
5.0 Summary and Recommendations

5.1 SUMMARY

This report estimates the compliance status for existing ISTS and provides the side by side comparison of the alternatives for long-term wastewater infrastructure for properties adjacent to the southern tip of Lake Miltona in Carlos Township (the CAR area). A summary of the findings:

- 74% of the evaluated ISTS are in non-compliance and fail to protect groundwater
- At least 15% of the individual wells in the CAR area are shallow wells that are likely susceptible to contaminated groundwater
- 18% of the evaluated ISTS are compliant holding tank systems
- 45% of the wastewater generating properties needing ISTS upgrades can install a Type 1 or Type 3 mound system
- 32% of the ISTS upgrades would require a holding tank as the only feasible option
- Estimated capital costs on average per property for the three alternatives:
 - Managed ISTS = \$12,000
 - Cluster Systems = \$17,000 (One large cluster mound for Service Area 2, one large cluster drain field for Service Area 3, and ISTS in Service Area 1)
 - Spray Irrigation = \$15,000 (irrigation of treated effluent for Service Areas 2&3 and ISTS for Service Area 1)
- The CAR area can be divided up into three Service Areas based on geography, average property size, land use, and current ISTS compliance status to further reduce costs per unit by providing the best wastewater treatment option for each area

- Based on 25- and 50-year present worth analysis, the community has a number of options for a combination of cluster and ISTS wastewater treatment that provide the best long term value in terms of cost per unit when both capital and annual operation and maintenance costs are taken into account.
- Another alternative was not evaluated per the scope of this report. That alternative would include pursuing the spray irrigation option with residents adjacent to the southeast corner of Lake Miltona in Miltona Township. This area is being evaluated in a similar CAR and is also seeking wastewater treatment alternatives. Combining the two areas into one may reduce the overall cost per resident for the spray irrigation alternative.

5.2 RECOMMENDATIONS

This report will aid in making an informed decision on what steps to take as the alternatives are considered. It is our recommendation that the CAR area be treated by Service Area, with the following recommendations:

- Service Area 1 to remain on ISTS. Non-compliant system owners upgrade their individual system.
- Service Areas 2 and 3 have many properties with a holding tank as their only viable long term solution unless they consider connecting to a cluster system or common system with other adjacent homeowners. Homeowners can consider these options and determine interest in a cluster system alternative. If holding tanks are installed, we recommend attempting to purchase cluster sites to plan for long term infrastructure.

5.3 NEXT STEPS

The following describes future actions that could be taken by Carlos Township based on the CAR recommendations.

- As stated in this report, 74% of the existing septic systems are in non-compliance. Douglas County will continue to enforce the ISTS regulations of Chapter 7080. Non-compliant systems will likely require upgrades in the near future and homeowners would be on their own to ensure their ISTS remains in compliance. The properties within Service Areas 2 and 3 have an opportunity to collectively construct a wastewater system to serve multiple residents. Homeowners with small lots and/or high groundwater that require a holding tank or large mound system may stand to benefit the greatest from this option. The township board has an opportunity to assist these landowners by managing a new wastewater cluster system.