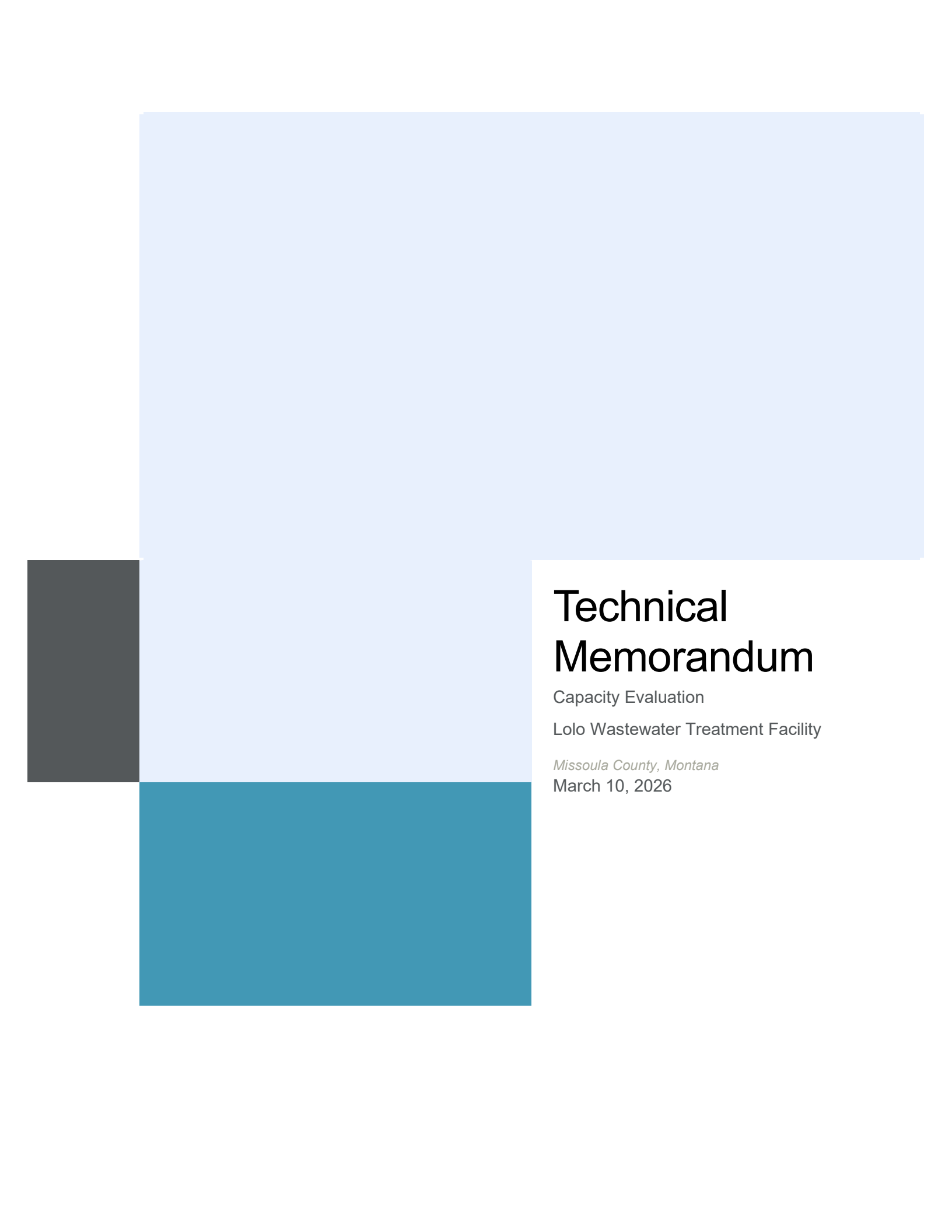




Technical Memorandum

Capacity Evaluation

Lolo Wastewater Treatment Facility

Missoula County, Montana

March 10, 2026

Introduction

The community of Lolo's wastewater treatment facility (RSID 901) has seen elevated levels of Biological Oxygen Demand (BOD) loading from January of 2018 through July of 2021, the incoming measurements being nearly double what is commonly seen at small wastewater treatment plants. The historical loadings and capacity evaluation was documented in the 2021 Wastewater Preliminary Engineering Report (PER). Recent trends since 2022 indicate a reduction in the BOD influent loading, which impacts the overall treatment capacity. The purpose of this memorandum is to evaluate the newer data for the influent loading and discuss the impacts to the existing capacity.

Capacity Evaluation

The community of Lolo that is connected to the treatment facility and within the RSID has a population of approximately 3,500, as of 2020. No additional services have been added to the system since 2020. Lolo is expected to continue to grow at a rate of approximately 1% per annum, and the service population would closely match if capacity were available. The elevated levels of BOD loading into the treatment facility has historically limited capacity of the treatment facility. Now that the BOD loading has reduced for three years, an updated evaluation of the data can occur.

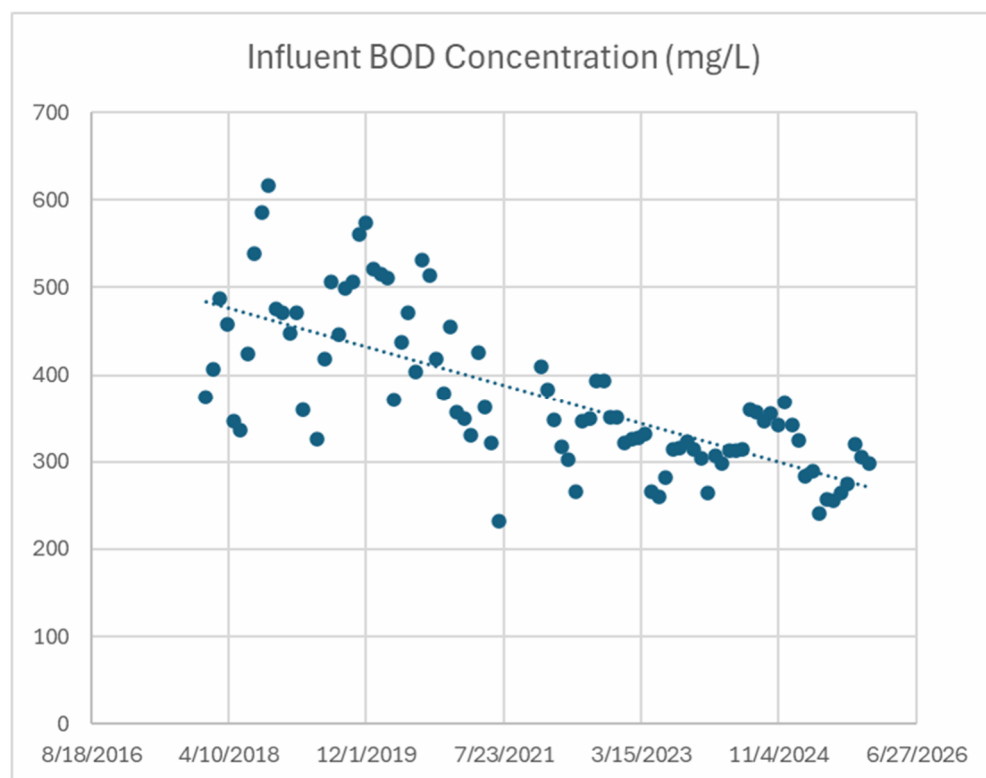


Figure - 1. BOD concentrations of wastewater influent, measured monthly.

The following chart shows the monthly average BOD loading measurements since January of 2018 through December of 2025.

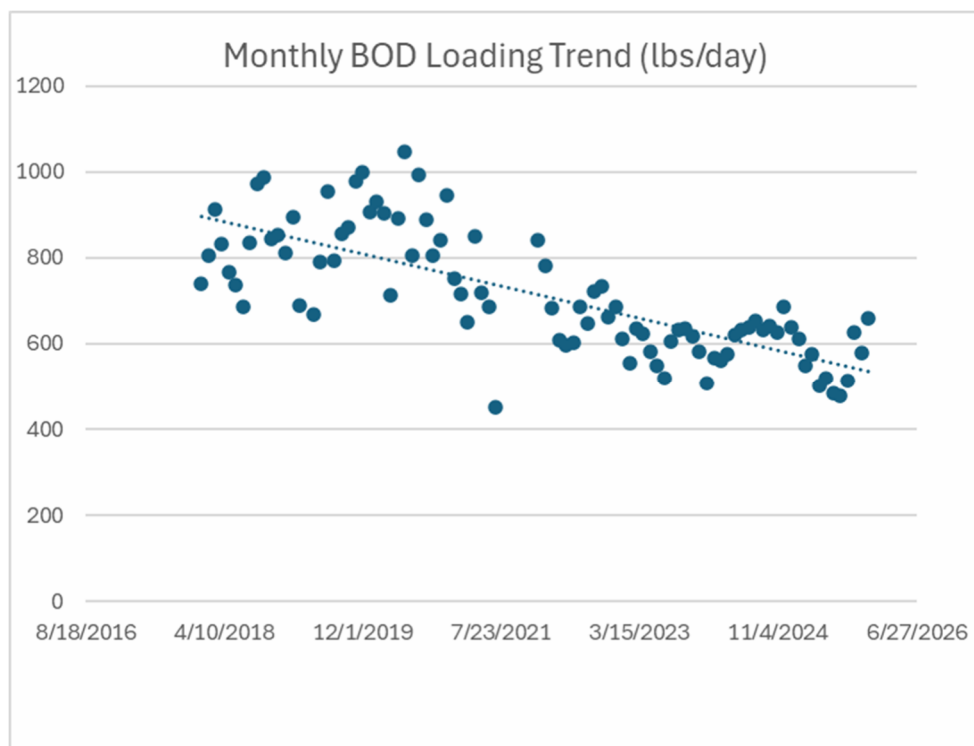


Figure - 2. BOD loading in influent wastewater, measured monthly.

The rated capacity of the facility hydraulically is 0.34 MGD average daily flow. The rated capacity of the bioreactor unit for loading is based on a DEQ requirement of 40 lbs of BOD per 1,000 cubic feet of aeration basin and 169 gallons (22,625 CF), or 905 lbs/day. The overall capacity of the plant must meet both the hydraulics and BOD loading requirements.

Table - 1. Capacity Comparison of Current from Previous Data

	2018-2021 (PER Values)	Updated 2022-2025
Average Influent BOD (mg/L)	441	319
Average Daily Flow (MGD)	0.25	0.23
BOD loading (lbs/day)	920	612
Loading Capacity remaining (lbs)	0	293
Loading Capacity remaining (EDUs)¹	0	473
Flow Capacity remaining (gpd)	90,000	110,000
Flow Capacity remaining (EDU)¹	360	440

Note 1. Assumes 2.5 persons per household and 100 gals of wastewater generated per person per day.

If current loading strength (319 mg/L), 2.5 persons per household and 100 gpcd is assumed, the remaining capacity would be 473 EDU's. However, on a flow basis, Lolo has 110,000 GPD remaining on an Average Day Flow (ADF). Taking the flow into account the available capacity is 440 EDU's.

Conclusion

Recent data from 2022 to current indicates a 27.7% reduction in the concentration of the BOD mg/L. Updating the capacity evaluation and comparing both flows and loads, there is additional capacity available, that wasn't available during the previous evaluation for the PER in 2021.

There are currently 440 EDU's available, not counting any connections previously agreed upon or allocated by the County that have not yet been connected.