

Project Name | Benz & School Section Chain of Lakes Management**Date** | 05/03/2023**To / Contact info** | BCWD Board of Managers**Cc / Contact info** | Karen Kill, District Administrator**From / Contact info** | Pat Conrad and Ryan Fleming**Regarding** | Scope of Services

Background

The District developed a lake management plan for Benz Lake in May 2009. The plan included an assessment of the lake and its watershed and an implementation plan for proposed improvements. The plan was developed using a stakeholder engagement process that included a series of meetings with lakeshore residents. The District conducted a follow up investigation of the wetland areas west of Benz Lake as a potential source of phosphorus to the lake but did not implement an improvement project. Since development of the original lake management plan Benz Lake has 'flipped' from a turbid, algae-dominated system to a more desirable clear water, plant-dominated ecosystem.

In 2016, the District developed a watershed restoration and protection strategy (WRAPS) for the northern chain of lakes which included Goggins, North and South School Section, Plaisted, and Lynch Lakes. The WRAPS report followed a similar format as the Benz Lake plan including a watershed and lake assessment and development of management strategies to restore the impaired lakes and protect the non-impaired lakes. The effort also included a stakeholder engagement effort with lakeshore residents. Follow up efforts from the WRAPS project have focused primarily on aquatic invasive management.

At this time, District staff has identified the need to re-engage with residents living on Benz Lake. Many of the residents that were involved in the original planning effort are no longer living on the lake. District staff have noted that the new residents moving on to the lake have not been educated on shallow lake dynamics and have expressed interest in managing the aquatic plants within the lake.

Also, the District has updated their approach to developing lake management plans since the development of these two plans to include a flood risk assessment element. This element was first conducted for the Bass Lake East and West management plan and more recently was conducted for the large ponds throughout the district.

The following is a scope of services to facilitate education/outreach meetings with residents, to conduct the flood risk assessment for the lakes and to incorporate the lakes into the District's web-based Story Map interface.

Scope of Services

Lake & Watershed Assessment

This task will mainly consist of bringing past assessment information up to date for use in the stakeholder engagement process and for incorporation into the District's Story Map interface. The main datasets to be updated will be water quality summaries and any vegetation surveys that have been conducted. We are recommending one additional assessment that was not previously conducted, a shoreline assessment. This assessment will establish the degree to which the shorelines

have been modified by property owners and the impact that may have on water quality. EOR will coordinate with the District Administrator and WCD Staff in the data collection task.

This task will include summarizing findings and developing content for the Story Map.

Public Engagement

EOR and District Staff will conduct a public outreach effort after updating the assessment work and the preliminary screening process of the H&H Modeling and Flood Risk Assessment. The objectives for the public engagement will be to solicit input from the public on specific issues/concerns about the waterbody on which they reside, to convey findings from the assessment & analysis work and to coordinate any additional site visits that may be needed. Public engagement meetings will use an online meeting format similar to what was used successfully for the Bass Lakes management planning effort. A separate meeting will be held for Benz Lake and the chain of lakes. An additional in-person meeting will also be held for a total of 3 meetings.

H&H Modeling and Flood Risk Analysis

EOR will update the District H&H Model to better understand hydrologic conditions of each of the lakes in the study. The model update will consist primarily of refining catchments, depressional storage in the landscape, and overland conveyances using LiDAR elevation data. The recently compiled Washington County culvert database will also be added to the model where appropriate.

The updated model will be run to determine the critical events producing peak water elevations for each of the ponds, e.g., 100-year 24-hour, or 100-year snowmelt events. Based on the flood elevations, EOR will determine risk factors for infrastructure within the critical event footprint. The evaluation will look at buildings, wells, septic systems, and roads/driveways. Infrastructure elevations will be determined via desktop by intersecting the features (publicly available point and polygon GIS data) with the LiDAR to estimate the degree of flooding by the critical event. The outcome will be a list of potentially vulnerable infrastructure. Well and septic locational data is not entirely dependable, so a site visit will be needed for confirmation. This task will be conducted following the public engagement effort so coordination with landowners can be facilitated.

The final deliverable for this task will be an update to the District H&H Model for each of the lake watersheds, determination of peak water elevations for critical events, and identification of flood vulnerable infrastructure. Recommended flood risk mitigation strategies will be developed for each of the ponds and vulnerable infrastructure.

Story Map Development

The final deliverable for the project will be a memo summarizing the flood risk assessment and incorporation of content for each lake into the district Story Map

Task	Estimated Hours	Estimated Cost
Lake/Watershed Assessment	10	\$1,580
H&H Model Update and Flood Risk Analysis	50	\$7,404
Public Engagement	28	\$6,048

Story Map Development	18	\$2,542
Totals	300	\$17,574

Requested Action

1. Consider approval of this scope of services for an estimated cost of \$17,574 from the following accounts
 - a. \$10,6684 from account 923-0002 (flood risk analysis)
 - b. \$6,890 from account 950-0001 (remaining tasks)