

**Barr Lake/Milton Reservoir Watershed Association  
Public Stakeholder Meeting  
Tuesday, February 26, 2019  
South Platte Water Renewal Partners  
9:30 a.m. – Noon**

**MINUTES**

**In attendance:**

Steve Lundt, Metro Wastewater  
 Curt Bauers, FRICO  
 Michelle Seubert, Barr Lake State Park  
 Julie Kinsey, EPA (phone)  
 Dan DeLaughter, S. Platte Water Renewal Partners  
 Juliana Archeleta, Adams County  
 Linda Chynoweth, City of Aurora  
 Jill Piatt-Kemper, City of Aurora  
 Chris Douglass, ECCV  
 Karmyn Heilmann, Bio-Environment  
 Donny Roush, Denver  
 Jordan Parman, Metro Wastewater

Allison Bohlman, S. Platte Water Renewal Partners  
 John McCray, Colorado School of Mines  
 Jon Novick, Denver Department of Public Health and Environment  
 Alison Witheridge, Denver Water  
 Julie Tinetti, Centennial  
 Ashley Rust, United Water  
 Dana Coehlo, Metro DNA

**Guests:**

Amy Conklin, BMW Coordinator

**Welcome, Sign-In, and Introductions** – Amy welcomed everyone to the first BMW Stakeholder meeting in 2019. Everyone briefly introduced themselves.

**Report on Denver Department of Public Health and Environment (DDPHE) Stormwater monitoring program – Jon Novick.** Jon presented Denver’s green infrastructure implementation strategy that can be found at, <https://www.denvergov.org/content/denvergov/en/wastewater-management/stormwater-quality/green-infrastructure.html>. Denver is beginning a monitoring program to assess the effectiveness of different structural controls. One characteristic being studied is the structures’ ability to improve water quality. There is a huge amount of variability in the structures and locations where they are installed creating challenges in finding locations for monitoring equipment. It is also helpful to have a weather station nearby to help estimate the amount of precipitation and flows produced. Another big challenge is measuring inflows. They rarely enter the structure through a conveyance structure where it’s easy to measure flows. They have not been successful in designing a way to measure water quality in the field. The only measurement that can be easily obtained is temperature. One of the goals for water quality analyses is to measure water quality while a structure is settling as well as after the equilibrium has been reached. When a structure is first built, there is a lot of disturbance. As the plants grow and the soil stabilizes, the water quality improves. Denver’s goal is to measure water quality during the initial stages of the project as well as once the structure is in place.





Jon showed photos of two example sites, one along Brighton Blvd., and one at Broadway and 21<sup>st</sup>. The site at Broadway and 21<sup>st</sup> has a weather station located on a nearby building which may enable DDPHE to evaluate pollutants in the air versus pollutants in the stormwater. DDPHE is working closely with Denver Public Works to design and implement the structural controls and the monitoring program. Their



goal is to collect samples four (4) times per year. So far, they don't have plans to load the data into the Data Sharing Network but they definitely plan to make the data accessible to the public. The monitoring program hasn't been included in their MS4 permit. Monitoring should begin this spring. Jon promised to return and present their findings.

**Presentation on Stormwater Monitoring research conducted by Colorado School of Mines – John McCray.** Dr. McCray and his team at the Colorado School of Mines (CSM), Stanford University, University of California – Berkeley, and New Mexico State received the first ever Engineering Research Center grant awarded in water or environment. The goal of their work is to measure the impacts of infill development on stormwater quality. As part of the effort they are measuring stormwater quality in the Berkeley Lake area of Denver. They've delineated three (3) sub-basins and installed automatic samplers. They hope to calculate local event mean concentrations (EMCs) and compare them to city-wide averages. They are using manholes to house equipment and collect flow-weighted samples. They aren't able to connect to any weather stations and use an App called Rain Vieux to measure precipitation in the areas. The flow monitors trigger sampling with samples being collected every 5 minutes during the first 4 hours of the storm and every 10 minutes during the last 4 hours of the storm. One of their goals is to evaluate the water quality of the first flush.

Infill typically increases impermeable areas but their findings indicate that it may not, necessarily, increase runoff. They found that infill is occurring more slowly than they thought and is concentrated along Tennyson St. in the area they're working in. Dr. McCray presented data they've collected so far. Some of the results show that the dry weather data, data collected from the continual flows, are that water quality parameter levels are close to the standards proposed in Regulation 31. Phosphorus (P) levels in snowmelt are lower than those in rain. P and Nitrogen levels from the Berkeley Lake sub-basins are higher than the city-wide EMCs as are copper and zinc levels. Lead is lower in the sub-basins than city-wide. There's wide variation in e coli values that have yet to be explained. Dr. McCray will send a PDF of his presentation for distribution.

So far, the data doesn't show a large increase in P and metals from first flush flows. There does appear to be a correlation with rainfall intensity. The data are highly variable and it is hard to reach many conclusions without further data collection. Dr. McCray estimates that it will take at least 3 to 4 years of data collection before conclusions can be drawn. The data needs to be collected across all seasons as well. Currently Denver requires stormwater monitoring for infill sites greater than 1 acre. His preliminary results indicate that maybe ¼ acre infill sites would benefit from stormwater collection. The hope is that his data will also help guide the most efficient types of stormwater control structures which

may be regional in some cases. One goal of the study is to provide good information for making land use decisions. After more data is collected, Dr. McCray and his team will return and share their results.

**Introduction of Metro Denver Nature Alliance – Dana Coelho.** Metro DNA is a coalition seeking to connect organizations, champion member organizations and help organizations build capacity. They are not trying to add more work but to connect organizations doing similar work and leverage their efforts. Their membership area is the Scientific and Cultural Facilities District boundary. They are trying to equip people with tools they can use for a wide variety of audiences. One product they've created is a series of nature narratives. They are working to develop a set of environmental quality indicators and measurements including things like biodiversity, health equity, climate equity and resilience. They have a sliding scale for membership dues. Everyone was encouraged to contact Dana for more information.

### **General Business–**

**Board (Dan DeLaughter)** – Dan updated the group on the ongoing litigation surrounding Optimal Corrosion Control Treatment (OCCT). The deadline for the stay of the litigation has been extended to September 20<sup>th</sup>, 2019 but the deadline for Denver Water (DW) to implement OCCT remains March of 2020. CDPHE's decision was for DW to add 3 mg/L of Phosphate (PO<sub>4</sub>) at the tap. DW has been testing the efficacy of lower levels and the preliminary results indicate that 2 mg/L PO<sub>4</sub> may be as effective as 3. It is unlikely they can drop much lower than 2 mg/L of PO<sub>4</sub>.

Two stakeholder groups were formed, Drinking water and Wastewater/Watershed stakeholders. The Wastewater/Watershed group developed a spreadsheet model to estimate the load from OCCT and they are working to refine the model inputs. Whatever scenario is considered the P load from OCCT is significant for the BMW TMDL. The next effort is to develop a cost model to estimate the costs of reducing P loading while also protecting human health. In addition to decreasing the PO<sub>4</sub> dosing, DW is considering an accelerated timeline for removing lead service lines. Removing lead service lines would involve using some level of point of service filtration.

If DW pursues a reduction in PO<sub>4</sub> dosing, a request would be made to CDPHE to revise their ruling. If DW pursues accelerated service line removal a modification from EPA would be required. EPA has never issued such a modification.

BMW's response to the impending additional P load to the TMDL is to update the Implementation Plan. The TMDL is adaptive and the first part of the effort is to reduce loading from wastewater treatment plants which is ongoing as part of implementation of Regulation 85. The current Implementation Plan doesn't address attaining the in stream and in lake standards proposed in Regulation 31. The Board has been working on White Papers to consider different topics relevant to the Implementation Plan update. Over the next year or so the Board will be working on the Implementation Plan update and keeping the Stakeholders informed.

**Technical Committee (Steve Lundt)** Steve reported that the Technical Committee has been working on updating the BMW SWAT and WASP models with data from 2011 through 2018. BMW retained Ken Wagner to re-evaluate where the P loads are coming from and he will be issuing a report soon. The SWAT model is not tracking with the data as expected. The modelers have tried adjusting the model but so far haven't achieved a good correlation. The modeling team at Integral will also be issuing a report soon. It is hoped that both reports can be reviewed at the next Technical Committee meeting.

pH in Barr Lake is down to an average of 9.04. If P levels fall below 200 ug/L, it appears that the pH and DO standards will be attained. The original TMDL estimated that loading to Barr Lake was 63,000 kg/yr and has been reduced to about 30,000 kg/yr. If the loading is reduced to 10,000 kg/yr, the in-lake P levels should be around 100 ug/L.

It is disappointing that the original models were calibrated for agricultural use and didn't include urbanization. To revise the models to include urban areas would cost about \$100,000 and take several years. Another approach could be to take a sub-basin and revise it to include urbanization and apply those results to the entire basin. That effort would cost about \$25,000 and could not be completed in time to help with the OCCT effort.

Steve has obtained a permit to kill 10,000 carp and there may be an opportunity to redefine the fish ecosystem in Barr Lake.

**Treasurer's Report** (*Chris Douglass*) Chris reported that the first ever BMW calendars went out with membership dues invoices and explained that the fiscal year runs from August to August. The dues being paid are for the 2019-2020 fiscal year. At the end of January, there was more than \$200,000 in the BMW bank account.



**Information and Education Committee Report** - Amy reported that BMW had retained their intern, Samantha McKinney for another year. She is doing lots of great work including creating a YouTube channel of BMW interviews. Amy will send out a link when it is up and running. The capstone presentations from the CU-Denver students will be on May 8<sup>th</sup>. This is the third year BMW has been working with the students and some of their projects will now have three years of data. BMW is co-hosting the 2019 Urban Water Cycle Bike tours on June 4<sup>th</sup> and the next Stakeholder meeting will be a watershed tour around Barr Lake on June 25<sup>th</sup>. Please see the calendar at the end of the minutes for more BMW events.

**Open Forum** – Michelle Seubert will send Amy information to share about the Raptor Run at Barr Lake in April and invited everyone to the grand opening of the ADA accessible Fishing Pier on June 4<sup>th</sup>. Donny promoted the May 4 Furry Scurry at Wash park.

**Upcoming Meetings/Events** (see [www.barr-milton.org](http://www.barr-milton.org) for more information):

- BMW I&E Committee – **March 5<sup>th</sup>, 10:00** am to Noon, Barr Lake State Park Nature Center
- BMW Board meeting – **March 26<sup>th</sup>, 9:00** am to noon, Metro
- Technical Committee – **March 28<sup>th</sup>, 9:00** am to 11:00 am, Metro
- Graduate Student Presentations – **May 8<sup>th</sup>, time TBD**, Auraria Campus
- Urban Water Cycle Bike Tours – **June 4<sup>th</sup>**, along S. Platte River
- Watershed Tour - **June 25<sup>th</sup>**, tour of Barr Lake

## BMW I/E Events for 2019

Date	Event	Activity	Name and contact
4/13/19	Raptor Run	Barr Lake	Michelle Seubert
5/8/19	CU Capstone Project	Presentations on Auraria Campus	Steve, Amy
5/16/19	Northglenn-Thornton-Westminster Water Festival	Front Range Community College	Michelle, James
5/18/19	Boat Safety Day	Barr Lake State Park	Michelle
6/4/19	Urban Water Cycle Bike Tour	Bike Tour along Platte River	Steve, Amy, Sam
6/22/19	Greenway Foundation River Fest	South Platte River	Sam
6/25/19	BMW Watershed Tour	Barr Lake State Park	Amy
7/13/19	Lake Appreciation Day	Barr Lake State Park	Michelle, Steve, Amy, Sam
7/25-28	Arapahoe County Fair	The Homestead	Amy, Sam, SPLASH (?)