

Quarry Lake Water Level Management Plan

June 2, 2020



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COMMUNITY PRIDE SINCE 1857

City of Shakopee | 485 Gorman St., Shakopee MN 55379 | 952-233-9300 | www.ShakopeeMN.gov

Background

- Limestone aggregate quarry mine started in late 1950's
- Mining ended in late 1990's
- The city purchased the property in 2005
- Landlocked, no outlet
- Water levels have been rising (3.4 ft in 5 years)
- Park improvements started in 2016
- 2019 started to inundate park infrastructure (dock, trail, walls, etc)
- Future improvements at park and water ski association



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2018



2019



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2018



2019



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2019 Pumping

- Approximately 100 million gallons was pumped to draw down the lake level approximately 2 ft
- Cost to pump estimated at \$55,000
- This was to allow for time to complete a water level management plan.
- WSB was hired to complete the study.



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Sources/Causes of Rising Water Levels

- Primary sources are springs at bottom of the lake and groundwater seeps along southwest shoreline
- Other sources include direct rainfall on the watershed



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Outlet Options

- What is the challenge?
- Quarry Lake water level
 - 724.4 ft
- Water level of receiving Prior Lake Outlet Channel
 - 730.8 – 725.9 ft



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Outlet Options

- Do Nothing
- Gravity
- Pumped Outlet

Gravity options considered

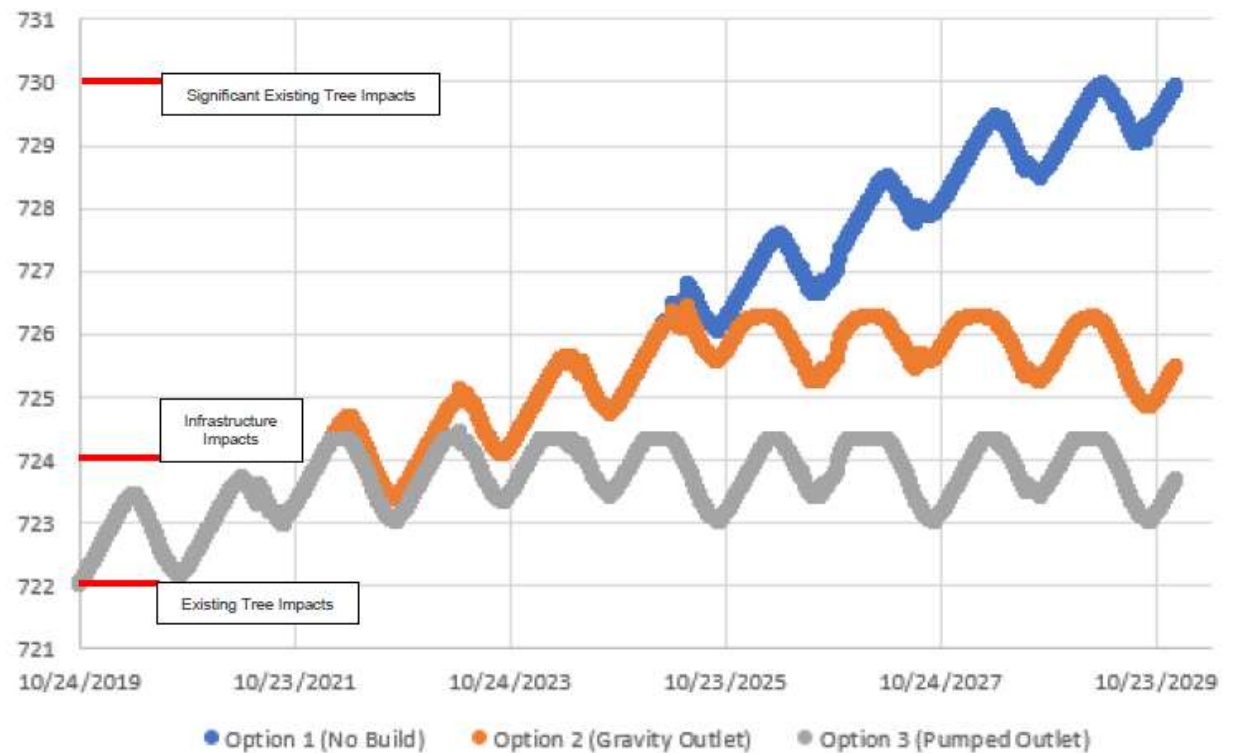


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Quarry Lake Estimated Water Surface Elevations (2019-2030)



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Recommended Outlet Option

- Gravity outlet
 - lower construction and operation/maintenance cost.
 - Low infrastructure impacts

Alternative	HWL (ft)	Construction Cost	50-yr O&M Cost (2020\$)	Total Construction & O&M Costs	Estimated Infrastructure Impacts
No Build	740.0	\$0	\$0	\$0	\$1,400,000
Gravity Outlet	726.4	\$212,000	\$75,000	\$287,000	\$56,000
Pumped Outlet	724.4	\$307,000	\$175,000	\$482,000	\$22,000



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Next Steps

- Water level will continue to rise
- Permanent outlet is needed to manage the water level
- Include outlet project in 2021 CIP

Questions?



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