

UPDATED SEWER FEASIBILITY REPORT GLACIER MEADOWS PRELIMINARY PLAT

LIFT STATION 10 SERVICE AREA PINE ROAD NEAR CTH X & TOWER WOODS SUBDIVISION

Date: May 13, 2025

- Re: Evaluation of Sewer Serviceability to East from LS10:
 - A New Interceptor from LS10 to East to Serve Glacier Meadows & Others
 - B New Interceptor Plus Deepening of LS10 to Serve Glacier Meadows & Others
 - C New LS12 & FM

This memo is intended to provide a high-level planning document for decision making and budget estimate purposes for a specific portion of the Village's wastewater collection system. The memo is the product of focused efforts in evaluation of Lift Station #10 and connected basins lying in the area, including some review of LS2 and LS1, wherein a potential residential development project of 116 homes is proposed.



This memo is intended to append the 05-05-2025 Memo to the Utility Committee, providing additional information for the evaluation of three (3) main options.

To: Village of Kronenwetter

ALTERNATE A INTERCEPTOR FROM LS10 TO GLACIER MEADOWS SITE AT PINE ROAD MODERATE SERVICEABILITY TO EAST

Option A is to install a new interceptor sewer from LS#10 at minimum grade to service Glacier Meadows and potentially beyond. See Concept Plans attached. This would eliminate a new proposed station. This would require some road repair/restoration as well as some driveway repair/restoration. There are existing easements on a good portion of Pine Road that are in place for utilization. However, Mystic Meadows and some parts of Pine Road will require off-shoulder ditch excavation with potential road repair/restoration. While the greater majority of lots in Glacier Meadows would be served by both basement and first floor gravity sewer, some lots near the north/northwest lowlying areas would receive only first floor gravity sewer service, meaning those lots would be required to install basement "ejectors" to a gravity first floor line. Glacier Meadows Engineers have stated that about 21 lots out of 116 lots would require ejectors versus having full serviceability. As such, this option provides moderate sewer serviceability but basement ejectors would still be connected to the Village's sewer system as a rate payer.

ALTERNATE A Item	Quantity	Units	Budget Cost	
Interceptor, LS Upgrade In-Situ, Generator/ATS, Pumps & Controls, Restoration				
(Estimated 2025 Project Total from 05-02-2025 Estimate	2)			
Total Estimated Alternative A Capital Cost \$1,218,000				
Nominal Interest Rate for Present Value	4%			
Life Cycle	50	Years		
Assume No Change to Lift Station Maintenance	0%			
Salvage Value	0%			
Annual Cost for Interceptor Maintenance	3960 LF	\$2/LF	\$7,920	
Annual Cost Estimate for Manhole Sealing	10 EA	\$100 Each	\$1,000	
Annual Cost Estimate for Sewer Repairs	1%	\$100/LF @ 40 LF	\$4,000	
Annual Increase Factor	2%	50 Years		
Present Value of Annual Expenses with 2% Annual Increase, 50 Years, 4% \$411,000				
Alternate A - Total Estimated Present Worth \$1				

ALTERNATE B DEEPEN LIFT STATION #10 WITH INTERCEPTOR PROJECT TO GLACIER MEADOWS SITE FULL SERVICEABILITY TO EAST

Option B is to install the same interceptor, but deeper to allow full serviceability to the east including Glacier Meadows. As such, there are additional capital project costs involving dewatering, deeper lift station work, and the cost of new interceptor sewer. This option would technically avoid a 12th lift station, but this savings is not evaluated in this analysis as the Village currently does not have plans for this 12th lift station. An option to run the interceptor on private land adjoining Tower Woods on its west line, requiring property rights/easement, is included in this analysis.

ALTERNATE B Item	Quantity	Units	Budget Cost	
Interceptor, LS Upgrade to 30' Depth, Generator/ATS, Pumps & Controls, Restoration				
(Estimated 2025 Project Total from 05-13-2025 Estimate	2)			
Total Estimated Alternative B Capital Cost\$2,271,000				
Nominal Interest Rate for Present Value	4%			
Life Cycle	50	Years		
Assume no Change to Annual Lift Station Maintenance Annual Cost for Interceptor Maintenance w/ Annual Incr. 3960 LF \$2/LF \$7,920 Annual Cost Estimate for Manhola Scaling address line 10 EA \$100 Each \$1,000				
Annual Cost Estimate for Sewer Repairs w/ Annual Incr.	1%	\$100/LF @ 40 LF	\$4,000	
Annual Increase Factor	2%	50 Years		
Present Value of Annual Expenses with 2% Annual Increase, 50 Years, 4% \$411,000				
Alternate B - Total Estimated Present Worth \$2,682,000				

ALTERNATE C New Lift Station 12 & Forcemain at Required Depth Full Serviceability to East

Option C is to install a new lift station and forcemain, which the Developer has proposed. This would allow the Developer to receive full basement service to 100% of the proposed lots. However, this would add a lift station to the Village's operation and maintenance demands for the long-term. This adds O&M which is calculated at roughly \$29,000 per station annually, with an increase of \$1,000 annually for each year of the life cycle analysis. The lift station would be design and built to Village requirements and be adequate for future capacity even if only serving the proposed Glacier Meadows. The siting of the lift station would be close or on Pine Road. The depth of the lift station would also need to consider other parcels serviceability in the area. The forcemain would discharge to existing Pine Road sewers (currently draining to LS2) but additional review and confirmation of the ultimate discharge point, considering all interceptor and lift station flows/impacts, will be completed in design. This analysis could not go farther with those impacts with the limited time available for this development.

ALTERNATE C Item	Quantity	Units	Budget Cost	
Lift Station #12 to 30' Depth, Generator/ATS, Pumps & Controls, Forcemain (Estimated 2025 Project Total from 05-13-2025 Estimate)				
Total Estimated Alternative B Capital Cost \$895,000				
Nominal Interest Rate for Present Value	4%			
Life Cycle	50	Years		
Annual Lift Station #12 Maintenance w/ Annual Increase	1	Current O&M Total	\$29,000	
Total Estimated LS#12 O&M Present Worth, 50 Years, 4%, \$1,000 Annual Incr. \$984,0				
Pump Change-Out @ 15-Year Annum	1	\$25,000 Each Pump	\$50,000	
Total Estimated LS#12 Pump Change-Out Present Worth, 15 Years, 4% \$24,000				
Pump Change-Out @ 30-Year Annum	1	\$35,000 Each Pump	\$70,000	
Total Estimated LS#12 Pump Change-Out #2 Present Worth, 30 Years, 4% \$34,00				
Generator & Panel Change-out at 25-Year Annum	1	\$100,000+\$200,000	\$300,000	
Total Estimated LS#12 Generator & Panel Change-Out Present Worth, 25 Years, 4%\$113,000				
Salvage Value \$50000, 50 Years, 4% (\$7,000				
Alternate C - Total Estimated Present Worth \$2,043,000				

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SUMMARY OF COSTS:

Alt.	Description	2025 Capital Construction Cost	Present Worth O&M Cost	Project Present Worth Cost Including O&M	2025 Developer Allocation (Approx)	Net Village Present Worth Cost
A	Interceptor to LS10, Modest Upgrade to LS10, Moderate Serviceability East	\$1,218,000	\$411,000	\$1,629,000	50% Cap. Cost (\$609,000)	\$1,020,000
В	Deepen LS10, Generator/ATS, Interceptor, Full Serviceability East	\$2,271,000	\$411,000	\$2,682,000	25% Cap. Cost (\$568,000)	\$2,114,000
С	New LS12, Generator/ATS, Full Serviceability East	\$895,000	\$1,148,000	\$2,043,000	50% Cap. Cost (\$450,000)	\$1,593,000

CAPITAL COST: The current estimated capital cost of the construction project, See Estimates.

PROJECT PRESENT WORTH COST INCLUDING O&M: The 2025 Estimated Capital Cost, plus the Project's O&M, converted to Present Worth Value by calculation herein.

DEVELOPER ALLOCATION (APPROX.): The 2025 Developer Allocation that is approximated by service area percentage and need amongst available parcels for current development east of the Glacier Meadows Development. This will be subject to change but provides a value that reflects developer contribution.

ADJUSTED VILLAGE PRESENT WORTH COST: The Project Present Worth Cost including O&M, less 2025 Developer Allocation, reducing the overall impact to rate payers in 2025.

NOTES: Option C can be completed as a Developer-project reducing capital cost impact to rate payers (\$450,000) in 2025. This could be subject to change, but in theory there could be reduced debt impact if the overall cost of the project is developer-borne with an allocation by the Village. The Village would still be left with the O&M costs of the new lift station to work into its budgeting upon start-up and going forward.



RUDIMENTARY ANALYSIS OF POTENTIAL USER RATE INCOME, ANNUAL

Current Rate: Average Customer: Average Customer Quarterly Charge: Average Customer Annual Charge:	\$6.48/1000 gal 12,000 gal / qtr \$77.76 / qtr \$311.04 / annum
Total Estimated Residential Units Served by Analysis Area:	312
Average New Customer Annual Revenue	\$97,044

Present Worth Recapture Timeline from Current Rates on Cap. Costs Not Including Increases or debt service:

Alternate A	Alternate B	Alternate C*
7 Years	18 Years	5 Years

*Assumes LS12 as Developer-borne project

CONCLUSION

Alternate A shows to be the better option fiscally to the Utility with in the Present Worth Analysis. It comes with a higher capital cost impact to the Village which would be offset by Developer contributions and the possibility of future developer contributions. There is a reasonably equal payoff to the Village with Alternate C, as Alternate C transfers more upfront cost to the developer in this analysis. As expected, there is a lesser O&M cost with Alternate A when converted to present worth value.

Alternate B shows higher costs across the board, with more reliance on developer contributions in the nth years after the project. Alternate C shows comparable to Alternate A with the notable exception of O&M. As such, the option is less favorable to the Utility as costs increase going forward.

Looking solely at Present Worth Analysis, it would be the recommendation that Alternate A be chosen for the best interests of the Utility. There are other factors in the final decision including financial factors on debt service and timing, and the Village successfully pursuing a variance for pipe slope on the interceptor, which should be completed immediately to ensure a path forward on this track.

Respectfully,

ROTH PROFESSIONAL SOLUTIONS

Star S. Tak

Robert J. Roth, PE Village Engineer

Attachments: Estimates Service Area Maps Interceptor Concept Plans

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