Action Items**

- Correct typos on May summary (one of front page and one on second page)
- Recommend comparison cost data between the different facility types and scale
- Recommend looking into stormwater reuse and cost analysis.
- Research septic set back requirements from stormwater facilities.
- Need training on stormwater design for builders, based on Bend's soils.

## Attachment - PAG Group Regional Stormwater Controls SWOT Exercise Results

### Strengths:

- ◆ Certainty
- ◆ Visibility
- ◆ Cost Share
- ◆ Dual purpose
- ◆ Maintenance occurs
- ◆ More uniform design and construction
- ◆ Incorporates into planning much earlier
- ◆ Treatment
- ◆ Spill control

### Weaknesses:

- ◆ Too far away - Expensive
- ◆ Need to incorporate into planning much earlier
- ◆ Landscapes version, takes land
- ◆ Loss of buildable lots
- ◆ Safety
- ◆ Mosquitos
- ◆ Weed control
- ◆ Expectation as a play area
- ◆ Cost?

### Opportunities:

- ◆ Dual purpose (sports fields)
- ◆ Aesthetics
- ◆ Open space
- ◆ Less water usage
- ◆ Snow Storage
- ◆ Educational components
- ◆ Maintenance certainty
- ◆ Wildlife Habitat / Open Area for neighborhood gatherings
- ◆ Public Private Partnership- Public
- ◆ Cisterns
- ◆ Keeps water / pollutants out of the river
- ◆ Real-estate on “nice” water is more valuable
- ◆ Water storage
- ◆ Incentives for builders

### Threats:

- ◆ Muni staffing levels
- ◆ Enforcement of maintenance
- ◆ Changing regulations
- ◆ Increased maintenance fees
- ◆ Loss of tax revenues - Local
- ◆ Lack of willing partners
- ◆ Liability - needs multiply agreements
- ◆ Design review
- ◆ Siting septic could be impacted?
- ◆ Density
- ◆ Cost- Making the lot pencil out.



# DESCHUTES RIVER CLEAN-UP



**Saturday, August 6th**  
**Riverbend Park**  
**10 am - 2 pm**

[www.UpperDeschutesWatershedCouncil.org](http://www.UpperDeschutesWatershedCouncil.org)

*#EnjoyProtectRespect*





# CALL FOR ENTRIES

CLEAN WATER

WORKS



**PRODUCTION**

**Clean Water Works -  
TV Commercial**

**DIRECTOR**

**Student Filmmakers  
Grades 5-12**

**LOCATION**

**Bend, Oregon**

**DATE**

**Entries due: Aug. 22, 2016**

**FREE WORKSHOP**  
**BENDFILM**  
a celebration of independent cinema

**"How to Make a  
Sweet Film on Your  
Mobile Device!"**

**Sat., August 6<sup>th</sup>**

**9-10am**

**Right before UDWC's  
Stream Stewardship Day**

**Riverbend Park**

## SCENE SHORT

Contest—Create a 30-Sec. Commercial

\$150 Grand Prize

Chance to work with television industry professionals in studio

Chance to help out our planet

No fee to enter

Open to amateur filmmakers only from 5-12<sup>th</sup> grade

Check out last year's winner:  
<https://youtu.be/r1Oa3GCB4fQ>

## FOCUS

We're looking for a 30 sec spot that makes people consider the effects of pollution in our storm drains and waters.

*Pollutants in Our Waters:*

*Where Do They Come From?*

*Where Do They Go?*

*What Can We Do?*

*Why Should We Care?*

## AWARDS

**Grand prize:**

- \$150
- Professional reproduction of film for local TV on-air flight
- Film screened at:  
**BendFilm Future Filmmaker event**

**Division Winners:**

- 5<sup>th</sup>-8<sup>th</sup> Grade: \$100
- 9<sup>th</sup>-12<sup>th</sup> Grade Prize: \$100
- People's Choice Award: \$100

**All Winners:**

- Entrance into Future Filmmaker award ceremony
- Film/Commercial featured on social media.

## HOW TO ENTER / MORE INFO

Visit [www.bendoregon.gov/cleanwaterworks](http://www.bendoregon.gov/cleanwaterworks),

Click the "Kid's" button

## WANT B-ROLL?

*Save the date: Stream Stewardship Day (10AM -1PM at Riverbend Park, Saturday August 6) and join BendFilm for the free workshop, open to all ages, just beforehand!*



UTILITY DEPARTMENT

**BENDFILM**  
a celebration of independent cinema



### Accommodation Information for People with Disabilities

To obtain this information in an alternate format such as Braille, large print, electronic formats and audio cassette tape, please contact Karin Morris at (541)693-2141, or email [Kmorris@bendoregon.gov](mailto:Kmorris@bendoregon.gov).







April 5, 2017

## UTILITY DEPARTMENT

RE: Clean Water Works Partnership Opportunity

62975 BOYD ACRES RD.  
BEND, OR 97701  
541-317-3000 opt. 2  
Relay Users Dial 7-1-1  
541-317-3046 fax  
bendoregon.gov

MAYOR  
Casey Roats

MAYOR PRO TEM  
Sally Russell

CITY COUNCILORS  
Justin Livingston  
Bill Moseley  
Bruce Abernethy  
Nathan Boddie  
Barb Campbell  
  
CITY MANAGER  
Eric King

Dear Clean Water Volunteer:

Thank you for your interest in the City of Bend Clean Water Works Partner program. The City of Bend Stormwater Utility would like to partner with you to help keep our waters clean. If you appreciate clean water *and* business enhancement, and you have already shown that you do through your work, please consider this voluntary opportunity. The City of Bend is undertaking an exciting incentive-based watershed campaign entitled Clean Water Works. Please see our website at: [bendoregon.gov/cleanwaterworks](http://bendoregon.gov/cleanwaterworks). Here you can see that we have both educational and partnership aspects to the campaign.

We are seeking to support businesses and organizations like yours that are working to keep our waters clean. Should you choose to participate, the City would like to reward you by providing the following promotional materials:

➤ **Promotion** on our “Discounts and Partners” page on our website ([bendoregon.gov/cleanwaterworkspartners](http://bendoregon.gov/cleanwaterworkspartners)) and by other electronic media means (e.g., mention on Facebook, Twitter, or radio advertisements). We will actively encourage people to visit this page beginning in April through December, 2017 and likely beyond. The campaign will include: TV, radio, print, events and social media.

➤ **Decal**—The City will provide you a Clean Water Works window decal (see image at right) to help advertise your business as one that cares about Clean Water!

➤ **Discount Card**—The City will list your business and the discount of your choosing (e.g., \$1 off or “buy one get one free”) on our website “Discount and Partner” page, and if you respond by April 9, 2017 we will on a first come/first served basis list your business and discount on the back of our discount cards that we will print and distribute at outreach events throughout the 2017 campaign and mention your business in a Clean Water Works partner radio advertisement. The discount card will



also be available on line for your customers to print. (See below for an example discount card layout.)

- **Employee Giveaways**—The City will provide you and your employees (should you wish) Clean Water Works Partner logo-ed products for your enjoyment.
- **Display Holder Promotion** for your customer waiting area with a Clean Water Works Partner outreach sheet promoting your participation as a company that cares about clean water to your customers.

The partnership works like this—once you meet the basic criteria for this category, just fill out the attached certification form and you can take part. The criteria for your business category is as follows:

- ✓ You agree have volunteered at least three hours in the past year to protect clean water within Bend and the surrounding area (and if you are receiving this letter, then you already have!),
- You review the City of Bend Illicit Discharge fact sheet and share the information with your staff,
- You agree to label your businesses onsite storm drains, as applicable, with a pollution-prevention message—good news, the City can provide a free “do not dump” type storm drain marker for your use if your drains are not already marked.
- You agree to honor any discount that you specify through at least December 31, 2017.



Just review the attached fact sheet or available directly here:

(<http://www.bendoregon.gov/home/showdocument?id=22513>), complete the short, attached partnership form and email it to me at [wedde@bendoregon.gov](mailto:wedde@bendoregon.gov) or fax it to 541-317-3046. You may also mail it to my attention at: 62975 Boyd Acres Road, Bend, OR 97701. Please contact me directly at 541-317-3018 should you have any questions. And remember, if you contact me by April 9th and offer a discount, we will do our best to include your business name on the back of the Discount card on a first come first served basis, and a mention of your business on our radio commercial.

Remember, this is a voluntary program and a means to appreciate your interest and efforts in keeping our river and drinking waters clean. Should you have any questions or if you wish additional brochures or brochures in an electronic format to distribute them to your staff, please do not hesitate to contact me at the phone number or email above.

We look forward to working with you, and thank you for your support of clean water.

Sincerely,

Wendy Edde, CSM, Stormwater Program Manager  
City of Bend Utility Department  
Att: Illicit Discharge Fact Sheet, Clean Water Works Partnership form