

Lake Shamineau Lake Improvement District (LSLID)

Lake Shamineau High Water Study

Frequently Asked Questions

August 11, 2017

Following are a sampling of some of the questions that have been raised about the high water project with the respective answers.

1. What is the current lake level and how does it relate to the Ordinary High Water Mark (OHWM)?

The lake elevation recorded on 08/01/17 was 1276.0, which is 0.9 feet over the Ordinary High Water Level (OHW).

2. What caused the high water level?

Shamineau is a closed watershed basin and with the recent wet hydrologic cycle, the inflows from runoff and groundwater have exceeded the outflows and have caused rising water levels. During the last five years, and regionally since the mid 1990's, higher than historically normal precipitation has occurred. Based on measurements from the Brainerd Crow Wing County Airport, the precipitation annual (2011 - 2016) was 34.31" versus 27.24" for the period (1981 – 2010).

3. What was Houston Engineering hired to do?

Houston Engineering was hired to develop a conceptual plan and cost estimate for a solution to mitigate high water levels and potentially reduce the water level to a manageable elevation below the OWHL. Their final Engineers Conceptual Summary Report will be available on the Lake Shamineau website prior to the August 26th Annual Meeting.

4. Could we reduce the inflows to the lake?

Houston Engineering has noted that there is altered hydrology related to ditching, road/trail grades without culverts, existing culverts set at high grades, and blocked drainage ways due to historic standing water with limited flows. While this should be addressed and will reduce the total volume of water required to be discharged from the lake, it will likely have only a minor affect on sustained high lake levels.

5. It has been noted that Aztec Road (old highway 10) in years back was a road in front of cabins which indicates how different the lake level is.

The overall lake level has risen several feet over the years.

6. What is the cost to the damage to the lake from flooding?

The higher lake level has caused shoreline erosion, loss of trees, wildlife habitat destruction, loss and/or changes of aquatic vegetation, reduced water clarity, flooding of properties, challenging water quality. In a recent survey it was reported by lake owners an estimated \$1,230 Million in expenses has been spent as a result of the high water level.

7. What work has been completed related to this project?

- A Project Kickoff meeting was held in June
- A field trip with Houston Engineering was taken show lake damage and flowage around the lake
- A stakeholder meeting was held in June to inform and gain input from State, County and Local officials
- Meetings with downstream property owners to inform them and understand concerns regarding the potential corridor for water flowage
- Research with the County regarding the bonding process to potentially finance construction
- Meetings to inform and gain input from the Crookneck Lake Improvement District Board
- Meeting with Lake Association Board to keep them informed of the project
- Attending County Board meeting to keep them informed

8. Could using water from the lake for farm irrigation solve the problem?

While using lake water for irrigation may be an option, it would not be enough water to reduce the high water level. In addition, during high wet periods, when the lake may be at the highest levels, land owners may not need nor want the water.

9. Would property values rise with water mitigation? In other words, would the cost for mitigation be an "investment in the future"?

Houston Engineering has stated that on one their projects the value of the property that was flooded was much less than the value proposed after mitigation. In addition, there is the perception that flooded property may not have much appeal to buyers.

10. What would be the impact if nothing is done?

Ken Zeik from the DNR had said that the lake would need to rise approximately 6 feet before it would find a natural outlet. The lake levels would be solely dependent on the future rainfall conditions.

11. How does Crookneck Lake play into this project?

Discussions have been held with the Crookneck Lake LID to keep them informed of the High Water project. A chart of water levels for both lakes (available in the Houston Engineering report) shows that over time there seems to be a correlation between the lake levels. Currently, Crookneck is about 1.5 ft over their Ordinary High Water Mark. While the higher water level on Crookneck has caused flooding on some lake properties, there may be Crookneck lake owners that believe the high water has helped to increase water levels in the weedier bays.

12. Has development around the lake impacted the lake level?

Houston Engineering has not found that building homes around a lake has had substantial impact on lake levels.

13. How much would the lake level be reduced?

The Houston Engineering report suggests lowering the lake to 1274.1 or 1 foot below the Ordinary High Water (OHW) Mark of 1275.1. Therefore, the managed lake levels at high water conditions would likely be targeted between the OHW and 1 ft below.

14. What options were considered and what is recommended?

Three options were considered by Houston Engineering: 1) Do Nothing; 2) Northeast Bound Outlet; and 3) Southwest Bound Outlet. The recommended option by Houston is the Southwest Bound Outlet which includes construction of an outlet to the southwest of Shamineau Lake. The proposed project limits extend from a point near the shoreline of the SW part of Shamineau Lake and proceeds southwesterly into Lena Lake. From there it flows west through US 10 into the Fawn Lake Township in Todd County and continues to flow to the southwest where it joins Fish Trap Creek, a tributary to the Long Prairie River. Fish Trap Creek is the outlet for Fish Trap Lake and has adequate flow capacity to accommodate design outflows from the proposed project. This alternative was determined by Houston to best serve the overall interests of the lake and best serves the natural resource interests with the drainage area.

15. What are the benefits to the recommended option?

Benefits include: increasing the capacity of an outlet for water to flow from the lake; increasing the capacity of the existing drainage system upstream and downstream of Highway 10; reducing lake bounce at high levels or managing the maximum lake levels; reduction of property damage; improvement to lake shore management and planning; and reduction of lake shore erosion.

16. What are the mechanics of reducing the lake level?

The recommendation includes the installation of a new lake outlet structure and pumping station as well as installation of drainage piping. A pump with a filter will be required due to the existence of milfoil in the lake. A garage type enclosure will be built away from the Lake to house the pump and filter assembly. Pumping operations could be allowed 9 months of the year, but would be determined through an approved operation and maintenance plan.

17. How would the water level be lowered?

An operating plan would need to be developed which would be shared with lake owners and downstream property owners. The plan would include arrangements to manually turn the pump on and off and someone would need to be appointed to operate the pump station.

18. Do 100% of lake owners need to approve the high water project to move forward?

No. The Lake Improvement District members will vote at the August 26th meeting as to whether they wish the high water project to move forward. If a majority of the members are in favor of the project, it will move forward.

19. Are Grants being considered for funding?

Yes, however, there are some considerations. While grant sources have been identified, and will reduce local costs, this may cause delays in the project. One option is to move forward with construction and in parallel pursue grant funds that could then be used to offset costs.

20. If project is approved on August 26th, what would be the next steps?

- Hire engineering firm to develop an Engineers Report for funding proceedings purposes, proceed through environmental proceedings, perform preliminary and final design engineering, and ultimately preparation of final construction documents.
- Request bids and hire a construction company
- Finalize bond and other financing
- Begin construction