

Barr Lake/Milton Reservoir Watershed Association
Technical Committee Meeting
Thursday January 27th, 2022 (9:00am – 11:00am)
 Virtual

Draft MINUTES

In attendance:

Curt Bauers – FRICO
 Erin Sandos – South Platte Renew
 Brad Cox – Denver
 Jon Novick – Denver
 Al Polonsky - Denver
 Sherri Scaggiari – Aurora

Steve Lundt – Metro
 John Stednick – FRICO
 Jim Dorsch - Metro

Guests:

Amy Conklin – Coordinator

Technical Items to Discuss

Approve September Meeting Minutes –John Stednick had some comments about the visualization tool and the meeting minutes. **John** will send Amy his changes and we can review them at the next meeting. John Stednick clarified that Bear Creek is using a very specific model for their watershed. **Al** will follow up with Russ Clayshulte to get more information about the model.

Watershed Model Update –John Stednick brought up the idea of how to engage with the Water Quality Control Division (WQCD) in the modeling effort. If BMW applied for and got a grant from CDPHE, that would be one route to engage with WQCD personnel. We could also consider appearing before the Water Quality Control Commission (WQCC) and making reports. The last time we presented to the WQCC may have been 2014. CDPHE has been involved with the in canal treatment issue. The committee concluded that the best way to proceed would be for **Erin** to reach out to Joni Nuttle and ask her how she would like to engage with the Technical Committee. BMW has other issues to discuss with the WQCD such as: Use Attainability Analysis (UAA) policies; phasing of the TMDL; Regulation 31; and modeling.

Historical Perspective

- The Commission's Direction



- And, a stakeholder group was born



The committee discussed the options on modeling. The general feeling at this point is to not spend significant amounts of money to update and calibrate the SWAT model. However, there may be other options such as modeling a sub basin and extrapolating the results to the entire watershed. There may be a benefit to the stormwater community to update the model. Integral has said that they don't have the expertise to update the SWAT model.

Steve reviewed that he has had conversations with Marcia Greenblatt, who has been part of BMW's modeling effort since the beginning, in 2003. Marcia is not the actual modeler; she manages a staff who run the model. We recalibrated the model in 2010. In 2018, we updated the model with new data but didn't recalibrate. The model struggled with matching the data since then. We made minor changes to the model without success, but did not go to the extent of re-

calibrating. Through the OCCT process we reviewed the model's capabilities, and it wasn't helpful in answering the questions OCCT presented.

Recently, Steve called Marcia to talk about the potential for the model to help predict stormwater quality. Marcia reported that her staff isn't fluent in the most recent versions of the model. She reminded Steve that first we need to know what questions we want answered. She also suggested modeling a sub-basin. If there is a lot of stormwater data, we could use a mass balance approach, crunch the numbers in a spreadsheet, and see what the reduction in Phosphorus (P) is. A fancy model isn't needed when there's a lot data. Steve, Erin and Brad have been meeting with other groups and the WQCD about our watershed model. The conclusion is that our model is probably not helpful to the needs of the stormwater community. The model file is very large. To share it, Steve recommends downloading the files onto a physical drive. John Stednick tried to run the model from the file but couldn't make it work. He reached out to Integral but didn't get a response. It appeared that the model was calling for files that were held by Integral. Steve hasn't tried to run the model recently. Our version of the SWAT model, has been customized, with code specific to BMW. When making predictions, we were modeling beyond the range of our data because we wanted to show what happened when P levels got very low.

The committee wrestled with the question of whether or not water quality is heading in the right direction. The most value for the model would be to test out different scenarios to see where resources would be best spent. Measuring if we're moving in the right direction would be helpful. Stormwater improvements impacts to P loading would be very helpful to know. It would also be important to know if the 20% reduction has been achieved. Flow data has been a challenge from the stormwater infrastructure. There is lots of great data on P concentrations but not flow.

If we considered modeling one sub-basin would that be sufficient to extrapolate to the whole basin? That would be a question for Joni Nuttle. One struggle for calculating the 20% reduction is that the baseline hasn't been defined. Steve considers the loads in 2003 to 2004 the baseline condition. But the TMDL took 10 years to get approved, so there is an argument for the baseline would be later. Wasteload allocations were based on 2003 and 2004 levels. The water quality data collected since 1998 shows there have been reductions in stormwater loads over time. Another question for Joni would be how to calculate the baseline condition.

The wasteload allocation in the TMDL for all stormwater dischargers, MS4 permit holders, is 2,189 kg/yr. At the time the TMDL was developed, there were only four MS4 permit holders. Now there are many more. Another question for Joni would be how to divide the wasteload allocation among the MS4 permit holders.

The committee concluded the discussion with a to do list that includes:

- Researching if there's any modeling effort already existing that measures flow and concentration. Maybe look at other cities? John thinks the city of Fort Collins had a model that might work. They used the results to prioritize street seeping areas. It also improved air quality.
- Reaching out to Sarah Anderson with Denver's Green Infrastructure department to see what information they have.

- Talking with Dr. Adidti Bhaskar about her work on Lawn Irrigation Return Flows in urban streams.
- Consider if multiple lines of evidence may be useful; modeling and mass balance approaches.

Modeling will be a standing agenda item for the committee.

Technical Committee Topics – Obviously, modeling will be a topic. People should let Erin know if they have other topics for consideration. Another topic is to conduct a mass balance calculation for loads to the Burlington canal to determine if 1st, 2nd and 3rd Creek loads are becoming significant. There has been a lot of urbanization in the area which may have altered P loads.

Annual monitoring review (go over schedule and locations) – Steve reviewed that this is a recurring item. Metro has been working to get lower detection limits for ammonia. It's now down to 0.01 mg/L, from 0.05 mg/L. Metro has a sampling schedule that they share with groups. Metro has cancelled any outside contracts for sample analysis. FRICO has used a different lab and is matching Metro's sampling schedule for monitoring.

Denver samples the re-use water at Washington Park. Denver's ammonia levels have decreased significantly and the improvement in the river is also being seen. The macroinvertebrate populations improved. Ammonia reductions are one measure that water quality is moving in the right direction. As a group, there is a lot of data that shows improvements in the river and lakes.

Auto sampler update – It will be installed at the 2nd choice location by the end of 2022. Steve can collect samples from the canal if it's running. The sampling line can freeze now, but will be trenched when it is installed in the final spot. It may not be an ideal location, but we will try it and evaluate results.

We haven't received a stormwater report from GEI. **Steve** will follow up with GEI and share with the group. Steve shared his screen with the summary spreadsheet of 2021 data. 66,000 kgs of P came down the Burlington. 24,000 kg of P went by the 64th st. gage. 34,000 kg, about 50%, got into Barr Lake. The other 50% of the P loads and flows are probably going to Horse Creek and Prospect reservoirs. Steve uses calendar year and tracks water year as Nov. 1 to Oct. 31st.

Steve keeps track of stormwater flow data as well. We had storms, beginning in March and a wet April and May. Then it got dry. He calculates stormwater loads and flows by subtracting baseflows. We have 3 years of stormwater data at the Burlington canal headgate. Denver has in-stream stormwater data and trend analysis. Steve also reviewed data from Milton. **Steve** will update his water quality summaries for 2021 and the committee can review them.

Next Meeting

Tech. Committee: March 24th, 2022 (Likely virtual, Teams Meeting) – Model and mass balance options may be topics.