

4. WASTEWATER

Sewer treatment in the parish today

The majority of the populated areas of the parish are served by six municipal wastewater treatment systems⁷:

1. Denham Springs
2. Walker
3. French Settlement
4. Livingston
5. Albany
6. Springfield

These public wastewater treatment facilities currently serve their own cities and several have extended to serve the surrounding unincorporated areas. Altogether, these systems serve less than 30% of the population of the Parish.

Livingston Parish is divided into eight (8) sewer districts to serve the unincorporated areas of the Parish. The two functioning parish wastewater treatment systems are Sewer Districts 1 and 2, which cooperatively serve the northwestern region of the Parish, including Watson and north Denham Springs areas (approximately 2,500 customers).

The remaining areas of the Parish are predominantly served by:

- a) Individual mechanical systems (i.e. MO-DAD Utilities and Total Environmental Solutions, Inc.)
- b) Individual septic systems
- c) Community collection and treatment systems (“package” treatment plants)

These systems are designed, and required, to treat wastewater at primary and secondary treatment levels⁸, and are then allowed to drain to open ditches along the roadways, eventually draining to major tributaries such as Grays Creek, Colyell Creek, the Amite River, Tickfaw River, and Natalbany River.

Water quality issues

The Louisiana Department of Environmental Quality (LDEQ) has indicated that there are poor water quality conditions, below state standards, in many of the surface waters in Livingston Parish. In doing spot checks, they found that a significant cause is that many of the individual and package systems are not functioning properly and are

⁷ See appendix for more information.

⁸ Sewage treatment generally involves three stages primary, secondary and tertiary treatment. Primary treatment is a separation stage, where solids are separated from the liquids. Secondary treatment removes dissolved and suspended biological matter. Tertiary treatment is generally used to create effluent classified as disinfected.

discharging inadequately treated effluent into parish drainages, which eventually reaches the surface waters of the Parish. Though installation permits for these systems are required by the Louisiana Department of Health and Hospitals (DHH), as well as yearly certification, after they are installed there is inadequate monitoring of the systems to assure that they are functioning correctly.

Inadequately treated effluent contains disease-related bacteria, which are hazardous to humans as well as riparian wildlife/water species. Also, high amounts of chemicals and organic materials cause algal blooms that consume the oxygen in the water, suffocating aquatic life.

Standards for the allowed level of pollutants in water bodies (called Total Maximum Daily Load, or TMDL), are established by LDEQ. A number of water bodies in Livingston Parish have been classified as “impaired” due to high TMDL levels, including Gray’s Creek, the Amite River, Colyell Creek, the Tickfaw River, and the

Natalbany River (see Figure 25).

When TMDL limits are exceeded substantially, LDEQ has the authority to restrict permits on new wastewater discharges to surface waters (individual and package systems), which can effectively curtail growth and economic development.

LDEQ has indicated that TMDL limits are likely make wastewater treatment discharge permits for any new individual or package treatment systems more difficult to obtain. Thus, a regional system is going to be necessary to assure adequate water quality in the developed areas of the parish, and especially to allow for new development.

The presence, or lack, of wastewater treatment is likely to also affect the development of state roads. It is currently a policy of the Louisiana Department of Transportation and Development (LADOTD) not to allow untreated effluent into storm drain lines associated with road drainage. Since many of the drainage swales along roads in the parish carry under-treated effluent (as described above), roads cannot be widened using piped storm drains until effluent treatment is improved.

Effectiveness of a Regional Wastewater Treatment System

After the construction of a new wastewater treatment plant in Denham Springs, and the attachment of many existing individual and package plants to the system, the TMDL levels in Gray’s Creek dropped (water quality increased) sufficiently that the LDEQ began to again permit discharges in that watershed.

Wastewater

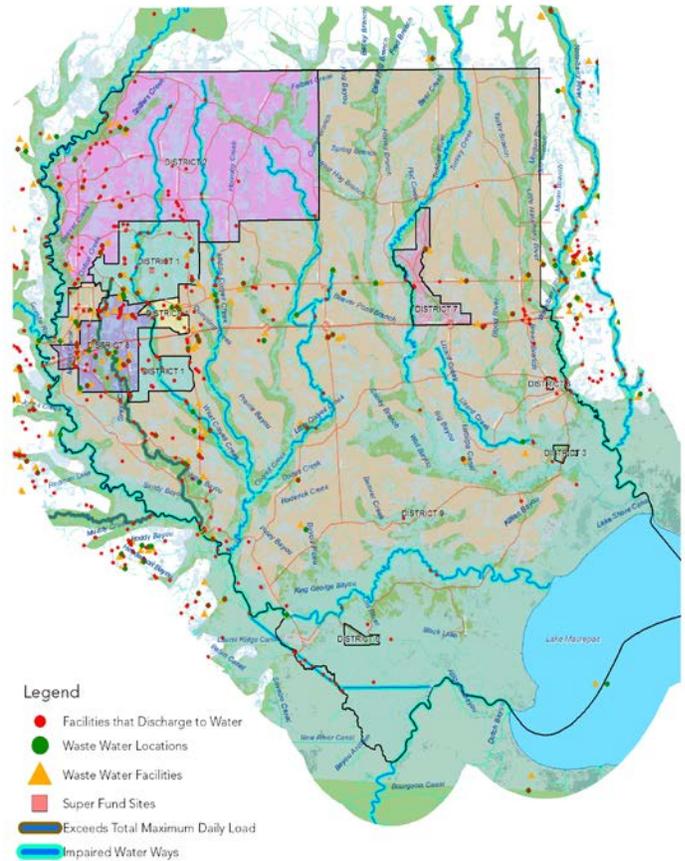


Figure 24: Wastewater issues and sewer districts.

If the parish wishes to attract quality development in the future, the reality is that desirable commercial, medical, employment and even residential developers cannot consider development in areas without adequate wastewater service.

Therefore, construction of a regional wastewater treatment system is perhaps the most important need for Livingston Parish's continued growth and development.

Wastewater treatment capacity and need

If Livingston Parish's population doubles by 2030 as projected, it will require significant improvements to the existing wastewater infrastructure to meet the increase in demand. Between the parish and municipal systems, Livingston Parish currently has approximately 7.5 MGD of public wastewater treatment capacity. The increased population will produce approximately 14.5 MGD of wastewater, nearly twice the existing capacity. In addition, a number of already-developed areas need to attach to a public system, and additional treatment capacity will be required to account for storm water infiltration into the wastewater pipes. Therefore, treatment demands will more than double the existing supply.

Most future growth is projected to occur in the "growth barbell," moving generally from west to east. In the northwest areas of the parish are already contributing a significant part of the water pollution problem. As a result, the Denham Springs, Walker, and Parish Sewer Districts 1 & 2 systems will require the most immediate improvements to meet the increase in demand.

What intensity of development justifies regional treatment service?

One of the factors that determine where to install central wastewater facilities is development density. If there aren't enough homes along a wastewater line, their associated fees, or the district's tax levy, typically won't cover the cost of construction and maintenance.

In 2007 the US Army Corps of Engineers (USACE) sponsored a study⁹ that evaluated water and wastewater treatment feasibility and recommended options for Livingston Parish to support future growth. The USACE study indicated that 12 households per linear mile would be an adequate density.

After further analysis, considering current construction costs, the CMP recommends, as a general rule¹⁰, that only areas with a density of 1 or more homes/acre be considered for new wastewater treatment service. If state or federal grant money or low interest loans were available, lower densities could also be feasible.

For rural areas that do not have enough homes/acre to support the costs of being on the regional system, additional efforts will have to be made to make sure that individual or community (package treatment) systems can be made to reliably treat effluent to the levels for which they are designed.

⁹ *Master Plan – Water and Wastewater System Improvement and Enhancement-2007.*

¹⁰ *Individual circumstances will of course vary.*

Alternatives for providing public wastewater service

The USACE report evaluated several approaches¹¹ to providing wastewater treatment in the region, and recommended a Regional Plan focusing on Critical Areas. Their preferred alternative is described below:

USACE Alternative 5: Regional Plan – Critical Areas – “Utilize existing systems to optimize existing facilities, and build new facilities to meet the additional demand, while focusing on the northwest and southwest as the two most critical areas where the demand is greatest.”¹²

In this approach, Parish Sewer Districts 1 & 2 would most likely expand their boundaries to serve all unincorporated areas not served by the Denham Springs and Walker systems. A systematic approach to expansion would be developed, including purchase of private package treatment plants and community systems. It is anticipated that the expansion would occur from the northwest in a southeasterly direction. For the short-term, optimizing existing facilities would serve approximately 6,500 households. Within approximately twenty-five years, the remainder of the 21,000 homes could be served, provided funding could be secured.

The benefits of this approach are that primarily existing treatment plants would be used, with improvements and additions to meet the additional demands. It would also utilize, and expand the staff and structure of existing districts.

There are two primary challenges faced by this approach:

1. Given that where sewer is extended will have a major influence on where growth occurs, significant coordination will be required between the districts and the parish to assure that all the systems needed for growth (roads, utilities, parks, etc.) will be available in a timely fashion.
2. The cost of implementation will be far greater than the parish districts have heretofore faced, and they will need significant new sources of revenue, as well as a sure system for collection of fees.

Costs and funding

The initial cost of Alternative 5 was estimated at \$254 million, with an anticipated operation and maintenance cost of \$2.1 million/year.

Although extremely expensive, the USACE report projected that Alternative 5 had the greatest chance of receiving federal funding. It was recommended that grants be applied for incrementally.

In addition to seeking grant funding, it is also recommended that the Parish support a new sewer property tax to provide a stable, long-term source of funding over the next 20 years.

¹¹ See appendices for list of other alternatives.

¹² See footnote 8 above.

Wastewater takeaways

1. There is a strong possibility that future major development (both buildings and roads) will be greatly slowed, curtailed or greatly reduced in intensity, in areas that do not have regional wastewater treatment.
2. It is likely that properties receiving wastewater treatment will become more valuable for many uses and will increase in value to their owners, especially commercial properties. This will also make the land more expensive for developers and will encourage/promote higher density uses to recapture the additional costs.
3. Wastewater treatment costs will generally cause development in Livingston Parish to get more expensive in the future. The wastewater facilities typically installed in the past did not adequately mitigate the true impacts of development on water quality—and the decrease in water quality those costs must now be included, and in fact recaptured.
4. Given the cost of implementation, it will be very likely be necessary to extend the wastewater treatment system in gradual steps, and development will likely follow suit.
5. Extend wastewater treatment service throughout the areas of the parish that have developed, or are expected to develop, at a density that can sustain the cost of installing and maintaining the system. (Generally at a density of 1 or more homes/acre.)

Implementation

Strategy

1. Facilitate the new wastewater treatment services by assisting the Livingston Parish Sewer Districts 1 & 2 in expanding their facilities and boundaries. This means helping the existing districts find the funding they need for infrastructure improvements.
2. Assume that expansion will be incremental outward from existing lines and treatment plants. (Avoid leap-frog expansion)
3. Each district will determine its own policies. In general, the Parish should simultaneously encourage an expand wastewater treatment lines to:
 - a. Serve existing homes (this will help increase water quality and avoid curtailing development), and
 - b. Providing opportunity for new commercial/employment development (to increase employment and retain sales tax to support local funding needs).
4. Expand wastewater services only where there is high participation by existing landowners along the new extensions.
5. Expand only when the land use density is allowed (zoning or some other measure) to reach an economic level of density.

Actions

1. Call a “summit meeting” of parish sewer providers to:
 - i. Establish a vision for regional service.
 - ii. Evaluate the obstacles and opportunities to creating a regional system (such as the ASCE approach) and formulate solutions¹³.
 - iii. Formulate a cooperative agreement for expanding existing systems.
 - iv. Begin the search for funding mechanisms such as a property tax.
2. Work with the State (DHH) to monitor and enforce improperly functioning private treatment systems.
3. Revise Livingston Parish Code of Ordinances for wastewater regulations:
 - a. Reduce the allowable number of houses within new developments to be served by a package treatment system.
 - b. Require future developments on private wastewater treatment services (such as Mo-dad or TESI) to tie into public wastewater infrastructure when it reaches their service area (at no cost to the public).
 - c. Do not allow development that will increase Total Maximum Daily Load levels of an impaired water body as defined by the Louisiana Department of Environmental Quality.

¹³ *For example, if the parish sewer districts are not able to provide service to an area, then it may be cost-effective to share costs of expanding municipal systems to unincorporated areas of the parish. The municipality could gain customers, and the expanded capacity would return tax benefits to the parish. Incentives could include sharing of installation costs or tax revenues.*