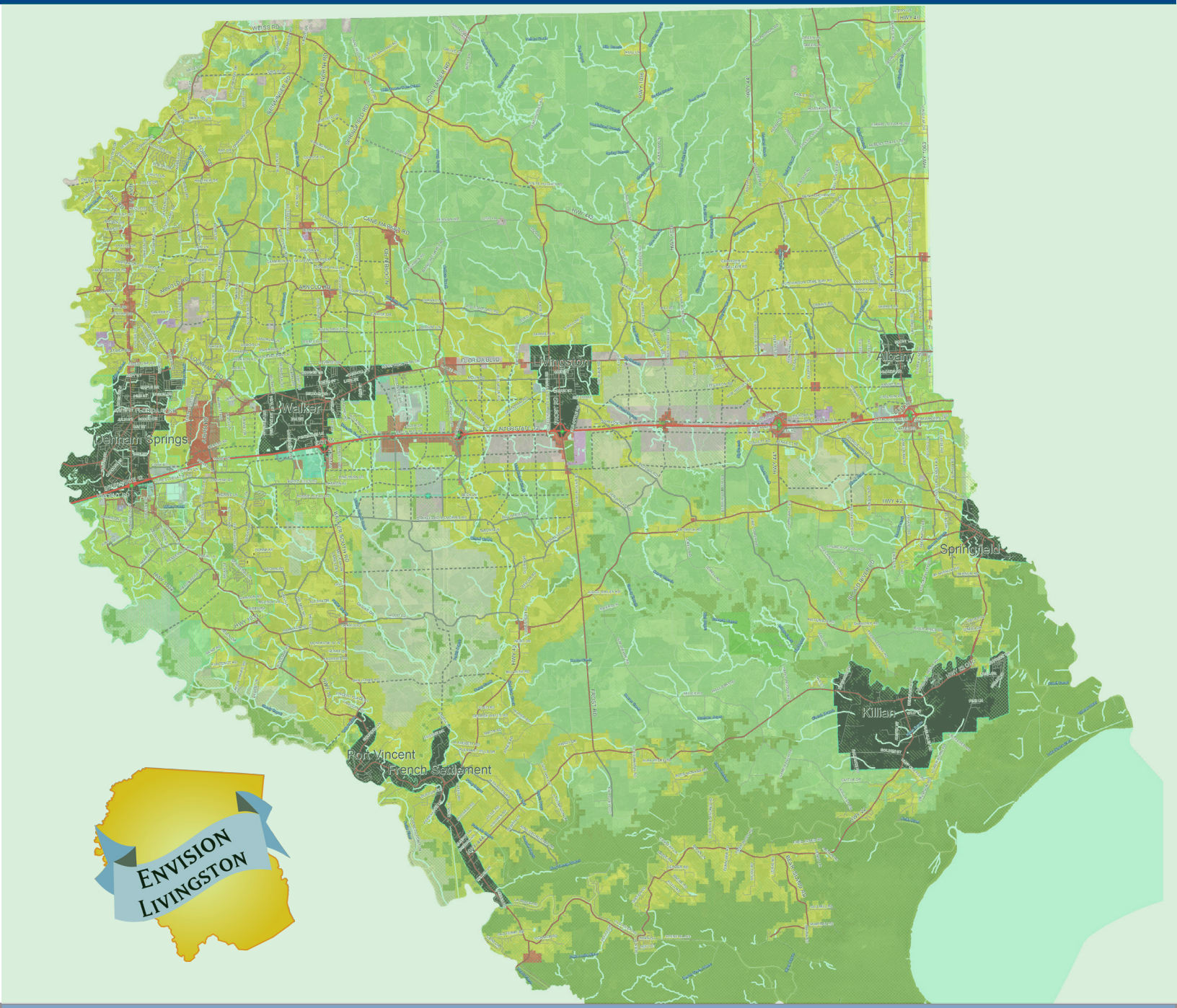
Approved by Livingston Parish Council
23 May 2013

ENVISION LIVINGSTON



A Comprehensive Master Plan for Investing in Our Future

Livingston Parish, Louisiana

STATE OF LOUISIANA

PARISH OF LIVINGSTON

LPR NO. 13-168

MOTION was offered by Joan Landry duly seconded by Cindy Wale that:

Whereas, the Livingston Parish Council recognizes the importance of planning for future growth and development so the Parish can efficiently accommodate projected growth in a cost effective manner while preserving the quality of life enjoyed today.

Whereas, the Comprehensive Master Plan was developed with extensive input collected in over 75 meetings including stakeholder meetings[1], technical advisory committee meetings, issues meetings[2] and public meetings and additional input was sought through: a website managed by the parish, several advertisements in and press releases to newspapers, email notifications, and personal invitations.

Whereas, throughout the planning process the input received was used to steer the planning process.

Whereas, the Parish has drafted the plan with the help of the Comprehensive Master Plan Steering Committee that was appointed by both the Parish President's Office and the Parish Council and represents a wide variety of interests and viewpoints in the parish.

Now therefore, the Livingston Parish Council hereby adopts the Livingston Parish Comprehensive Master Plan entitled Envision Livingston.

Future Parish Council decisions regarding growth and development shall be consistent with the Comprehensive Master Plan or the Plan should be amended via the process outlined in the Plan. The approved Comprehensive Master Plan is a "council administrative approval" draft that contains text, maps, illustrations, and tables, as well as recommended goals, actions, strategies. It is understood that the Comprehensive Master Plan may be published, without further approval, in an illustrative format, with additional illustrations, tables, and photos, along with minor editing and error corrections, so long as the intent of the document and its recommendations is not significantly altered.

Upon being submitted to a vote, the vote thereon was as follows:

YEAS: MS. WALE, MR. PARENT, MR. NORRED, MR. BLACKWELL, MR. GOFF, MS. COLLINS, MR. SHARP, MR. HARRIS

NAYS: NONE

ABSENT: NONE

Thereupon the chair declared that the Motion had carried and was adopted.

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[1] Stakeholder included meeting with such groups as the mayors, the Livingston Economic Development Corporation, local citizen groups such as the Citizens for Infrastructure in Livingston Parish and Neighbors in Action, with local librarians, etc.

[2] Issues meetings included meetings with the Capital Region Planning Commission, Gravity Drainage Districts, individual municipalities, etc.

CERTIFICATE

I, Sandy C. Teal, do hereby certify that I am the duly appointed Deputy Clerk of the Livingston Parish Council, State of Louisiana. I hereby further certify that the above and foregoing is a true and correct copy of a Motion adopted by the Livingston Parish Council at a special meeting held on May 23, 2013, in which meeting a quorum was present.

WITNESS my official signature and seal of office at Livingston, Louisiana, this the 2nd day of June 2013.

Sandy C. Teal

Sandy C. Teal, Deputy Clerk
Livingston Parish Council

An illustrative version of this document, with additional maps and graphics, will be available in July 2013.

Envision Livingston

A Comprehensive Master Plan for Investing in Our Future

Livingston Parish, Louisiana

Adopted by the Livingston Parish Planning Commission 17 April 2013

Adopted by the Livingston Parish Council 23 May 2013

Acknowledgements:

The Livingston Parish President's Office

The Livingston Parish Council

The Livingston Parish Planning Commission

The Livingston Parish Comprehensive Master Plan Steering Committee

The Livingston Parish Staff

The Livingston Parish Comprehensive Master Plan Technical Advisory Committee

Comprehensive Master Plan Stakeholders

The public

The Plan was funded with a federal grant from the Federal Emergency Management Agency's Long-term Recovery Program as a way to address long-term recovery and rebuilding in the aftermath of the 2005 hurricane season.

The Comprehensive Master Plan consultant team was comprised of:

MIG

ARCADIS

CH Fenstermaker & Associates

Charlier Associates

Jim Richardson, Ph.D.

Code Studio

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1. What you need to know about the Comprehensive Master Plan

What is the Comprehensive Master Plan?

Our parish is increasingly changing from a rural to suburban, and even in some cases semi-urban, environment. As growth occurs infrastructure (roads and utilities) is needed. Infrastructure is very expensive. Anticipating where growth is going to occur, and what kind it is likely to be, can help us put infrastructure, and the other "big things" (such as schools, sewer plants, etc.), in the right locations, and developed at the right size. This can help avoid costly mistakes such as building roads too small for projected traffic volumes, not having wide-enough servitudes to widen roads in the future, under-sizing water or sewer lines, etc. And, since infrastructure maintenance is also very expensive, extending roads and utilities before there are enough homes and businesses to pay for them can increase parish costs, and increase taxes on everyone.

The discussion above focused on the relationship of only three issues: roads, utilities and land use. There are many other issues that are also related to growth and development in Livingston Parish.

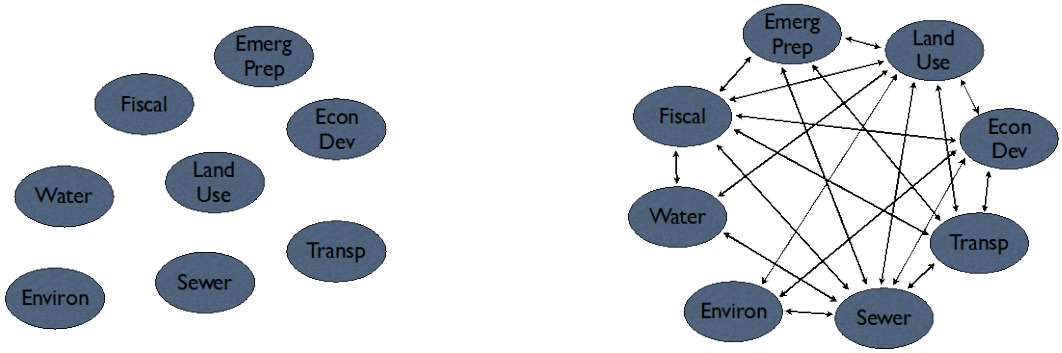


Figure 1: Interrelated issues

In order to plan effectively for the future it is important to keep in mind that *all* of these issues are interrelated (see Figure 1). For example, decisions about the size and location of roads (transportation) affect the parish's budget (fiscal), where homes and stores should be developed (land use), where businesses will be attracted to (economic development), and how evacuations can be handled (emergency preparation). Similarly, decisions about where to extend public sewer affects where roads can be built, where and how many homes and businesses land will accommodate, the parish budget, the quality of our rivers and lakes, etc.

The purpose of planning ahead is to "get the big stuff right", that is, to anticipate where growth is likely to occur (and what kind of growth it is likely to be), so that we can plan for the right size of servitudes, roads, schools, power lines, drainage channels, etc.— in approximately the right locations. It is much less expensive to put them in "right" in the first place, than it is to impact existing development to install them, or to replace them.

The decisions of many businesses, stores, employers, and even homeowners about where to locate are influenced by whether they feel that the parish is in fact "planning ahead", that there is predictability about what will happen where, so that they can be confident their investments will be secure as development continues.

The Livingston Comprehensive Master Plan is a tool for planning ahead, for trying to anticipate where growth will occur, and be cost-effective in where we invest in infrastructure.

The Comprehensive Plan also helps us accommodate growth in a way that preserves our quality of life. It can help us steer or encourage future development so that it is compatible with existing neighborhoods, and that parks, trails and schools are planned for. This gives existing and future residents, who are also "investors", confidence in making their own decisions with a more secure vision of the future.

For these reasons this Comprehensive Master Plan has been titled "a comprehensive master plan for investing in our future." If followed it will help everyone make better choices, reduce conflicts, and bring about a parish that remains an attractive, functional place to live and work.

Key concepts of the Plan ("Plan on a page")

1. The parish is projected, and has the capacity, to double in population over the next 30 years. As development pressure increases, if we want to preserve our quality of life we have to plan ahead.
2. Growth pressure is following a "barbell" pattern from the west and east sides of the parish. Large areas of the parish will not experience development pressure, and don't need extensive planning or regulation.
3. Attracting good businesses is important to our sustainability.
    i. The loss of sales tax revenue hinders our ability to provide amenities as well as necessities.
    ii. Predictability and appearance is important to those we want to move here.
4. Future economic success in the parish will be dependent on:
    i. An interconnected system of major roads
    ii. Regional sewer
    iii. Added capacity for domestic water service

    We've been talking about these needs for years; it's time to get organized to bring them about.
5. Development follows sewer / roads, and vice-versa.

    Where we invest in infrastructure (roads, water and sewer will influence where development occurs. Where development occurs will influence where infrastructure is needed. To get the "big stuff" right we need to coordinate where we invest in our resources.
6. Growing our infrastructure incrementally is less expensive than scattered growth ("leap frog" development).

i. Road maintenance is paid by taxes. Roads are expensive to build and maintain (as much as $15,000 per year for every mile of road). In the long run, the homes and businesses along the road help pay for the road with their property taxes. When roads are extended long before development occurs, the cost is born by all the residents and businesses of the parish. It is more economical to extend roads in balance with where development will help pay for them.

ii. Similarly, the cost of utilities and services (police, fire, school buses, etc.) are affected by the distances they serve vs. the number of homes and businesses.

7. Being considerate of neighbors will make the parish a better place to live and work

   For those living here now, and those to come, we need to find ways to avoid locating incompatible uses next to each other

Key recommendations of the Plan

1. Use the Anticipated Land Use Map as an initial/interim guide for where and how development is likely to occur and to make land use and infrastructure decisions.
2. Adopt zoning, and basic design guidelines in the critical Hwy 190/I-12 "economic corridor" to encourage needed, quality economic development (employment and commercial uses).
3. Begin working with individual sub-areas ("self-determination" areas) of the parish to determine the degree to which they wish to increase predictability of land uses. Incorporate their plans into an update of the CMP.
4. Adopt the Major Street Plan of the CMP and use it to make sure that future development doesn't preclude the ability to create an interconnected system of roads to reduce congestion in the parish. Update the Major Street Plan.
5. Convene "summit meetings" of water and sewer providers to begin the process of planning how to provide the necessary services that will enable sustainable growth of the parish.

How is the Plan used?

The CMP is advisory. It is not a regulation. It is intended to be a general guide for decisions about infrastructure and land use by the Parish Council, Planning Commission, and parish staff, as well as by property owners, businesses, and developers.

For example, a comprehensive plan may be used as:

- A guide for individual decisions, a "blue-print" for encouraging compatible future development.
- A guide for decision making by individuals, agencies, and businesses—and a tool for helping coordinate their decisions for the common good.

- A list of objectives that the community intends to accomplish over the coming years, (the implementation plan).
- A "file cabinet" of the other types of plans including small area and neighborhood plans, streetscapes, corridor preservation, parks, recreation, historic preservation, and community development.

Because the plan is general there are many details that need to be worked out. These can be addressed in several ways:

- During the parish process for reviewing/approving individual projects
- More detailed plans can be prepared by individual "self-determination" sub-areas (see Section 3, Land Use, Implementation Strategies)

And finally, if the CMP is to remain a useful tool, it must be kept current. That means that as developments are approved, the plan should be updated. As other conditions change, the plan should be updated. If the plan does not reflect how the parish is actually growing, and intends to grow, it will cease to be helpful in planning ahead, and decisions will revert to being made on a case-by-case basis with no overall sense of where the parish is going.

How to update the Plan

As conditions change (e.g., community opinions change, the economy adjusts) updates to the plan become necessary. Two types of updates are envisioned:

- A **major** update to the Plan is one that substantially changes the land uses, goals, or intent of the plan. Major updates should include substantial public outreach to help 'check' that the plan reflects current attitudes (for an example of substantial public outreach please see the appendices).
- **Minor** updates are less overarching. They do not change the focus of the plan. They may include clerical corrections, minor updates to data, and other changes that clarify the intent of the plan. An example may be a neighborhood that is willing to dedicate substantial open space rather than the residential land use designated in this plan. Minor updates should be made as often as necessary. They may be made administratively, with notification of the Council, Planning Commission, and public.

Authority for the Comprehensive Master Plan

The Plan was developed under the Louisiana Revised Statues (LRS). LRS Section *33:101* defines what a master plan is:

> *"A "Master Plan" means a statement of public policy for the physical development of a parish or municipality adopted by a parish or municipality"*

Section *33:106* identifies what a master plan can do, it states that:

> *"Any such plan shall provide a general description or depiction of existing roads, streets, highways, and publicly controlled corridors, along with a general description or depiction of other public property within the jurisdiction that is subject to the authority of the commission"*

Then it goes on further to identify other components:

> *"Any such plan, with the accompanying maps, plats, charts, and descriptive matter may include a commission's recommendations for the development of the parish or municipality, as the case may be, including, among other things, the general location, character, and extent of railroads, highways, streets, viaducts, subways, bus, street car and other transportation routes, bridges, waterways, lakes, water fronts, boulevards, parkways, playgrounds, squares, parks, aviation fields, and other public ways, grounds, and open spaces; the general location of public buildings, schools, and other public property; the general character, extent and layout of public housing and of the replanning of blighted districts and slum areas; the general location and extent of public utilities and terminals, whether publicly or privately owned or operated, for water, light, sanitation, communication, power, transportation, and other purposes; and the removal, relocation, widening, narrowing, vacating, abandonment, change of use, or extension of any of the foregoing ways, grounds, open spaces, buildings, property, utilities, or terminals."*

This LRS section goes on further to identify how a plan can be updated:

> *"As the work of making the whole master plan progresses, a commission may from time to time adopt and publish a part or parts thereof, any such part to cover one or more major sections or divisions of the parish, or one or more of the aforesaid or other functional matters to be included in the plan. A commission may from time to time amend, extend, or add to the plan."*

How was the Plan developed?

The plan was developed with extensive input from residents, businesses, staff, and elected and appointed officials. Early in the process, individual meetings were held with a variety of interest groups throughout the parish (the Livingston Economic Development Council, Neighbors in Action, Citizen's for Highways and Infrastructure, real estate professionals, community groups, mayors and city representatives, etc.).

In addition, two rounds of public meetings were held in locations throughout the parish. All of the meetings were extensively publicized and reported in news media, and a web site provided additional opportunities for the public to be informed and provide comments. Public outreach helped identify issues and concerns and refined the directions that emerged from the plan.

That feedback from the public was augmented by more detailed information provided by a Technical Advisory Committee representing departments of the parish as well as regional agencies (e.g. water, sanitation and drainage districts).

A Steering Committee comprised of individuals with backgrounds and interest reflecting the parish as a whole provided valuable feedback and effectively "steered" the emerging concepts — not only by critiquing the ideas, but also by generating many of the original concepts and priorities in the plan.

[And finally, both the Livingston Parish Planning Commission and Parish Council adopted the plan.]

For more information on the planning process, including feedback obtained at the public meetings, please see the Appendix.

Where do I find…? (How the Plan is organized)

Chapter 1 contains an overview of the purpose of the plan, how it was created, identifies methods for updating it and key concepts and recommendations

Chapter 2 reviews the history of growth in the Parish. It is intended to present a snapshot of where the Parish is today.

Chapters 3-9 address individual topics –land use, wastewater, transportation, drainage, and emergency management—that are important interrelated to growing cost-effectively and in a balanced way. Each section identifies "what we have today" (current conditions and issues), "what we need" (possible options for future decision-making), and several preliminary recommendations for how to proceed.

Chapter 10 summarizes the various steps and options for implementing the recommendations of the CMP.

Chapter 11 includes the major maps in the plan, the Existing Land Use Map, the Anticipated Land Use Map, and the Major Street Plan.

The Appendix contains includes a review of the public planning process and supporting and background information such as the existing wastewater systems, existing drainage districts.

2. What do we have today and how did we get here? (Existing conditions and trends)

To plan for the future, we must examine where we came from. In addition, a clear accounting of today's assets and liabilities, and how they have changed over time, will help us understand our trajectory—where we are headed. Such an assessment will help provide a clear understanding of what modifications are necessary to maintain our values and way of life as the Parish grows.

Our history of growth

Livingston Parish was created on February 10, 1832, when the state legislature split St. Helena Parish in two.

Timber and railroad – early 1900s to the Great Depression

The parish population (originally of European descent) initially started to grow after the French and Indian War, which ended in 1765. A demand for building materials arose in Livingston Parish and a port at Springfield on the Tickfaw / Natalbany River developed. The town and port remained viable for over a century.

Logging of both pine and hardwoods influenced the creation other communities in other areas of the parish. The Lyon Cypress Lumber Company, later renamed as the Lyon Lumber Company, established the company town of Livingston in the early 1900s.

The railroad from Baton Rouge to Hammond steered growth in the parish in the early 1900s. The Garyville Northern Railroad Company/Illinois Central Gulf line ran through both Denham Springs and Livingston. Denham Springs became the shipping and crop hub when the train station was built. The railroad alignment in the north encouraged growth but negatively impacted Springfield and Port Vincent in the south.

A road connection from Denham Springs to Baton Rouge made it easier for residents to work in Baton Rouge plants and businesses. Denham Springs became the commercial and banking center of the parish.

When the Great Depression hit, the price of commodities dropped considerably. The mill in Livingston closed in 1931. Because it was largely a company town, all but about 12 families moved out of the area. By 1937, both banks in Livingston Parish had closed.

Post World War II to the 1980s

After World War II, the construction of Highway 190 (today Florida Boulevard) parallel to the railroad steered the growth pattern in the parish to its geographic center. That pattern was continued with the construction of I-12, which encouraged additional growth in the parish in the 1970s and 1980s.

Parish growth accelerated during the oil boom of the 1970s. The parish grew from a population of 36,511 in 1970 to 58,806 in 1980, a growth rate of 61.1%!

In 1986-87, the cost of oil dropped considerably and, due to its dependency on oil and gas production for jobs, another depression hit Livingston Parish. It took approximately 10 years for recovery.

Notwithstanding the oil bust and recession, residents and businesses began to migrate to the parish. According to the U.S. Census, between 1980 and 1990, the parish

population increased from 58,806 to 70,526 people—an increase of 19.9%. The first major manufacturer, Sunland Fabricators, located in the parish in 1986. Other small firms followed including Compressor Engineering Corporation of Houston.

Exodus from Baton Rouge in the 1990s

More recent population increase in the parish got its momentum from a growing exodus of residents from Baton Rouge in the 1990s. While the job base continued to be located mainly in Baton Rouge, the highway system allowed relatively convenient commuting from inexpensive land. With the Parish's focus on creating good public schools, it began to attract the middle class from Baton Rouge. Desegregation laws and high crime rates in Baton Rouge furthered that trend. Many subdivisions developed in and around Denham Springs and Walker; and also developed in the Watson area where a large concentration of Albemarle Corporation workers lived. According to the U.S. Census, from 1990 to 2000 the overall parish population increased from 70,526 to 91,814 – an increase of 30.2%.

The Impact of Katrina and Rita

The parish continued to grow into the 2000s at a similar rate to the decade prior. However, in 2005, the impact of Hurricanes Katrina and Rita in southern Louisiana resulted in the largest influx of residents to the parish. Livingston gained more than 36,000 residents during the past decade, from 91,809 in 2000 to 128,026 in 2010 – the great majority arriving after 2005. The Census Bureau estimates that between 2007 and 2008 57% of the population growth in the entire Baton Rouge Metropolitan region occurred in Livingston Parish. Growth also continued to occur in Watson, Denham Springs and Walker but it also spread to Livingston, Holden and in the south along the Amite River and the Diversion Canal.

From 2005 - 2008, with population growth, the parish also added 265 net new businesses, including Bass Pro Shops. The parish's total wages have grown 56%, more than any other parish in the Capital Region. Median household income increased from $25,470 in 1989 (just before the growth spurt began) to $42,916. In 2009 and 2010, North Oaks Health System and Our Lady of the Lake Regional Medical Center (respectively) began construction on Livingston's first two hospitals.

According to the U.S. Census, during the decade 2001-2010 the parish growth rate of 39.4 % was second in the state only to Ascension Parish (at 39.9%) in both growth rate and absolute population growth.

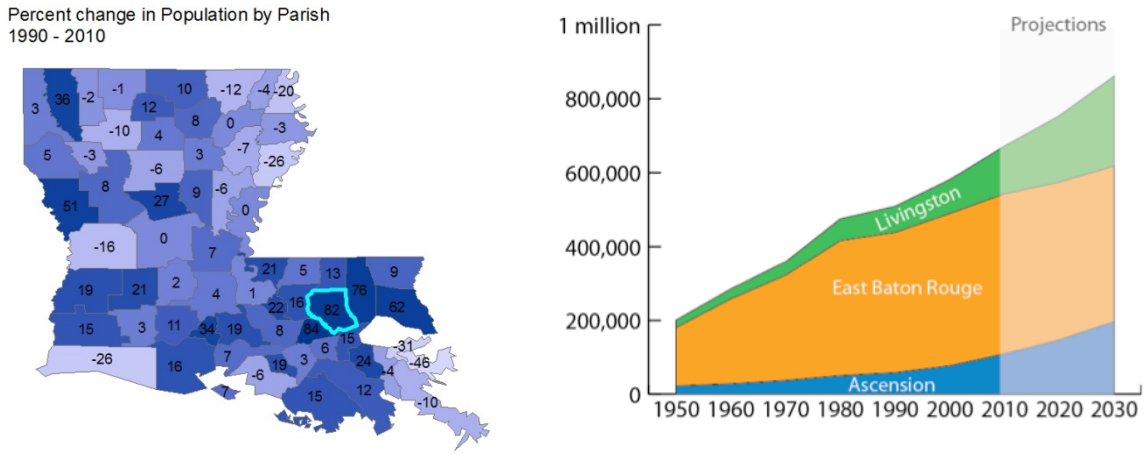
Growth has slowed somewhat recently due to the 2011 recession, but overall growth in the parish is expected to continue with estimates[1] of 245,000 by 2030—a doubling of our current population.

It may be difficult to imagine but, if it materializes, the projected growth will equal or exceed the highest growth *rate* in parish history, and the *amount* of growth will far exceed our previous experience (see Table 1 and Figure 2).

[1] *Jim Richardson, Louisiana State University*

Table 1: Population of the parish over the past century
(Source: US Census Data).

Census	Pop.	(%±)	Influence
1900	8,100		- lumber
1910	10,627	(31.2%)	- RR, lumber
1920	11,643	(9.6%)	- RR, lumber
1930	18,206	(56.4%)	- RR, lumber
1940	17,790	(−2.3%)	- depression
1950	20,054	(12.7%)	- highway to BR
1960	26,974	(34.5%)	- highway to BR
1970	36,511	(35.4%)	- highway to BR
1980	58,806	(61.1%)	- highway to BR
1990	70,526	(19.9%)	- Oil price drop
2000	91, 814	(30.2%)	- White flight



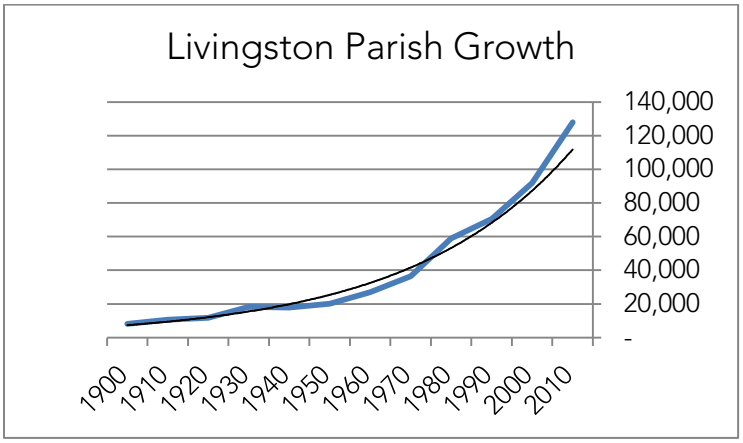


Figure 2: Livingston's recent growth trends and future growth projections.

The growth "barbell"

If growth continues in the parish even approximately close to the large population increase predicted over the next 20-30 years (approximately 120,000 more people, and up to 40,000 more homes), where will this growth go? What impact will it have?

We can gain some insight into the future by looking at where growth has happened in the past, and at past trends that may persist into the future.

Growth and development typically follow access (roads, rivers, rail, air, and internet) and growth in Livingston Parish has been no exception: growth has tended to follow the railroad tracks, Highway 190, and I-12. The current widening of I-12 will continue to make this Livingston Parish's major economic corridor.

In the last several decades, most of the growth in the parish has occurred in the west as workers from East Baton Rouge Parish moved to the a parish seeking good schools, less expensive land, and the rural character of Livingston Parish.

French Settlement has also begun to attract growth due to the relatively close access to industrial jobs in Ascension Parish (via LA 42 and 16).

More recently, growth is also beginning to occur in the eastern edge of the parish, a spillover from the growth in Hammond that is extending westward.

By contrast, the north-central, northeastern and southeastern areas of the parish are further away from the major highway system and thus not experiencing significant development pressure.

The result of these growth trends is forming a "barbell" (see Figure 3) pattern that some estimate will continue to grow from both the east and west toward the middle of the parish.

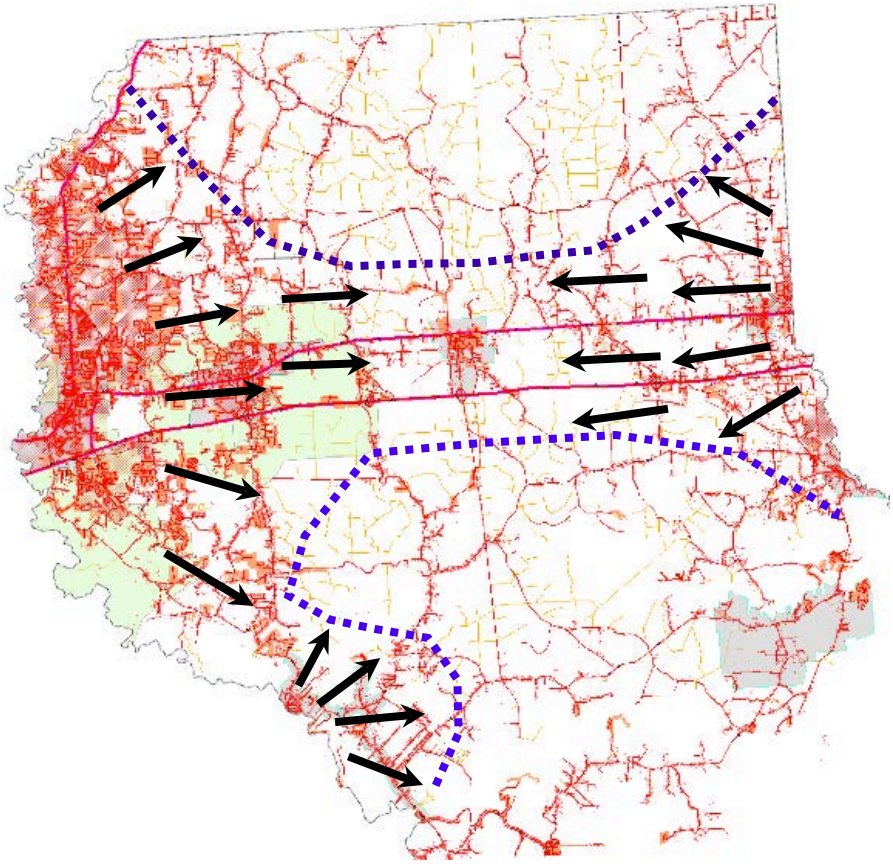
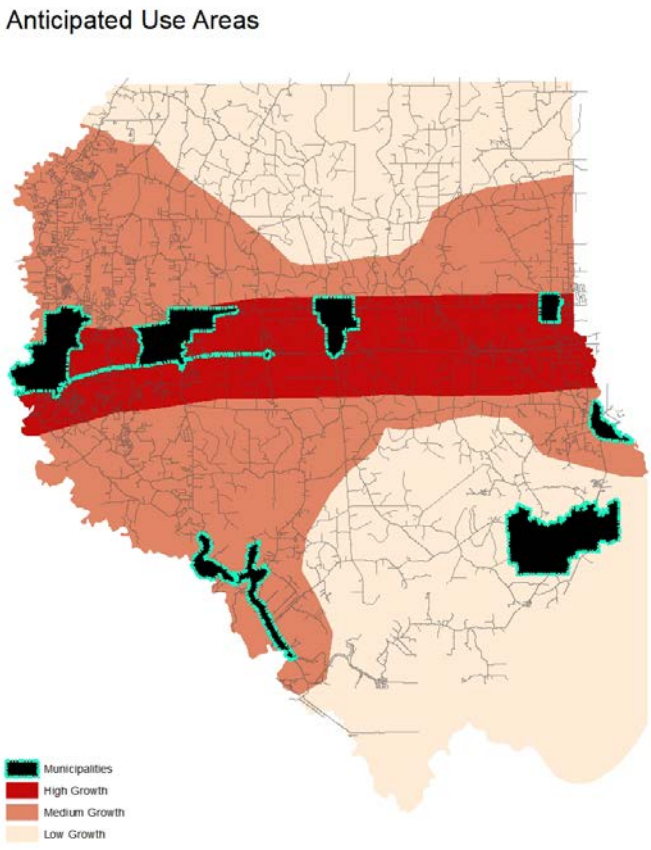


Figure 3: The "barbell" effect.

The Parish is experiencing three general rates of growth (see Figure 4):

1. **High Growth (the "economic corridor"):** High growth is primarily occurring in the I-12/US-190 corridor from the edge of East Baton Rouge Parish to just west of Albany. Major cities of the parish are located in this corridor, as well as Juban Crossing and two new medical campuses. This area was identified by the Steering Committee and the Livingston Economic Development Council (LEDC) as the area is expected to see the most demand for future growth—commercial, industrial and even high density residential. It was also identified by members of the Parish Council as an area that should develop with simple design guidelines.
2. **Medium Growth:** This area is the "growth barbell" that has experienced significant growth, residential and commercial, to this point. The Watson area is in the "barbell", as well as the planned airport. This area is likely to see growth continue, which will be primarily residential, with commercial development happening at arterial intersections.
3. **Low Growth:** This area is not likely to see significant growth in the near future. To the north, the land is primarily timber land and to the south swamps and wetlands are dominant. As no major infrastructure is identified in this area, the area should generally have < 1 unit per.



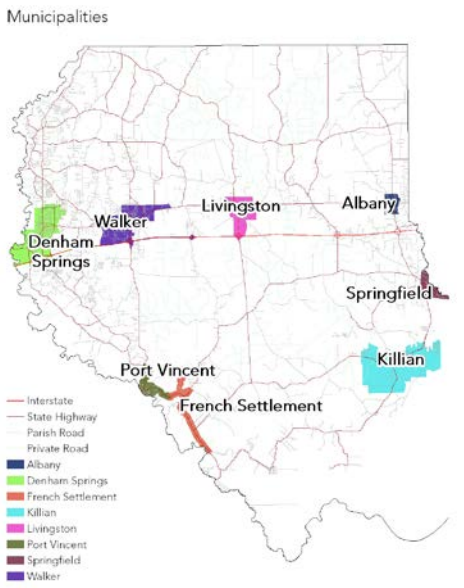


Figure 4: Livingston Parish Municipalities.

Figure 5: Growth areas.

The Parish is in the process of planning other large transportation projects, an airport and a toll road, that will further increase access in the Parish and will have the potential

to increase development pressure in the parish and alter the trajectory of growth somewhat.

The parish today

Approximately 20% of the parish population resides in the Parish's 8 municipalities (see Figure 4, Figure 16, and Table 2).

Our economy

Today, the parish is a "bedroom community" to Baton Rouge, that is, it has more residences ("bedrooms") than jobs and a large portion of the residents commute out of the parish to work each day.

Table 2: Population Distribution

	Population	Percent
Parish Total	130,251	
Rural Parish	107,102	82.23%
Albany	1,108	0.85%
Denham Springs	10,390	7.98%
French Settlement	1,135	0.87%
Killian	1,227	0.94%
Livingston	1,799	1.38%
Port Vincent	753	0.58%
Springfield	495	0.38%
Walker	6,242	4.79%

On the other hand, the parish's industrial base (i.e. industries which draw money into the local economy) is not nearly as strong as East Baton Rouge and Ascension parishes, which comprise the majority of employment in the region. The industrial base of Livingston Parish consists largely of companies in wood products businesses, agriculture and a small but growing manufacturing sector (i.e. metal fabricators and related industries).

The Livingston Economic Development Council *(LEDC) is the primary economic development organization for the parish and its municipalities. LEDC is responsible for marketing, business attraction and retention of existing industries.*

LEDC's vision:

"Livingston Parish is continually growing, developing and prospering into a diversified, thriving economy"

LEDC's Goal:

" The LEDC is an economic development agency serving one of the fastest-growing counties in the nation. Its goal is to foster entrepreneurship, recruit new business and industry, and assist existing business and industry in growth and expansion to improve the quality of life in Livingston Parish"

Goals from the LEDC 2010 Master Plan (particularly relevant to the Parish Comprehensive Master Plan):

Goal #1: Growth and development throughout Livingston Parish is guided by comprehensive planning, zoning, and building codes that deliver an efficient and predictable development process.

Goal #2: Infrastructure throughout Livingston Parish, including drainage, highways, arterial streets, and interstate interchanges meets the needs of the community's residents

A clear understanding of which industries are responsible for most jobs and which sectors are growing or declining is important when determining, and building on, the parish's competitive strengths (see Table 3).

In general, Livingston Parish is a relatively affluent community compared to other regions in the state. This suggests opportunities for retail, personal services, professional and technical services, healthcare services, and educational services.

Table 3: Percent of Total Employment, 2010.

	Parish	U.S.
Total Private	74.2%	83.1%
Services	56.7%	68.4%
Trade, Transport., Utilities	21.8%	19.1%
Information	2.0%	2.1%
Financial Activities	3.9%	5.8%
Professional and Business	6.1%	13.1%
Education and Health	8.6%	14.6%
Leisure and Hospitality	12.0%	10.2%
Other Services	2.1%	3.4%
Non-Services	17.5%	14.7%
Natural Resources and Mining	1.0%	1.4%
Construction	8.5%	4.3%
Manufacturing (Incl. Forest Prod.)	8.0%	9.0%
Government	25.8%	16.9%

Recently, as residential development increased, the parish has been broadening its economic base to add retail, construction, and health services to its existing base of forestry, agricultural, and manufacturing. Several companies have recently relocated to or expanded operations within the parish including: Bass Pro, Sam's Club, Albertson's, Wal-Mart, and Ferrara Fire Apparatus.

This trend is expected to continue; as residential growth increases, support services are expected to increase. Recently Stine Lumber, LeBlanc's Grocery, O'Reilly Auto Parts and Walgreens all located in Walker. Wal-Mart had purchased land in Holden for a fourth location. Wal-Mart had purchased land in Holden for a fourth location. The planned development of Juban Crossing, a major mixed-use development located on I-12 between Denham Springs and Walker, is expected to eventually bring more than 1 million square feet of shopping, as well as medical and office space and 1,100 residences. A second large development, Summa Crossing is expected to be between 12-14,000 acres.

Livingston Parish Employment Today

Over 2,000 employment establishments.

Major industries: agricultural/mining/construction; wholesale retail; educational services; and manufacturing (metal fabrication, fire equipment, construction materials, lumber & wood products and miscellaneous manufacturing).

Major employers include: CB&I (pipes and fittings fabrication); Care, Inc. (health practitioners' offices); Ferrara Fire Apparatus (motor vehicles); Weyerhaeuser (milling); Deltak Manufacturing; Wal-Mart (retail store); Counseling and Advice for Retired and Elderly (individual/family services), Whiteny Bank; Dillard's (retail store), Neill Corporation (service establishment equipment); and Bass Pro, Inc. (retail store); North Oaks (medical). Our Lady of the Lakes

In 2009, the top three employment service sectors were:

- *3,741 jobs – retail trade*
- *2,149 jobs – accommodations & food services*
- *1,608 jobs -- health care and social assistance*

Industry has told LEDC that good industrial development sites must include: 1) a good transportation network and 2) public facilities that offer workforce development opportunities.

The local economy also benefits from tourism and recreation. Parks and open space increase the value of nearby properties along with tax revenue. They help attract businesses and a diverse workforce. With over 600 miles of natural waterways, marshes swamps and signature golf courses, the parish has become a popular area for outdoor boating, birding, and recreation. Tickfaw State Park offers camping, a water playground, cabins, walking trails and boat rentals. The local economic impact of the state park alone is approximately $1,160,000 per year.

In 2012, the State's Coastal Forest Conservation Initiative added approximately 30,000 acres to the Maurepas Swamp Wildlife Management Area, preserving the largest coastal forest tract in the southern part of the Mississippi Valley. A small portion of that land falls in Livingston Parish. Livingston Parish residents enjoy just over 100,000 acres of public outdoor recreation within driving distance.

The parish has amenities for a variety of other interests as well—from the French Settlement Museum (a Creole House Museum) to the Denham Springs Antique District and the Arpádhon - Hungarian Settlement—and there are 13 buildings on the national historic register.

Educational opportunities and research facilities help attract and maintain a desirable workforce, hence increase an area's ability to attract major employers. The Southeastern University of Louisiana is located in Hammond. Louisiana State University is located in Baton Rouge. The Livingston Parish Literacy and Technology Center is located in Walker. LEDC is pursuing a community and technical college campus.

Livingston Parish is home of one of two installations for a gravitational wave observatory (LIGO) which is a facility dedicated to the detection of cosmic gravitational waves and the harnessing of these waves for scientific research.

Primary education and health services also attract people to an area. Retirees often look for good health care and hospitals and young family's desire high quality schools. Livingston Parish has increased both. The parish has a competitive school system with favorable regional ratings.

There are three hospitals in the parish: Long Term Acute Care (Denham Springs), Our Lady of the Lake Regional Medical Center, and North Oaks Medical Center.

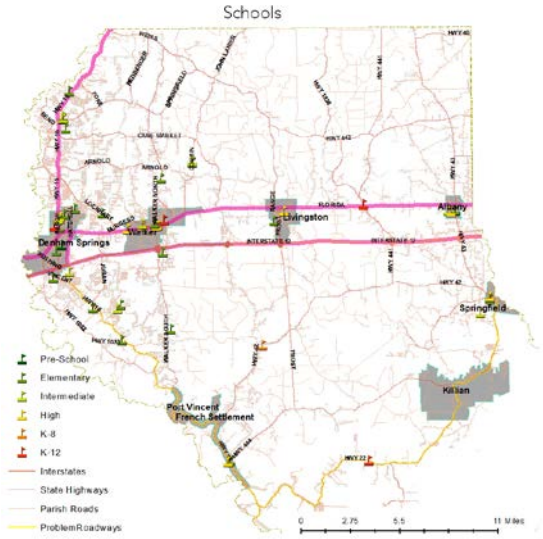


Figure 7: Schools

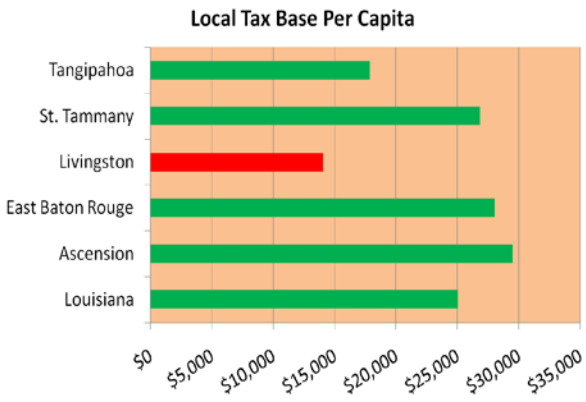


Figure 6: Local tax base per capita Livingston compared to surrounding parishes.

The 200-acre Livingston Industrial Park is located on U.S. Hwy. 190. Approximately 120 acres of the park have been developed including, sewer & water, electricity, access road and signage. The 96-acre Holden Industrial Park is currently being subdivided and prepared for development.

Finance

Notwithstanding all of the above, and while Livingston Parish is generally economically strong, the local tax base is relatively small (see Figure 8). This is primarily due to amount of residential versus commercial and industrial tax base. Even though employment uses have increased over the past decade, the overall jobs/housing ratio still favors housing. This also means that there are many more houses than jobs in the parish.

As approximately 65 % of public expenditures in Livingston Parish are financed by sales tax (the school board has over 70% of its local financing coming from sales tax), this

weak tax base threatens the provision of services and infrastructure as the community grows.

Livingston Parish's tax base per capita is about 55% of the state's average and much lower than the local tax base per capita in the neighboring parishes of Ascension, East Baton Rouge, and St. Tammany.

Waterways, wetlands and flooding

Over half of the unincorporated parish is considered to be within a 100-year floodplain[2] (see Figure 9). The Federal Emergency Management Agency (FEMA) has recently updated the floodplain maps of the parish and increased the designated floodplains slightly in a number of areas.

Major waterways and water bodies include the Amite River, Tickfaw River, Blind River, Natalbany River, and Lake Maurepas.

The EPA has identified several waterways as impaired and one as over the Total Maximum Daily Load of dissolved solids. However, a new Denham Springs wastewater treatment plant is improving water quality in the impacted water ways. The Louisiana Department of Environmental Quality can prohibit development in areas that are over TMDL. The majority of wetlands are located in the lowlands in the south, but they occur throughout the parish.

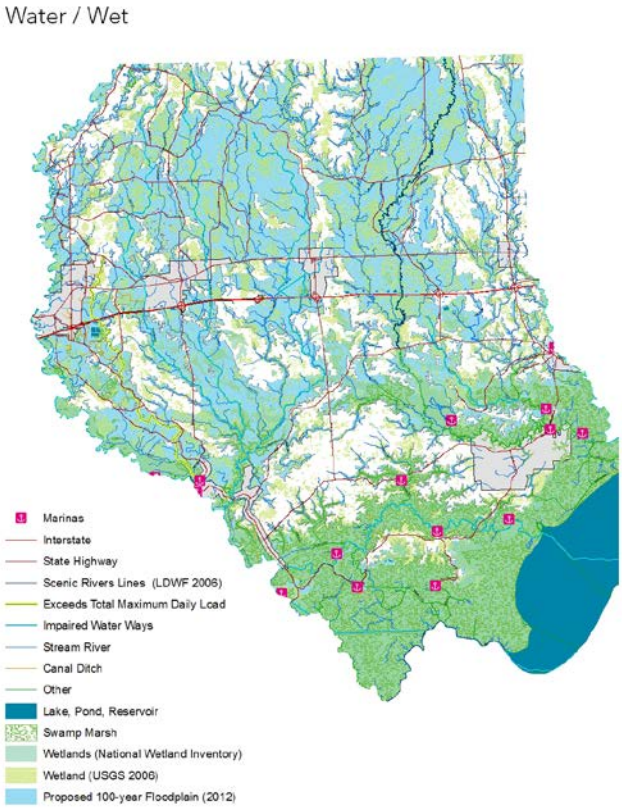


Figure 8: Wetlands, water bodies, flooding

[2] *Areas considered to have a statistical probability of flooding of 1% in any given year.*

The changing character of the parish landscape

The parish is 702 square miles (449,845 acres) and is approximately 32 miles long by 30 miles wide.

Land cover type is contingent on elevation and water. The northern part of the parish, at approximately 50 feet above sea level, consists of rolling terrain covered by pine and hardwood forests. In the southern end of the parish, the land consists of cypress forests and marshes that border on Lake Maurepas and the Amite, the Tickfaw and Blind Rivers (see Table 3 and Figure 10).

Table 4: Land cover

Type	Sq. miles	%
Open water	56	8.04%
Developed, Open Space	36	5.13%
Developed, Low Intensity	21	2.95%
Developed, Med Intensity	4	0.61%
Developed, High Intensity	1	0.08%
Barren Land	2	0.34%
Deciduous Forest	0	0.02%
Evergreen Forest	126	17.98%
Mixed Forest	0	0.02%
Shrub/Scrub	91	12.88%
Grassland/Herbaceous	27	3.89%
Pasture/Hay	34	4.90%
Cultivated Crops	9	1.25%
Woody Wetland	284	40.45%
Emergent Herb. Wetland	10	1.46%

There is no federal (public) land within the parish. The largest parcel of public land is the Tickfaw State Park. The parish owns 125 acres adjacent to Lake Maurapas.

Land cover is changing, the urbanized area in the parish in 2006 was approximately 46 square miles; in 2010 it was 73 square miles. That translates into an average of 6.75 miles of land per year (see Figure 11). Accompanying the urban area increase is an increase in impermeable surfaces (those that will not allow water infiltration). In an area where the

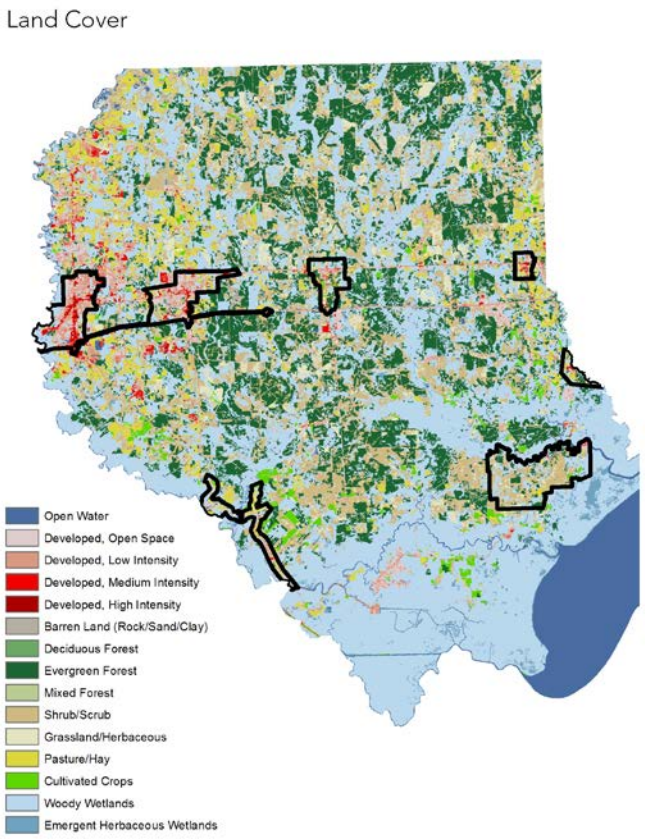


Figure 9: Land cover.

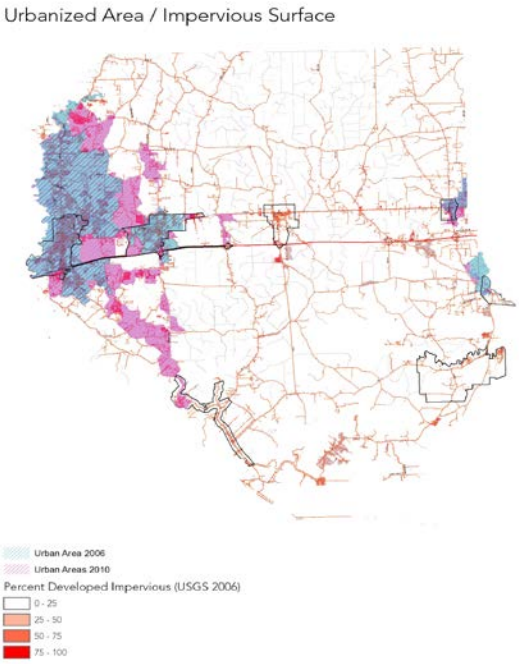


Figure 10: Urban consumption and impermeable surfaces.

biggest threat to life and property is flood from rainfall, impermeable surfaces can increase flooding risk if not offset by increased detention areas.

Subdivision Development

Available data, although incomplete, suggests that over time (see Figure 12):

1. the size of subdivisions has continued to vary over a wide range.
2. the number of parcels in subdivisions has been increasing.
3. the parcels within those subdivisions have been getting smaller.

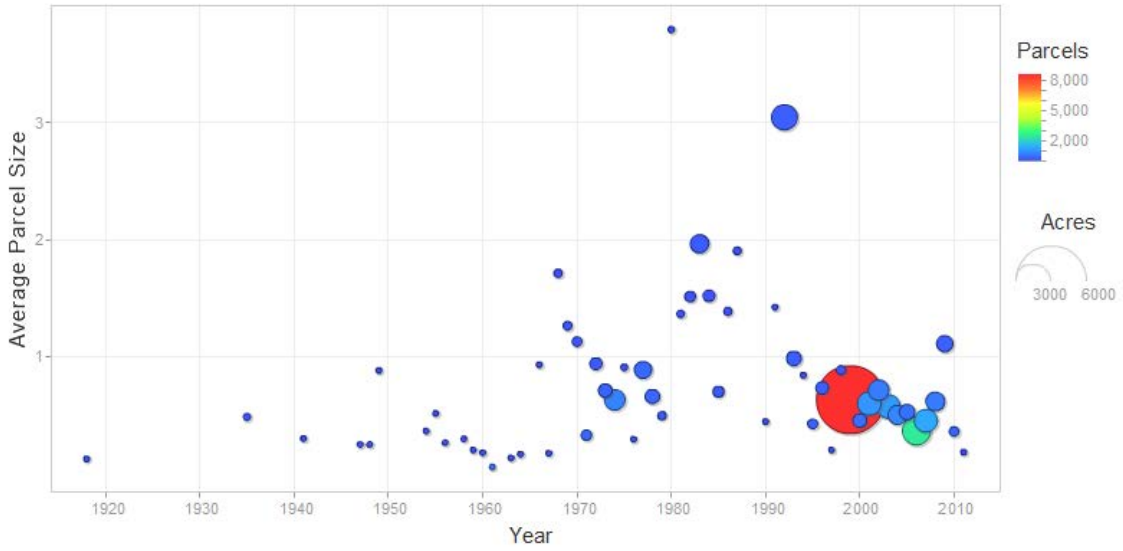


Figure 11: Subdivisions by Year

The aerials illustrate the small-lot character of several of the larger subdivisions that have occurred in the western parish (see Figure 13).

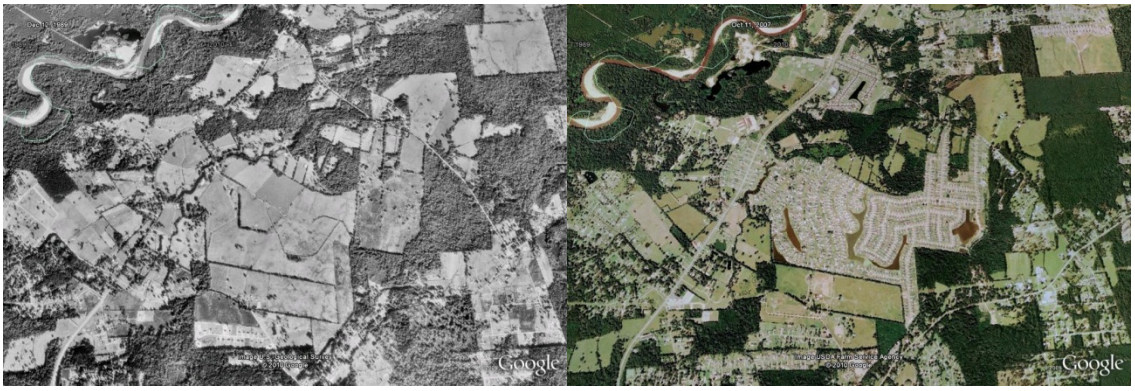


Image year: left 1989, right 2007

Image year: left 1998, right 2008

Image year: left 1989, right 2010

Figure 12: Typical subdivision development in the western parish.

Housing characteristics

From 2000 to 2010, the housing stock grew from 36,212 to 50,170, an increase of 13,958 or 38.5%.

The predominant housing type in the parish single family homes, followed by mobile homes, with a small percent of multifamily dwellings.

From 2000 to 2009, the percent of single family homes increased slightly (63.5% to 64.9%), mobile homes decreased slightly (32% to 29.3%) and multifamily dwellings increased slightly (4% to 5%) (see Figure 14). This trend indicates that even though amount of other housing types will grow over the next two decades, in general, single family detached homes will continue to be the most common form of new housing in the unincorporated parish.

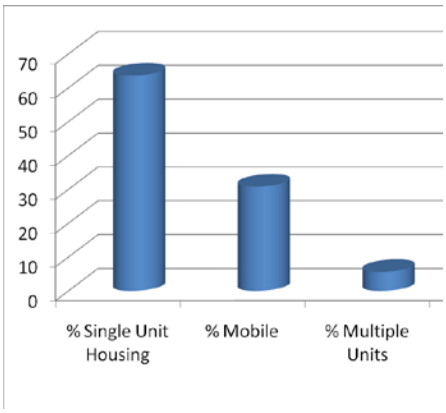


Figure 13: Relative proportion of home types in the parish
Source: 2000 Census; 2010 Census; 2009 American Community Survey.

While housing prices in the parish are generally below the national average, they have been rising consistently. This trend remained even during a national downturn in housing. In 2000, the average single-family home value was $96,100 (vs. the $119,000 national average) and increased 36.2 % to $130,900 in 2010. Even with this increase, over all, housing prices appear to be affordable to the majority of the population that works in the parish.

Occupancy is very high in the parish: 90.1 % (vs. 91.0% nationally) in 2000 to 91.7% in 2010 (vs. 65.1% national average; 67.2% Louisiana average). This is indicative of a condition that construction isn't keeping pace with demand.

Owner occupancy (compared to renters) is also very high, but declining slightly: from 83.7% in 2000 to 79.8% in 2010 (see Table 4).

Demographics

Demographics is the breakdown, by characteristics, of who lives in the parish today, and how those characteristics are projected to change over time to help understand the type of demand future growth will bring for home types, jobs, shopping, etc.

Table 5: Demographic change in Livingston Parish.

	2000		2010		Difference	2030
Total Population	*92,000*		*128,000*		*+40.0%**	*243,000***
	Percent	Total	Percent	Total		
Over 18 years	*70.50%*	*64,860*	*72.50%*	*92,800*	*2.00%*	
Over 65	*12.50%*	*11,500*	*10%*	*12,800*	*-2.50%*	
Av. household size	*2.8*	*32,857*	*2.76*	*46,377*	*-0.04*	
Median household income	*$38,887*	*na*	*$53,277*	*na*	*37%*	
Families below poverty level	*9.10%*	*8,372*	*8.80%*	*11,264*	*-0.30%*	
Household income <$35,000	*44.40%*	*40,848*	*33.80%*	*43,264*	*-11%*	
Median age	*34*	*na*	*35.8*	*na*	*1.8*	

*The highest increase in the state!

**This equates to approximately 40,000 new households.

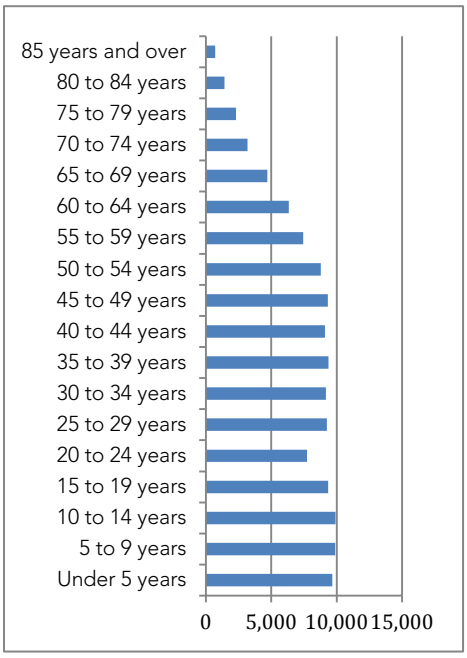


Figure 14: Current population by age.

Table 6: Current population by ethnicity.

	#	%
White	117,601	91.9%
Black or African Amer.	6,505	5.1%
Am. Indian/Alaska Native	526	0.4%
Asian	628	0.5%
Hawaiian/ Pacific Islander	26	0.0%
Some other race	1,273	1.0%
Two or more races	1,467	1.1%
Hispanic or Latino	3,801	3.0%

All of the above suggests that the demographic characteristics of the parish are changing, very gradually (see Table 5, Figure 15, and Table 6).

- the percent of people over 65 is declining slightly, even though the total is increasing. It is projected to just less than double by 2030. The growing older population will have implications on housing, services, transit, and amenities.
- The percent of people 18 to 64 is increasing.
- The income level of parish residents overall is increasing.
- The percent of the population at or below poverty level is decreasing.
- The parish is predominately white.
- There is a lack of 20 -24 year olds.

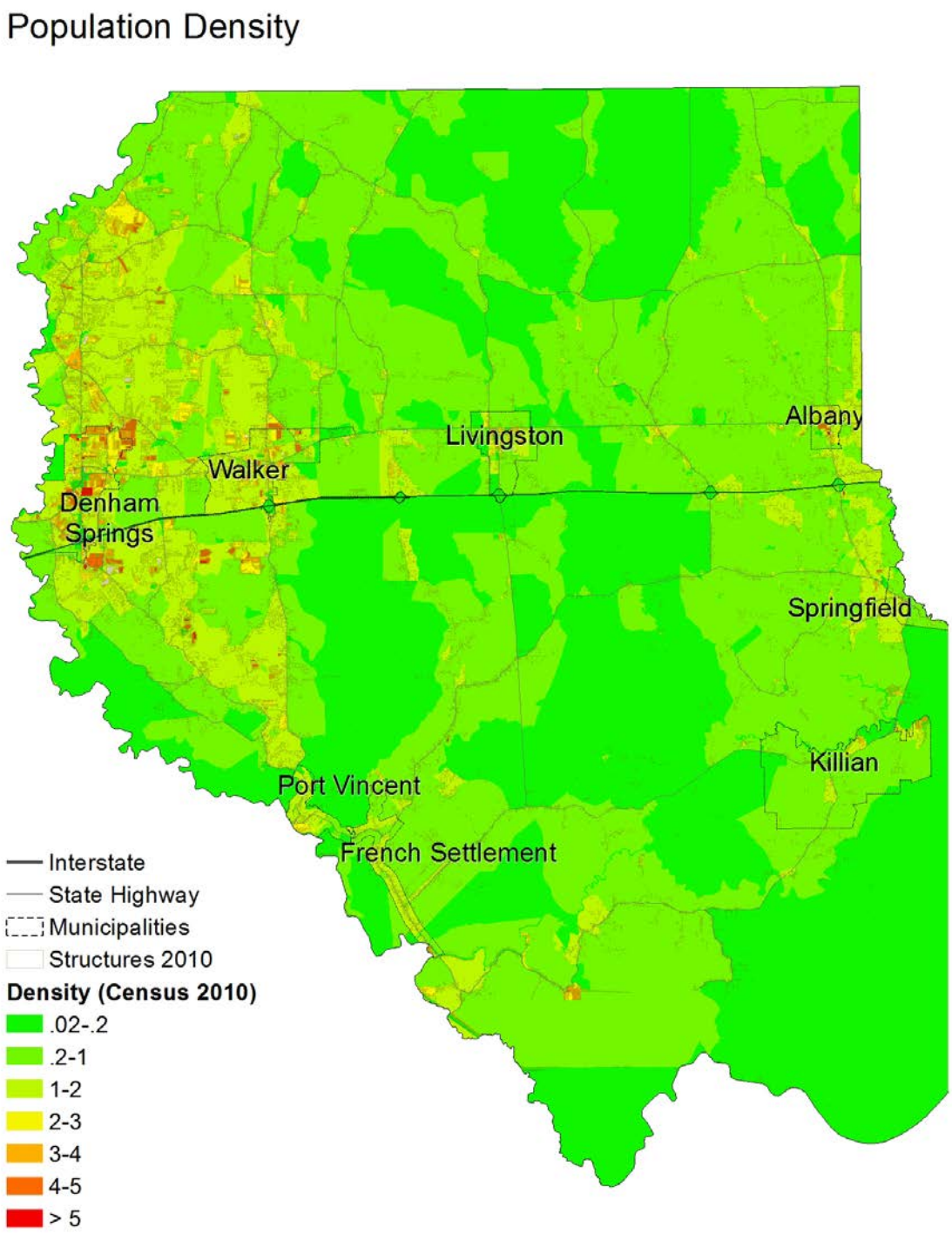


Figure 15: Population density

3. LAND USE

Existing land uses

Land use patterns have a direct impact on our way of life, as development increases in density, without an increase in road density or network connectivity, traffic congestion often increases. Land use patterns influence the perceived character of a community. Parishes can choose to regulate land uses with zoning, currently there is no zoning in the parish.

The predominant residential land use pattern is large lot single-family residences. Commercial development has primarily occurred east-west along the Interstate-12 / US 190 "economic corridor" and north-south along U.S. Highway 16 (Pete's Highway). Growth pressure in the parish has been mainly from the west (Baton Rouge) but is increasing and is starting to the East from Hammond.

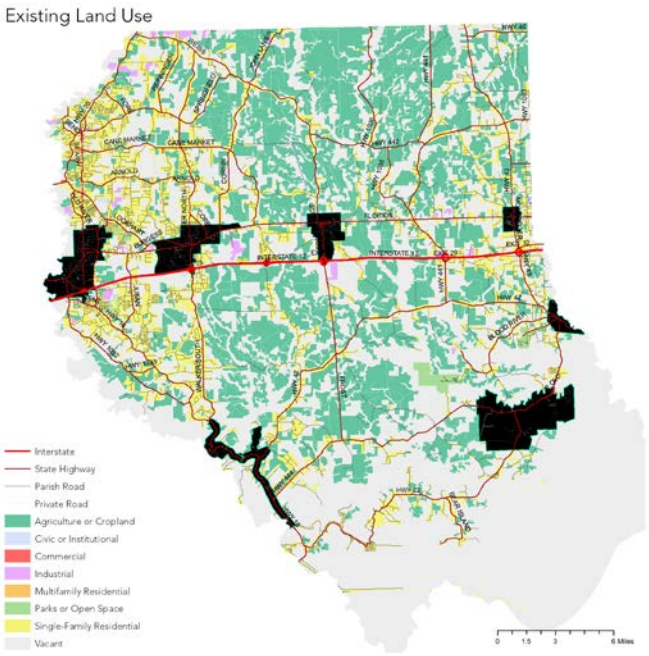


Figure 16: Existing land use.
Source: There is no reliable database of existing land uses in the parish. The Existing Land Use Map has been compiled from an approximated from aerial photo interpretation (see table 5).

Table 7: Land Use by Acres and Percent

Land Use	Sq. Miles	%
Vacant	384	55%
Agriculture or Cropland*	194	27%
Civic or Institutional	3	<1%
Commercial	3	<1%
Industrial	5	1%
Multifamily Residential	1	<1%
Parks or Open Space	4	1%
Single-Family Residential	111	16%
**cropland includes, and is primarily timber lands.*		

Table 5 indicates that 55% of the land is vacant.

Challenges facing the parish that affect land use

Different levels of development in various areas of the parish

Unincorporated Livingston Parish is really three parishes:

- **Western**— facing significant suburban expansion from migration from East Baton Rouge Parish.
- **Eastern**— experiencing relatively low (but increasing) growth pressures moving westward from Hammond.
- **Northern and southern**— facing little if any growth pressures.

There is little predictability about future development

The parish provides very little regulation of land use in unincorporated areas (there is no zoning for example) and until this plan was adopted, no long range vision or guidance for decisions. There have been several results of this lack of predictability:

- Significant public **controversy about individual land use decisions**, especially in the western parish where growth pressures are greatest.
- **Discouraging quality development.** According to real estate agents and the Livingston Economic Development Council, a number of significant potential businesses have been discouraged from locating in the parish due to the lack of certainty about what might happen adjacent to their projects.
- **Inability to adequately plan for roads and infrastructure.** Development requires infrastructure. In a number of locations in the western part of the parish, in the absence of a long-range plan, buildings have been built close to the existing roadways. This leaves no opportunity to expand roadways and provide servitudes for new utility lines without incurring the cost of removing buildings. This greatly increases the cost of construction, and the cost to all the taxpayers in the parish (see Figure 18).

Land Use / Transportation

There is a strong interrelationship between land use and traffic. The type and distribution of land uses significantly affects where traffic will be generated. At the same time, where roads are placed has a strong influence on where various land uses occur. For example, commercial development prefers locations on busy roadways and intersections; industrial development often prefers less intensive requires sewer and water services).

Said another way, in order to know where roads and utilities will be needed, it is helpful to know, or predict, where, land uses are, and where they will change.

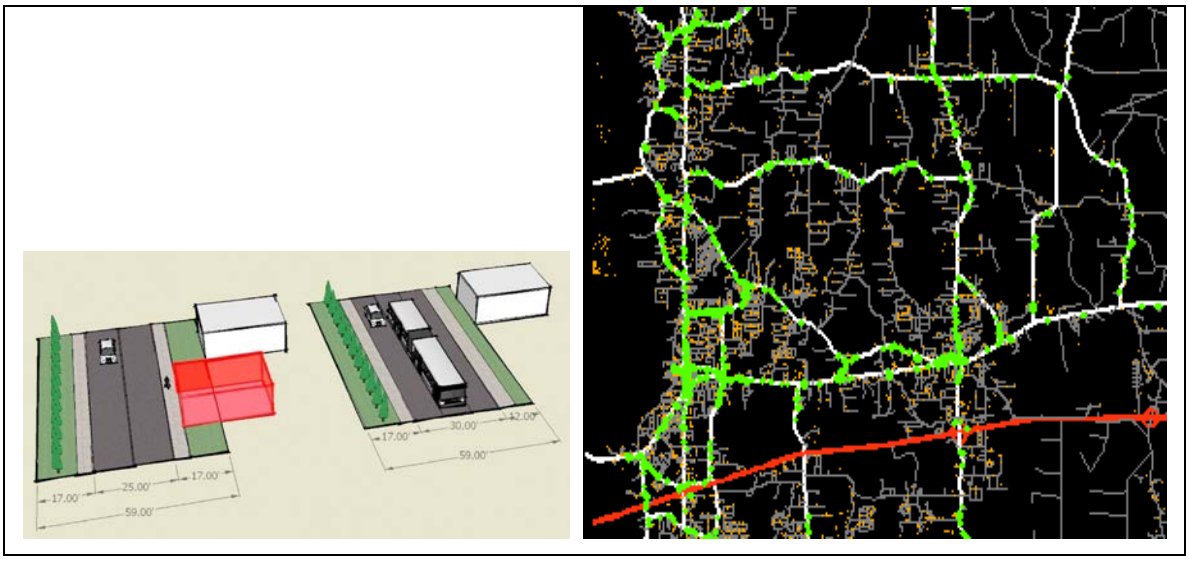


Figure 17: The figure on the left illustrates why it is important to anticipate future road widening by reserving adequate setbacks. Failure to do so necessitates either bringing the road edge uncomfortably close to buildings, or the costly removal of buildings. In the figure on the right, the green areas identify the location of approximately 2000 structures that would be impacted if major roadways were widened. Figure on the left conceptualize setbacks that help preserve areas for roadway widening.

Therefore, in the growing areas of the parish it is becoming increasingly important to anticipate where development will occur, and to know at least generally what kind of development it will be, so the parish can anticipate infrastructure needs, attract quality investment, and avoid unnecessary controversy and land use impacts.

Land use succession—areas subject to change

When viewed over a long period of time land uses are seldom static (except in more remote areas). In areas "in the path of development" land use change usually follows a predictable pattern: agricultural land converts to scattered lots, followed by subdivisions, and over time, some areas become communities, towns or even cities.

Generally as demand rises, land prices increase and lots sizes decrease. The speed of this transition depends on the level of demand—the number of residents desiring to locate in an area. Over the last two decades western Livingston Parish has had a high demand, and has experienced a rapid change in land use.

Each land use type (or stage) requires different levels of infrastructure, public services and has different associated impacts on the surrounding properties.

For example, the farm-to-market roads that are perfectly adequate for rural areas are not designed for the traffic levels of suburban development. They have to be repaired more often and eventually rebuilt. While many of these are state roads[3], a significant number are the parish's responsibility.

[3] *And with a shortage of state funding, there is a concerted effort by the state to return local arterials to parish responsibility.*

The transitions from one stage to another can also be difficult. When new subdivisions invade a rural area, existing residents experience a dramatic change in traffic levels and even attitudes of the new residents. Where rural residents are often very flexible about what a neighbor does with their property, suburban residents often are more sensitive to the impact of compatibility on property values. Controversies have arisen in the parish about proposals that introduced smaller lot sizes or even different housing types near traditional subdivisions.

Areas of stability and areas likely to change

Most of the transition described above occurs on vacant land. A final stage in the process, redevelopment, occurs when demand (property value) is high enough, and vacant land scarce enough, to warrant replacing buildings with higher intensity uses that will increase the value significantly.

In general, redevelopment is more expensive than developing vacant land (the demolition of existing uses can be costly). In order to be deemed likely to redevelop, the expected value after redevelopment must be higher than the purchase price plus the cost of demolition. A simplified rule of thumb is that when the cost of the land is greater than the cost of the buildings on the land, redevelopment is more likely. Due to a lack of reliable data in the unincorporated areas about the cost of land vs. buildings, it is difficult to project where redevelopment is likely to occur. However, it is usually safe to assume that the potential for redevelopment is relatively low in until vacant land becomes scarce. Since almost half of all residential development in the parish is less than 20 years old, redevelopment is projected to be relatively rare.

That is, existing neighborhoods are not likely to change much in the next few decades.

Therefore, most of the change in land use (growth) in the parish over the next two decades will be on vacant land or land that has very little development (large parcels with only a few buildings on them). These are shown in Figure 16 (left map) Lands Subject to Change.

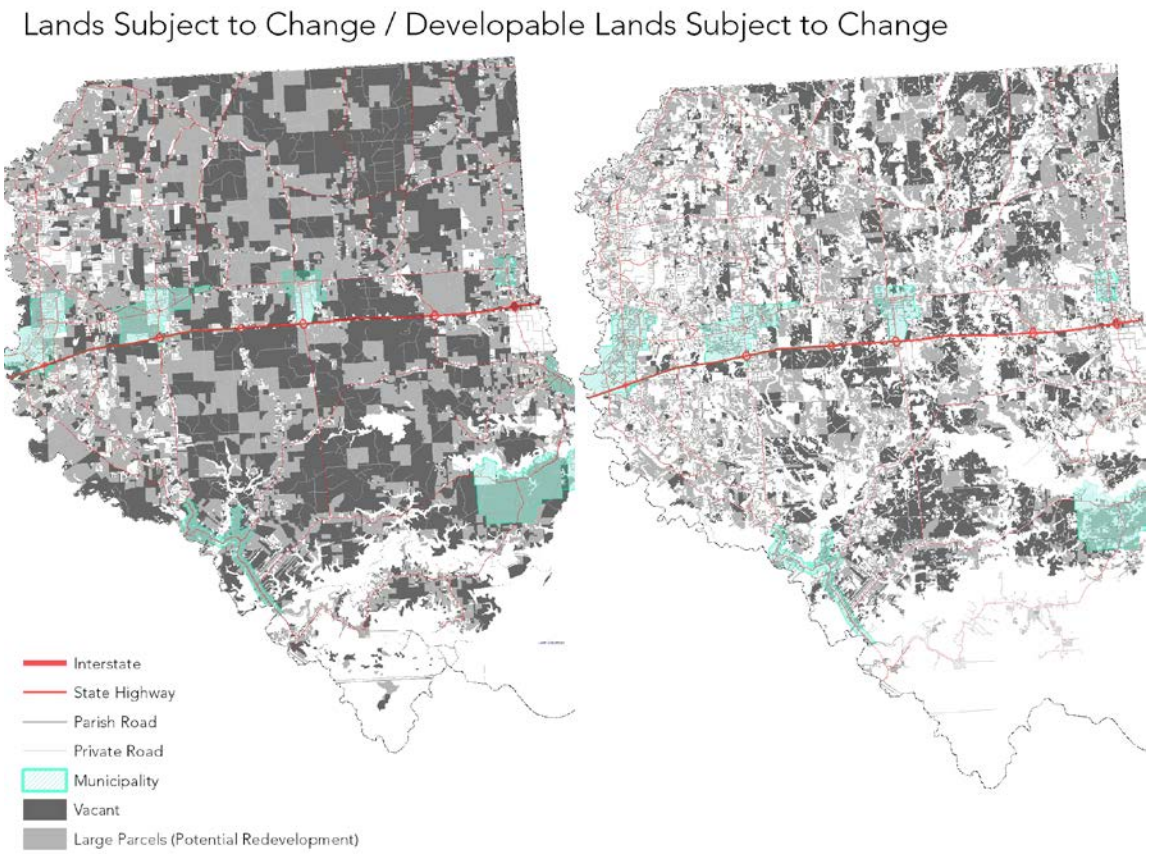


Figure 18: Lands subject to change (on the left) and Developable lands subject to change (on the right, land with potential wetlands removed).

Wetland and flooding restrict where growth can occur

Wetlands in the parish have only been mapped to a very approximate degree[4] but they are estimated to be extensive, throughout the parish. Since wetlands are a significant obstacle to development (more expensive to develop, often subject to flooding, and protected by federal regulation), when the projected wetland areas are subtracted from the lands subject to change map, the result is a much smaller amount of land with realistic development potential. This is shown above in Figure 19 (right map)—*Developable* Land Subject to Change.

This map shows that much of the developable land remaining in the western part of the parish is in scattered, relatively small parcels.

It should also be noted that much of this land is located in the interior of major roadway "blocks." Said another way, much of the easily accessible land along existing roadways is already developed, leaving primarily the interior, more difficult to access parcels for future development.

4 *By the United State Geological Service, Land Cover Program and the United States Fish and Wildlife Service's National Wetlands Inventory.*

In the north-central and south central parts of the parish, the vacant land is still found in relatively larger parcels, many along existing roadways. Much of this land is not in the path of development (the "growth barbell"). The significant vacant land in the southern and southeastern sectors of the parish also has the potential for major flooding due to hurricane-related storm surges blowing northwest from Lake Pontchartrain and Lake Maurepas.

Notwithstanding, the developable land subject to change that is within the "Growth Barbell" can still accommodate more than the projected growth for the Parish.

The lack of sewer service is a significant constraint to growth

Much of the unincorporated parish is served by septic systems and package treatment systems (see Chapter 4: Wastewater. These systems are often not maintained adequately and the result has been significant pollution of the surface water of the parish. At the existing suburban and urban level of development in the "growth barbell" and projected to continue, only a centralized sewer treatment system (sewer treatment plants with sophisticated equipment) will be able to treat effluent sufficient to restore higher levels of water quality.

If new development continues to occur without centralized sewer, there are growing concerns in the unincorporated parish that the state will eventually restrict development—of both subdivisions and the roads to serve them.

This means that most of the significant future development in the parish will go to areas where:

- existing central sewer service can be extended
- new regional central sewer service can be created

Road maintenance funding is not keeping up with needs

The parish has over 800 miles of roads under its jurisdiction. The cost of maintaining those roads over the long term significantly exceeds the parish's current budgeting for road maintenance. Thus, in addition to increasing maintenance budgets, the parish needs to be extremely selective about how many new roads it accepts into the maintenance system.

The decision about which roads to accept will significantly impact where development will occur. For example, if the parish accepts new roads in a random fashion, it may be committing to fund low-use roads rather than key roads that will accomplish other parish goals/needs, such as economic development.

The type of growth will impact the need for administrative services

Originally, parish-level governments were established to serve primarily agricultural and rural areas. The simple structure of parish government reflects this role. When more dense development occurs it was anticipated that those areas would incorporate and adopt municipal government structure.

However, a number of parishes, including Livingston, have allowed growth to occur without incorporation. When this occurs, a more extensive administration is eventually required, to respond to the increased levels of service required by more urban conditions (animal control, code enforcement, more extensive mapping and record

keeping, higher levels of policing, etc.). The structure of East Baton Rouge Parish is a good example.

All of these realities need to be considered as Livingston Parish makes decisions about the extent of suburban and urban growth it will accommodate.

Conflicting standards discourage annexation of municipal growth areas

A few municipalities in Livingston Parish have formally identified "growth areas" into which they would like to eventually expand (see Figure 20). Other communities have informal concepts about how they would like to grow.

The fact that the area into which a city may want to grow is under parish jurisdiction, presents several challenges, as identified in the recent Walker Comprehensive Plan (paraphrased below):

- The parish's development standards are generally lower than those of the cities[5]. This discourages a city from annexing because the city will be forced to upgrade the public infrastructure to meet their standards).
- Since the parish doesn't have zoning, the parish may allow development in the growth area that does not meet city expectations (compatible adjacent land uses, required setbacks, parking requirements, etc.)— this may also discourage annexation.

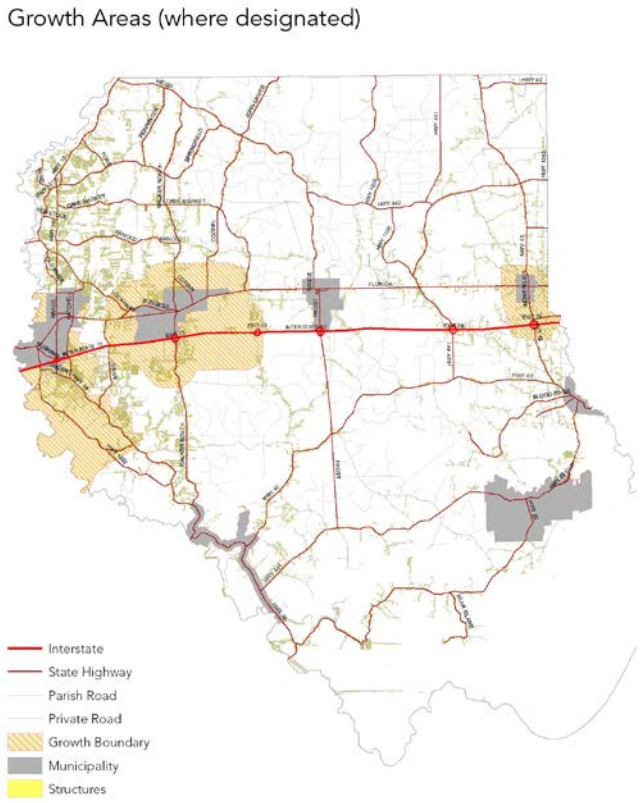


Figure 19: Growth areas.

It is in the interest of all parish residents that cities are able to grow. Cities are best able to provide the more intensive types of development (residential, commercial, industrial) that are important to the overall growth and quality of life of the parish. By making annexation difficult, the parish reduces the potential for orderly growth of cities. This suggests that the parish and cities need to put in place special arrangements for decision-making in the municipal growth areas.

Anticipated future land uses in the unincorporated parish

The Anticipated Land Use Map (Figure 21) builds on existing land uses and attempts to project, very generally, where and how future land uses are likely to evolve over time

[5] *For example, the parish doesn't require sidewalks, street lights, parks, etc.*

(generally following principles of compatible uses).

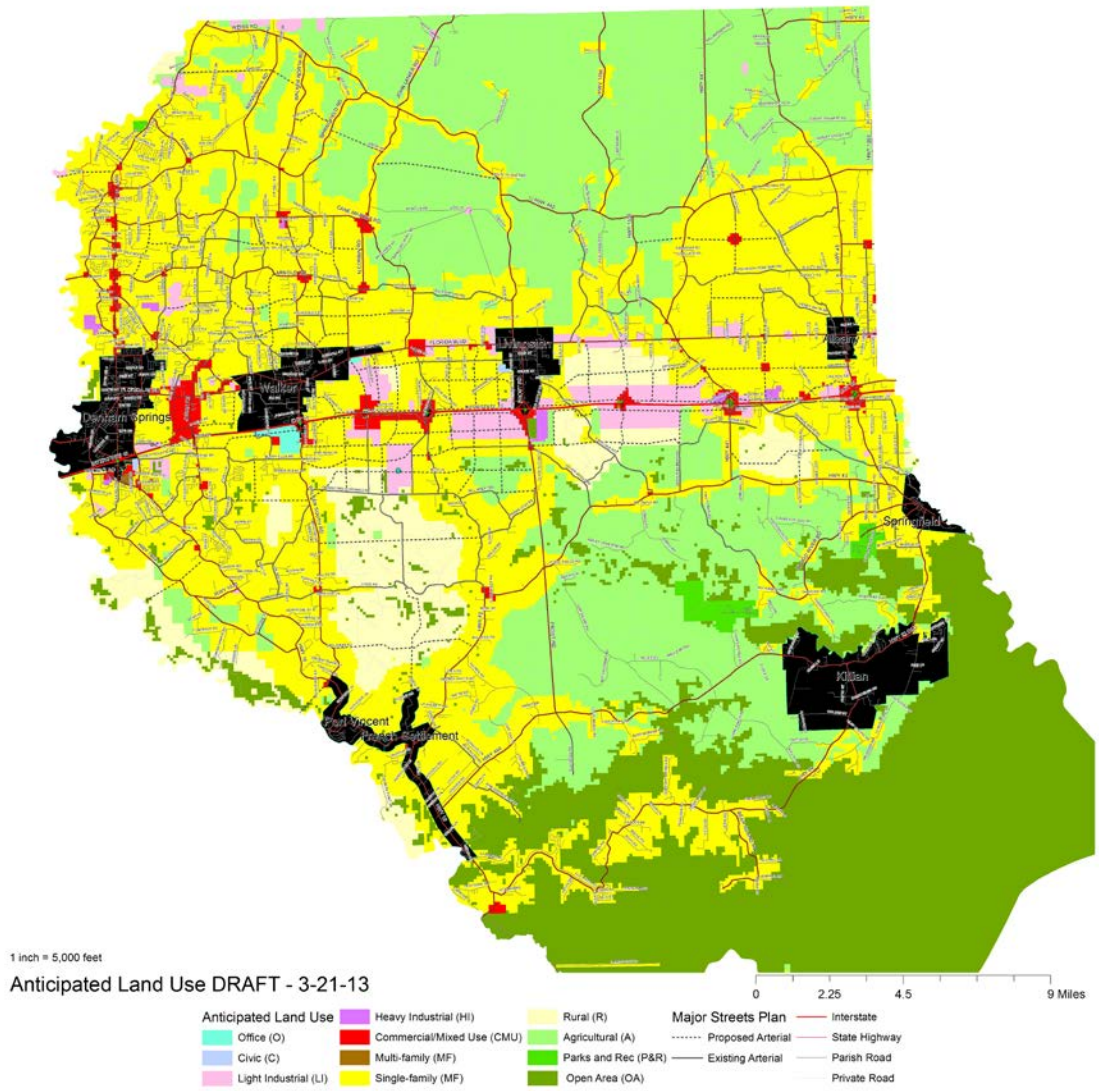


Figure 20: Anticipated land use (see end of plan for full page version of image).

The types of uses, and some of the considerations in projecting how they will evolve, are described below.

Residential uses

The predominant house type in Livingston Parish is single-family—one home on one lot. Although there are subdivisions of large lots (over 1-acre lots) scattered in the parish, many of the subdivisions in the western part of the parish have ¼ to ½ acre lots, with an overall density of 3 homes (dwelling units, or "dus") per acre.

National trends indicate that "the market" is moving toward smaller lots and homes. This is due to several factors:

- An aging population less and less interested in maintaining large yards.
- An abundance of large homes and yards on the market.
- Upcoming buyers are a younger generation, many of whom desire greater mobility, and a more urban lifestyle.
- With increasing gas prices, the Total Cost of Housing + Transportation is consuming almost 50% of income, forcing even those who desire low density settings to consider commuting time and cost as important factors.

3 Key Questions

Within the unincorporated areas of the parish, that are growing (see "growth barbell" in Chapter 1) three basic questions face the residents of Livingston Parish:

- How to accommodate the rights of landowners who wish to develop in a manner that may be different from the current patterns?
- How to preserve the character and quality of life of existing neighborhoods in the parish, including those that may be adjacent to lands that will develop eventually?
- How to encourage, the types and locations of development that will be essential to the fiscal health and self-sufficiency of all parish residents?

At the same time, there are large areas in the parish that are, and will remain rural for the foreseeable future.

Public Input about residential land uses

Respondents to survey questions posed in public meetings and on-line indicated:

- A majority support encouraging, and allowing, **more affordable housing choices** in Livingston Parish.
- Regarding the "Quality" of recent growth in the parish, **44% felt it was poor/very poor,** and 21% "about right".
- What is "rural"? 90% felt that **"rural character" meant lots over 1** acre in size, 70% over 2 acres in size, and 55% over 5 acres.
- Best way to maintain rural character? **13% supported some form of clustering (keeping some property undeveloped)**, 25% felt that only allowing large lots would be best way, and 38% felt that some combination of clustering and large lots would best preserve rural character.
- The most appropriate locations for subdivisions are in or **near existing communities.**
- According to the LEDC, in some parts of the parish (primarily the areas where significant growth is expected) the lack of predictability about how much and what kind of development will occur **is a deterrent to attracting quality development and can significantly lower property values.**

Commercial uses

The importance of attracting new commercial uses to reduce sales tax "leakage"

Today, because many of the residents of the parish commute to work in EBRP, Livingston Parish is largely a "bedroom community" (defined as where people live, but work elsewhere). Since commuters tend to shop where they work, there is a significant "leakage" of sales to Baton Rouge where most work. Why does this matter? This leakage of sales is also a leakage of sales taxes—which are a major source of revenue for local governments to provide services to parish residents.

An axiom of development is that "commercial follows rooftops." This means that commercial development will not occur until there are an adequate number of homes nearby to support the stores (for example, it takes approximately 5-7 thousand homes within a 2-mile radius to support a grocery store).

Notwithstanding that commercial growth is occurring in the parish, there are some indications that it is not increasing proportionately to homes and employment in the parish. According to input from real-estate and business stakeholder groups, there are four deterrents to more commercial development in Livingston Parish:

- *Lack of population base*—this will be gradually remedied over time as the parish grows (see Growth and Demographics).
- *Lack of sewer* – businesses cannot afford to be perceived as polluting the environment, or to be subject to potential use or expansion restrictions by LDEQ.
- *Lack of predictable land use patterns*—input from business-related stakeholders indicated that businesses are leery of making major investments when there is uncertainty about whether adjacent development will be compatible and of consistent quality.
- *Lack of financing tools (incentives)*—the absence of tax increment financing and other fiscal tools puts the parish at a competitive disadvantage nationally.

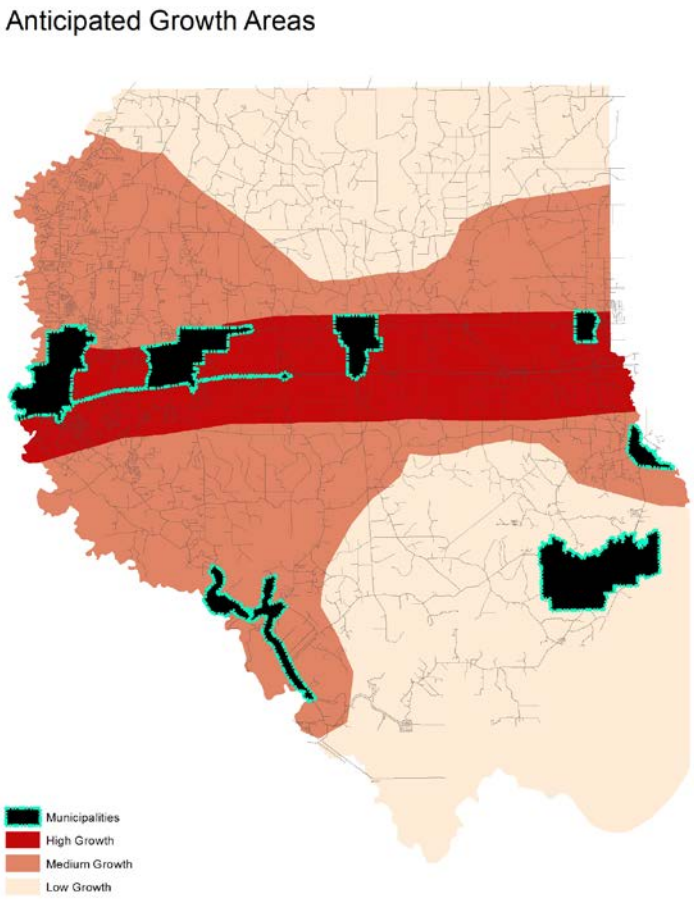


Figure 21: The key high growth "economic corridor" of the parish.

Location trends for commercial uses

The majority of commercial development in the parish is located in the incorporated communities (Denham Springs, Walker, Livingston, Springfield, Albany, and French Settlement). The development of the Bass Pro Shops in Denham Springs is the first, large regional commercial development into the parish.

Significant commercial development has also occurred in the unincorporated Watson area, a fairly urban area of the parish north of Denham Springs on SH16 (Range Avenue).

Some commercial development is occurring along State Highway 190, although the majority of it is in the incorporated municipalities.

The Livingston Economic Development Council has identified the optimum locations in the parish for future commercial growth to be along the I-12 corridor. The proposed Juban Crossing shopping center is a good example of this trend. It is located in the I-12 corridor in the unincorporated parish between Denham Springs and Walker. When it develops, it will be the second large commercial development in the parish and will make a significant boost to local shopping opportunities and parish sales tax receipts.

There are some indications that the traffic congestion that makes it more and more difficult to travel to Baton Rouge is also causing some shoppers to go eastward to Hammond, which will eventually cause commercial development to gradually grow in Albany and Springfield and spread westward following the I-12 corridor.

This suggests that it is in the interest of all parish residents to enable/encourage commercial development in the I-12 corridor—either through annexation into existing communities, or through appropriate land use management that will assure the proper setting for businesses (see Figure 23).

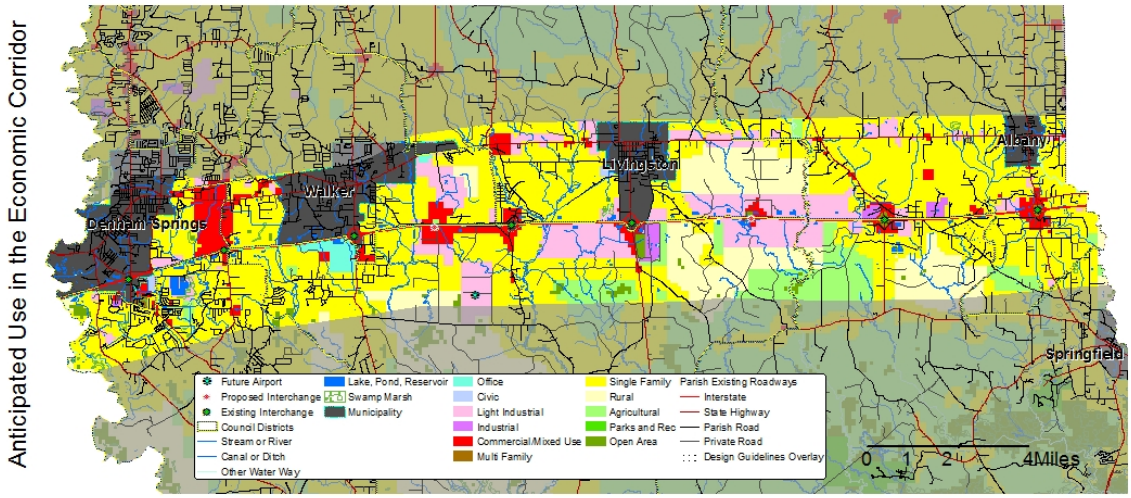


Figure 22: Anticipated Use in the Economic Corridor

Public Input about commercial land uses

About 70% of respondents felt that commercial uses should be located near similar uses or in designated locations (as opposed to allowing it to happen anywhere).

Industrial uses

Employment in Livingston Parish is primarily associated with:

- agriculture/timber/construction;
- wholesale retail sales; and
- manufacturing (metal fabrication, fire equipment, construction materials, lumber & wood products and miscellaneous manufacturing).

Approximately 60 percent of the land cover is forest land, presenting ample economic opportunity for lumber-related businesses such as paper processing and furniture manufacturing. Weyerhaeuser Industries, located in Holden, is the parish's largest lumber company and the largest developer in the parish.

Although two new metal fabrication plants have recently located in the parish, Livingston Parish has a relatively small industrial base (e.g. compared to the significant energy and chemical industrial base of neighboring East Baton Rouge and Ascension Parishes).

The businesses in the parish that involve manufacturing and fabrication include:

- Aqua Marine (boat dealer) in Denham Springs.
- Adell Compounding is a fairly large plastics fabricator in Denham Springs.
- Bercen, a specialty chemical manufacturer in Denham Springs.
- CB&I in Walker.
- Ferarra Fire Apparatus in Holden.
- Deltak Manufacturing in northern Livingston Parish.
- Gator Trax (boat manufacturing) in Springfield.
- Superior Steel in Denham Springs.

Location trends for industrial uses

Historically, much of the industrial and light industrial development in the parish has occurred in incorporated communities, primarily along Highway 190 – which also provides access to the railroad tracks. More recently, some industrial and light industrial businesses are beginning to appear in the unincorporated parish along I-12 and along Hwy 190.

An analysis by the Livingston Economic Development Council has identified that the optimum locations in the parish for future industrial growth to be along the Highway 190 and I-12 corridors.

If the parish can increase local employment it will also

- reduce the "leakage" of sales tax to other parishes,
- reduce commuting and congestion, and
- become a more appealing to those who wish to work closer to where they live.

Therefore, it is in the interest of the whole parish to preserve optimum locations to enable/encourage industrial businesses.

Public input about industrial uses

About 70% of respondents felt that industrial uses should be located near similar uses or in designated locations (as opposed to being allowed to locate anywhere in the parish).

Achieving greater predictability in land use

The Anticipated Land Use Map identifies locations in the unincorporated parish that are likely, and compatible, for various land use to occur. However, given current development and land use practices, there will be many opportunities for incompatible development to occur—with the unintended consequence of discouraging the quality and quantity of businesses that the parish could otherwise attract.

Since attracting businesses and jobs to the parish is in the public interest, how can the parish be more proactive in doing so?

One of the common themes in the public feedback is the desire for predictability in land use decisions, particularly for certain areas of the parish, and for certain uses.

Current regulations do not result in predictable land uses

The Parish has no formal regulation regarding the *use* of land. The only control Livingston Parish exerts on development is through Subdivision Regulations[6]. As the name implies, subdivision regulations are only applied at the time land is subdivided (divided into multiple lots). The subdivision regulations exert a modest, indirect control over land use through the requirement of a buffer zone between conflicting uses (e.g. commercial or industrial next to residential). This buffer is actually narrow (25' to 50') and can be used for parking lots and roads. The result is very little actual buffering (or mitigation) of incompatible uses.

Thus, as long as the developer provides buffer zones, the parish has no ability to deny any land use, anywhere in the parish.

This has had several results:

- a wide variety of land uses, which may be incompatible, are allowed adjacent to each other.
- there is often significant controversy surrounding land use decisions.
- legal challenges can be directed at individuals as well as the parish, and are expensive.

A lack of predictability tends to make the outcome of any land use application uncertain, and contentious. The result is that ALL development is made much riskier (for the applicant), and more expensive and time consuming. As a result, it tends to foster the continuation of "what we have today" (an unpredictable, random mixing of

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[6] *There is a modest amount of de facto control of land uses performed by the Planning Commission and Parish Council when they deny some projects, often significantly influenced by the support or opposition of those attending the hearings. But as has been shown in the past, decisions made on a case-by-case basis, without the benefit of having an overall plan, are always subject to being overturned in the courts.*

various land uses). Further, it discourages even good development (that would be compatible) and uses that would provide needed employment and sales taxes.

Public input about predictability and future growth?

Regarding growth in general, public input indicated strong support for the following statement:

"The parish should influence growth to occur in the most appropriate locations."

"In some parts of the parish (primarily the areas where significant growth is expected) the lack of predictability about how much and what kind of development will occur is a deterrent to attracting quality development and can significantly lower property values."

The public and various stakeholders indicated potential places where predictability may be warranted, including:

- Areas that have/expect diverse development (and high potential for incompatible uses adjacent to each other).
- Areas that might have market pressure for higher density (smaller lots).
- Industrial areas and commercial areas.
- Growth areas around cities and towns.

Options for achieving more predictability in land use

To provide greater predictability in land use decisions, there are a number of options the parish might consider:

Where is greater predictability needed / warranted?

There are large areas of the parish that are not being threatened with significant growth, such as much of the eastern, northern and southern parts of the parish. For these areas, current parish regulations are adequate to guide what modest growth will occur in the foreseeable future.

In other areas of the parish, especially the west and central parts, there is and will continue to be significant growth, and a need for additional steps to bring about greater predictability in land use—for several reasons:

- To protect existing property owners from incompatible development,
- To attract the quality of development (commercial, employment and residential) the parish desires and
- To reserve locations for appropriate uses, and rights of way for necessary infrastructure to support future development.

Options for increasing predictability?

In the Appendix are described a variety of tools used by various communities to manage development to achieve more predictability and greater compatibility between adjacent uses. The recommendations for Livingston Parish are summarized below, with a brief assessment as to their applicability to Livingston Parish.

Design guidelines for the I-12/Hwy 190 economic corridor

Purpose: a consistent, quality impression of the Parish

Inasmuch as the I-12/Hwy 190 corridor is the most likely area of the parish to see significant commercial and industrial growth in the next several decades. It is also the major throughway in Livingston Parish, and the visual impression it gives, and its functionality, will have a large influence on the traveling public's perception of Livingston Parish. The appearance of this corridor will also have a significant impact on property values and the ability of the Parish to continue to attract quality businesses.

Therefore, it is valuable to all residents of the parish that development in this corridor has an attractive and coordinated visual character. To that end, it is recommended that the parish develop and apply, with land owner participation and approval, modest design guidelines to bring about a basic level of consistent appearance.

The purposes of these guidelines would be to:

- make this corridor a vibrant commercial place.
- strengthen the parish's tax base.
- serve as an incubator for new, entrepreneurial, locally-owned businesses.
- attract stable, established national businesses.
- provide businesses that can support other commercial and industrial businesses in the parish (services, delivery, storage, manufacturing, construction).
- provide a full range of employment opportunities for parish residents.
- protect the property values of nearby residential and commercial areas.

It is likely design guidelines would be implemented through an overlay district. The overlay district should include the areas that are visible from I-12 and US 190, (approximately ½ mile), and undeveloped land along any future major arterials that connect the two. Any areas that would like to be a part of the overlay would require a vote of the property owners.

Implementation

Strategies

In general, the key land use recommendations are:

1. Adopt zoning regulations in the I-12/Hwy 190 Economic Corridor (see figure __)
2. Create a process of "self-determination," organized by sub-areas, for the remainder of the parish to determine the extent to which they wish to adopt regulations to increase predictability of future development. Individual subareas should be given a reasonable time (say 2 years) to undertake the subarea self-determination process (modify their plan, decide on zoning). If a subarea fails to take any "self-determination" action, the parish may continue to use the Anticipated Land Use Map as a guide for decision-making, and consider adopting zoning.

Policies

1. All future large development projects (i.e. airport, roads, utilities, public buildings, etc.) should demonstrate how they are either consistent with the Comprehensive Master Plan (CMP) or how the CMP needs to be modified
2. All future capital improvements budget requests related to land use and infrastructure should demonstrate how they are either consistent with the CPM or how the CPM needs to be modified.

Actions

After the Parish adopts the Comprehensive Master Plan with the preliminary Major Street Plan element, it should engage in the following actions:

1. Short-term (1-2 years)
    a. Hire a full time planner to assist in subarea planning implementation (see mid-term actions below).
    b. Until self-determination subarea plans can be adopted,
        i. Council, Planning Commission and Parish Staff to use the anticipated land uses as a general interim guide for land use decisions.
        ii. Modify the Code of Ordinance's, Subdivision Regulations for the "economic corridor", to increase the buffer size for incompatible uses. (See _____ in the appendix for details).
    c. Create and adopt zoning for the economic corridor (Hwy 190/I-12).
2. Mid-term (3-5 years)
    a. Conduct sub-area planning
        i. Adopt or modify the 13 former police-jury ward boundaries as the boundary for sub-area planning (land use self-determination).
        ii. Form a steering committee of sub-area residents and businesses. Members should include representatives from a wide-range of trusted community members.
        iii. Invite residents and businesses to participate in meetings to develop sub-area plans for each sub-area. Review the Existing Land Use Map. Identify opportunities and constraints for future land use. Review the Anticipated Land Use Map as a basis for future self-determination. Organizer should present need for land use determination (such as infrastructure planning, congestion reduction, etc.) opportunities for future land uses (such as commercial along arterial corridors), and constraints (such as wetlands).
        iv. Identify a vision (at least a one page summary) of future growth for each sub-area.
        v. Determine the degree to which more detailed land use predictability is desired.
        vi. Choose the appropriate tool from the Toolkit (see _____ in the Appendix).

1. If zoning is desired, select the appropriate zones from the Toolkit

vii. Have local steering committee adopt the sub-area plans.

viii. Recommend to the Planning Commission and Council:

1. An amendment to the Parish Comprehensive Master Plan to include:

a. the sub-area plan's vision,

b. anticipated land use revisions, and

c. identified land use determination tools (such as zoning or other tools the sub-area wishes to be enacted).

3. Ongoing

a. Work with individual municipalities to determine their appropriate growth boundaries and ways to reduce the conflict between parish and municipal land use standards to encourage orderly growth of cities.

i. Form a working group for each growth area, comprised of representatives of the parish and municipal Planning Commissions.

ii. Options for project approvals in the growth area include:

1. Joint review and case-specific standards.

2. Adopt municipal standards.

b. Create a GIS system for the parish, integrated with the Parish Assessor's data, to keep track of development and land use data. Include Office of Emergency Management considerations to help provide new development that has appropriate emergency response.

An example of potential guidelines for the I-12 "economic corridor"

The following represents possible content that may be considered for the guidelines.

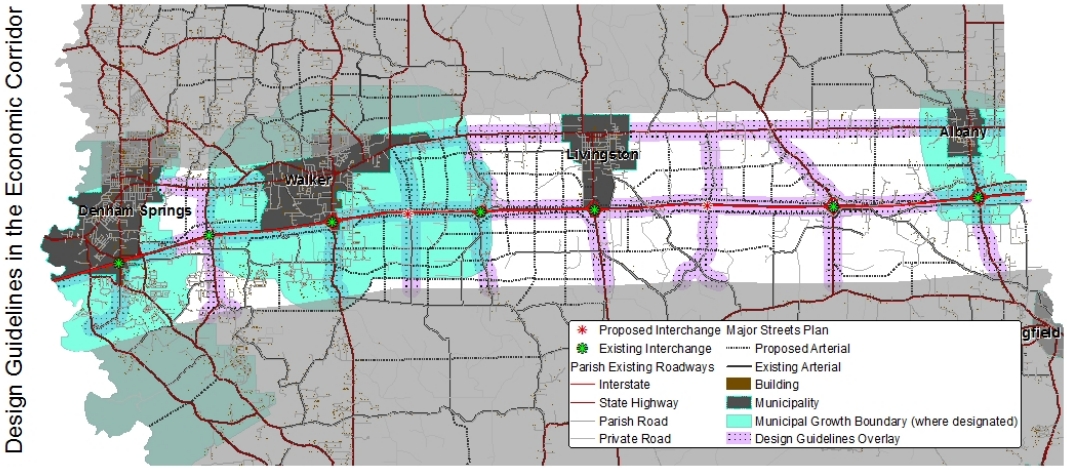

Figure 23: Design guideline, overlay indicates the area where guidelines will be applied.

Land Uses

It is anticipated that the corridor will eventually have zoning applied in order to provide for orderly development of the land and avoid incompatible adjacent uses. PERMITTED uses in the economic corridor would be those allowed in the underlying zoning.

Uses NOT PERMITTED would include the following:

- Adult entertainment and sales of adult materials.
- Pawn shops, check cashing, cash advance services (except for banks, credit unions, etc.)
- Bail bond office.
- Massage and tattoo parlors.
- Junk yards, auto-recycling, trash storage, trash transfer.
- Chemical and petroleum processing that requires visible or potentially hazardous emissions.

Roads

All land uses

1. The Major Street Plan encourages a grid of major and minor roads throughout the corridor in order to provide connectivity that will provide multiple means of travel through the area. This will a) avoid concentrating traffic on a few streets and b) provide alternative routes for emergency vehicles and egress).
2. Future individual developments are strongly encouraged to connect to adjacent development to continue this pattern at a local scale.

Site layout

All land uses

3. A frontage road along I-12 is indicated in the Major Street Plan. This is intended to encourage properties fronting on I-12 to orient

their front facades toward the frontage road and therefore the Interstate.

4 Only front facades should also face Hwy 190 and the other arterial roads in the corridor.

5 Only modest amounts of parking should be placed between the building front and the adjacent roadway. Major parking as well as heavy equipment storage and outdoor fabrication should be located out of sight, behind the buildings fronting major roadways.

Commercial land uses

6 Parking lots along major roadways should be interconnected so as to not require patrons to have to re-enter traffic to move from one shopping to another.

7 Sidewalks at least 5' wide should be provided along the street edge(s) of each property. They should connect to adjacent existing sidewalks, and should minimize walking distance.

Architecture

All land uses

8 Building facades fronting on major roadways (including I-12) should be treated as a front façade—i.e. with architectural detailing and materials befitting a public entry. Blank walls and rough construction materials (i.e. concrete block, tilt-up concrete, and sheet metal) should be avoided or minimized.

9 The color and materials of facades of buildings fronting on major roadways in the corridor should be consistent—from a color range selected for each sub-area.

10 Architectural materials should be durable, easy to maintain, easy to clean, and repairable in a manner that is consistent with the original finish.

11 Roof materials should be from a selected palate (e.g. standing-seam metal, architectural grade shingles, tile, slate, or synthetic slate). Buildings with flat roofs should have parapets or other architectural features that hide the roofing material and mechanical appurtenances from ground level.

12 For aesthetics as well as flood hazard, all mechanical equipment should be located on the roof, or on a raised platform at the rear or side of a building. It should always be screened from the street (e.g. with parapet walls or enclosures).

Commercial land uses

13 Buildings in each designated sub-area should have a distinct and consistent architectural character, but variety is also recommended (e.g. color and details). Building design shall make gradual transitions to surrounding conforming properties.

14 While some national retailers require standard materials

and colors (known as "trade dressing") the desire to have overall consistent design in the corridor is equally important. Therefore, for the street frontage façade the % of trade dressing should be specified for each district—generally not exceeding 25% of the façade surface.

Landscape

Along I-12

15 Much of the I-12 corridor is still heavily forested to the property line adjacent to the highway. In other portions of the corridor, preserving a band of existing trees and clearing the understory, has:

a. created a distinctive corridor

b. unified the diversity of the buildings behind the trees

c. allowed visibility of the buildings and signage to highway travelers

d. It is highly recommended to continue this practice of preserving the tree band along the highway.

All land uses

16 Street trees (either existing or planted) are encouraged along all streets

Commercial land uses

17 Trees are encouraged to:

- shade and 'break up' large parking lots
- shade public walkways
- provide shade and visual interest in pedestrian areas

Signage

All land uses

18 Signage should provide for a means to advertise the presence of businesses not only along I-12 and Hwy 190, but also along the major roadways throughout the entire growth area.

19 If desired by landowners, separate sub-areas (not individual buildings however) can be designated for differing signage character (e.g. sign size, materials, character, lighting, placement).

20 The management of the signage guidelines should be provided by a property owner's entity.

Trash and Recycling

All land uses

21 Loading docks should be located at the side or rear of street fronting buildings or otherwise screened from public view.

22 All solid waste, recycling, trash containers, and grease containers should be located as far as possible from public areas and screened from view (e.g. inside buildings or in attached enclosures)

4. WASTEWATER

Sewer treatment in the parish today

The majority of the populated areas of the parish are served by six municipal wastewater treatment systems[7]:

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 levels[8], 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

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[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).

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.

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.

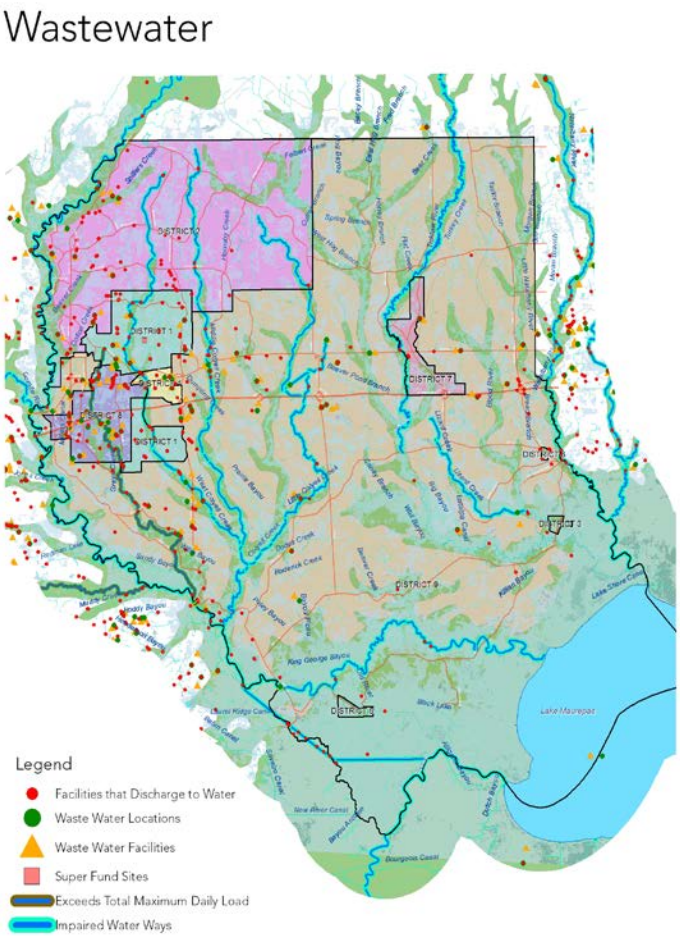

Figure 24: Wastewater issues and sewer districts.

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 study[9] 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 rule[10], 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.

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[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 approaches[11] 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.

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[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 solutions[13].
    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.*

5. TRANSPORTATION

Challenges facing the parish

Three primary issues related to transportation are facing Livingston Parish:

1. Congestion
2. The high cost of maintaining parish roads
3. The lack of a Major Street Plan to guide long-range decision-making.

These are further described below, and remedies proposed later in this chapter.

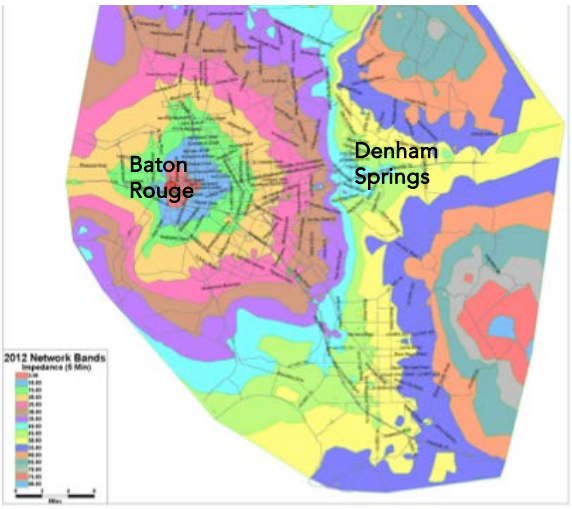

Figure 25: Travel isobars from downtown Baton Rouge generally increase with distance. (Source: Capital Region Planning Commission)

Congestion and safe, convenient circulation

According to the public input received, parish residents consider traffic to be the number one issue facing the Parish now, and they believe in the future, too. Congestion maps prepared by the Capital Region Planning Commission (CRPC) indicate that many major roadways are congested during peak travel periods, especially the east-west roadways connecting the Parish to Baton Rouge through the limited river crossings. Recent widening of I-12 has reduced congestion, but history shows that the benefit will be relatively short-lived (see Figure 26 and 27).

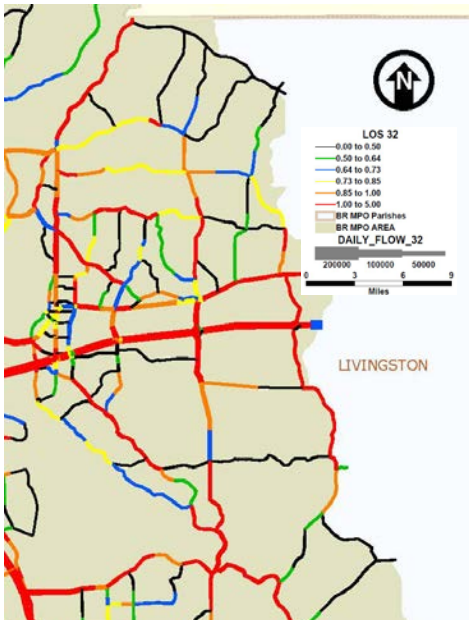

Figure 26: Level of Service in Livingston Parish with all scheduled transportation improvements

This focus on congestion is common in rapidly growing suburban areas. People move to the fringe to "get away" from the city and then are dismayed to discover that commuting congestion on suburban roadways is as bad as, or worse than, it was in the community they left[14].

Many subdivisions in the parish are single-entry or double-entry subdivisions. While this has created a desirable privacy for individual neighborhoods, the cumulative effect is that limited-entry subdivisions force traffic onto the major roadways, increasing congestion.

With continued growth, and even with planned roadway improvements, the commuting time to Baton Rouge will continue to increase. The 1-hour travel time "isobar" is moving gradually eastward. The implications are:

[14] *In reality, most major roadways in growing areas are congested. Eliminating congestion as a sole objective of a transportation program becomes less useful over time, and can lead to focusing on ineffective strategies in transportation system development.*

- Less desirable to live in Livingston Parish and commute to East Baton Rouge (when either the commuting time or commuting cost reaches a threshold compared to other options).
- May attract business/commercial development to take advantage of the "captive" Livingston Parish market.
- Will continue to stimulate shopping and business in Hammond.

Also, the ability to efficiently get around the Parish is critical to safety—for emergency vehicles to access homes and businesses in a timely way, as well as providing efficient evacuation in emergencies (including alternatives when routes become blocked).

The cost of maintaining parish roads

Livingston Parish currently is responsible to maintain over 800 miles of roadways. According to several studies, the annual cost of maintaining a two-lane asphalt road is approximately $15,000 per mile. This means that the parish should be budgeting approximately $12 million per year for road maintenance. In recent years, faced with other compelling priorities, the parish has budgeted far less than that. This topic is addressed in greater detail beginning on p. 43 Fiscal Realities.

The lack of a Major Street Plan

The Livingston Parish Code of Ordinances states that:

> *"The arrangement, character, extent, width… and location of all streets shall conform to the major street plan [with consideration of] public convenience and safety."*

Prior to the adoption of the CMP there was no Major Street Plan. Decisions about road improvements are made each year, by individual Council members for their own district.

Who is responsible for the roads?

There are basically four types of roadways in the Parish, under different jurisdictions:

- Federal highways
- State highways
- Parish roads
- City/town (municipal) roads

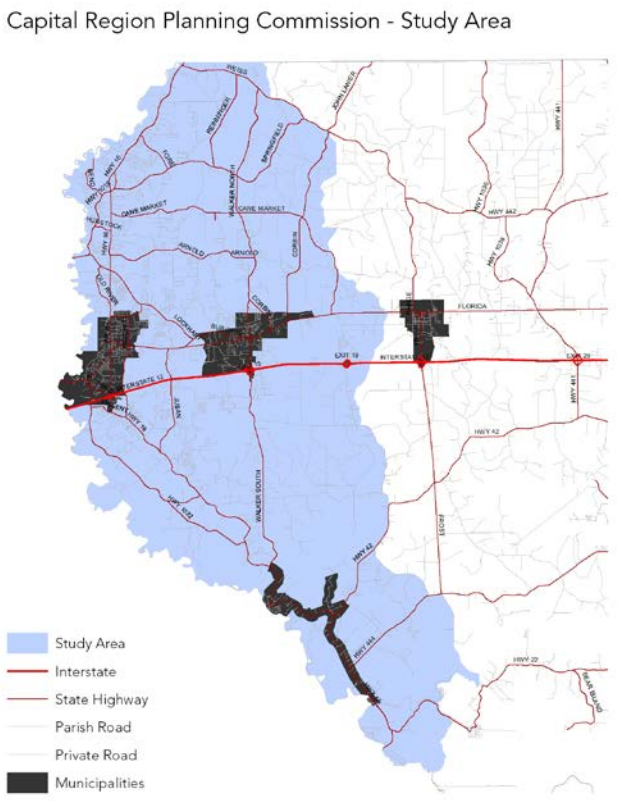

Figure 27: Capital Region Planning Commission study area.

All state highways and some parish roads and streets are eligible for federal cost participation in construction and major repair projects. Even minor local roads and streets may be eligible for certain kinds of federal financial assistance. Thus, federal

laws, funding systems, and regulations play a major role in guiding the planning, design, construction and operation of the roadway network within the Parish.

Federal and state highways

The western part of the Parish falls within the boundaries of the CRPC, which is officially designated by the state and federal government to plan major (state and federal) roadways. The CRPC works closely with the Louisiana Department of Transportation and Development (DOTD) and local governments in planning and setting priorities for this roadway network.

Outside CRPC boundaries, the DOTD alone is responsible for planning state highways local roads that may be eligible for federal funding. In planning for these roadways, DOTD also works closely with local governments. Finally, DOTD provides design, construction, operation, and maintenance for all state highways, within and outside CRPC boundaries.

Parish roads

Livingston Parish is responsible for all the roads that are not federal, state, municipal, or private. The parish has over 800 miles of roads for which it is responsible.

Improving roadway capacity (widening)

Not all roadways are the same. Below is a simplified hierarchy of three general roadway categories, based on their role in the overall local, regional, and statewide network:

- Highways. These are usually state highways that provide for longer distance trips. Included are the numbered state routes and interstate highways.
- Arterials and collectors. These are generally parish roadways that provide for vehicular movement between neighborhoods and districts. As a practical matter, the DOTD assumed responsibility for some arterials in parishes throughout the state. They are offering incentives to parishes to take over responsibility for these state arterials.
- Local roads and streets. These provide access to homes and businesses and allow traffic to circulate within neighborhoods.

To plan for major roadways in its jurisdiction, the CRPC uses a capacity-oriented approach called a "predict and provide" methodology.

- Traffic is forecasted on the arterial network (but not on the collectors and local facilities).
- This traffic volume is compared to the estimated capacity of those major roadways resulting in measures of congestion.
- A long-range plan is drawn up that shows how roadways would have to be widened to eliminate the forecasted congestion.

- The highest priority projects from this needs list make their way into near-term, funded highway program plans.

Notwithstanding all of the best planning efforts, in rapidly growing regions, it is virtually impossible to keep up with capacity needs defined in this manner. As a practical matter, traffic always grows faster than capacity can be added.

Also, construction of new capacity actually tends to be a short-term solution. More capacity (wider roads) makes it possible to commute from farther away, which in turn encourages the spread of residential development, which creates more traffic. This phenomenon is called "induced traffic."

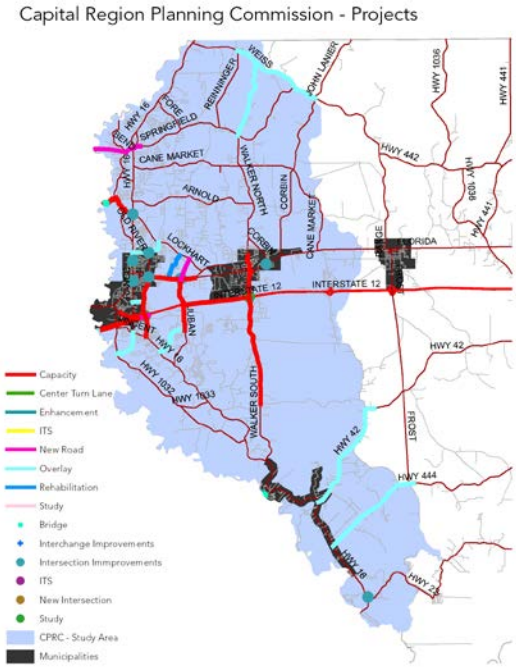

Figure 28: Capital Region Planning Commission 2032 improvements.

Arterials vs. collectors and local roads

This type of planning system can also go awry because of its focus on major routes. By focusing on highways we ignore, and don't provide for, the important arterial, collector and local routes. Consequently, our highways carry not only the through traffic for which they were intended, but also much of the local circulation traffic. This happens because state and federal funds are used to grow the highway corridors, but little or no money is available to fund development of the collector network. So, circulation traffic that should be traveling on a collector network must instead travel over the highway routes, adding to the congestion problem, especially during peak travel periods.

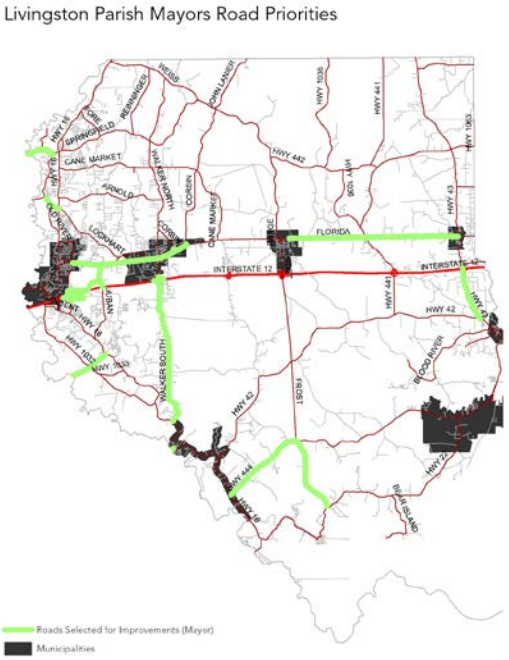

Figure 29: Mayors' road priorities.

Air quality

Roadway development priorities affect more than just congestion. The amount of traffic that occurs in congested conditions is a primary contributor to air pollution. A major required mission of CRPC planning is achieving good air quality. Having not met federal air quality standards for some time, the Capital Region achieved "attainment" in 2011, primarily due to reductions in tailpipe pollutant emissions, due to stricter federal vehicle standards. However, a new formula has recently been adopted and it is likely that the Region will be "out of attainment" under the new standard. This means that the CRPC will need to update plans more frequently (every 4 years).

Current road plans for Livingston Parish

Capital Region Planning Commission

The CRPC planning process develops two plans for state highways and certain other projects. If a road improvement is to be considered, it has to be in these plans (see Figure 29).

- The long-range (20-year) needs plan takes expected funding into account but is not technically balanced to revenue forecasts.
- The short-range (four-year) Transportation Improvement Plan (TIP) is, by law, "fiscally constrained" – balanced to accurate forecasts of available funding.

The CRPC plans are based on consensus growth projection derived from input from elected and technical staff in each parish.

Parish road-widening priority list

The Livingston Parish Road Priority List recommends several improvements that duplicated state priorities, as well as more significant improvements to Highway 190 and an additional bridge/roadway over the Amite River south of Hillon Hood Road that would connect 4-H Club Road to Tiger Bend Road in East Baton Rouge Parish (see Figure 30).

Citizen group road-widening recommendations

In addition to state and parish priority improvement lists, Citizens for Highway and Infrastructure in Livingston Parish (CHILP), a citizen activist group, has also recommended roadway capacity improvements to federal, state, and parish/city (municipal) roads. Some of the CHILP recommendations mirror those of the CRPC and the Parish and some are unique (see Figure 31).

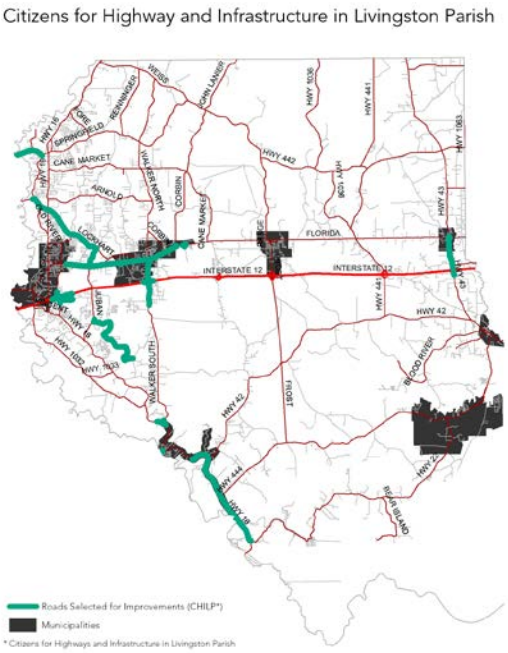

Figure 30: Citizens for Highway and Infrastructure roadway priorities.

Synopsis of road capacity plans

Assuming that all the CRPC planned projects have been built, the CRPC congestion forecast for 2032 shows that congestion will still be a major problem in western Livingston Parish.

According to CRPC Director Huey Dugas (retired)[15],

"Even with all the scheduled improvements, congestion (in Livingston Parish) will be worse in 25 years than it is today."

[15] *Personal communication _____ 2012.*

This reaffirms that road improvements always lag behind demand. It is unlikely that the additional Parish and/or CHILP recommendations will significantly improve that forecast.

Improving travel efficiency/reducing congestion

As highway-widening is not likely to significantly reduce congestion, the parish needs to consider increasing connectivity through a grid of alternative routes.

Local traffic uses arterial roads

Although commuting is a major cause of traffic during peak periods, it represents a fairly small amount of total daily travel. Studies show that commuting is a little more than half of morning peak period traffic, a little less than half of evening peak period traffic, and only 20 percent or less of daily traffic. Local trips also tend to slow traffic by making more turning movements and lane changes, all of which contribute to congestion.

All of this would be fine if local trips occurred on local roadways. However, where the local road network is incomplete, as it is in Livingston Parish, these trips must use arterial roads, including Highway 190 and I-12, often for very short distances.

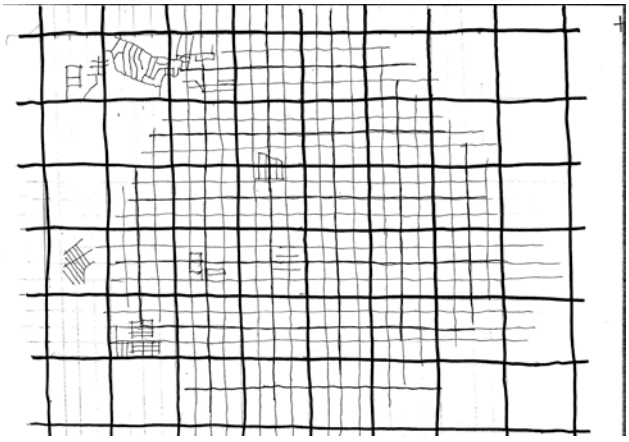

Figure 31: A hypothetical 1-mile arterial grid (bold lines), with smaller ¼-mile grid for collectors. Note actual grid of several subdivisions shown for scale

The importance of a complete network of roads

For local traffic, with multiple local destinations, a large number of small roads carry more traffic than a small number of wide roads.

In fact, in most places developed as much as Livingston Parish is projected, and that have good traffic flow, there is usually also good connectivity—multiple alternate routes that form a grid. In sizing the optimum grid, traffic engineers often use these rules of thumb:

- **Arterials** = 1-mile spacing
- **Collectors** = ¼-mile grid
- **Local roads** = 330- to 530-foot blocks

This theoretical grid is shown in Figure 32. (several actual subdivisions in Livingston Parish are inserted in west edge of the illustration to convey the scale of the grid). Obviously this theoretical grid must be adapted to local conditions.

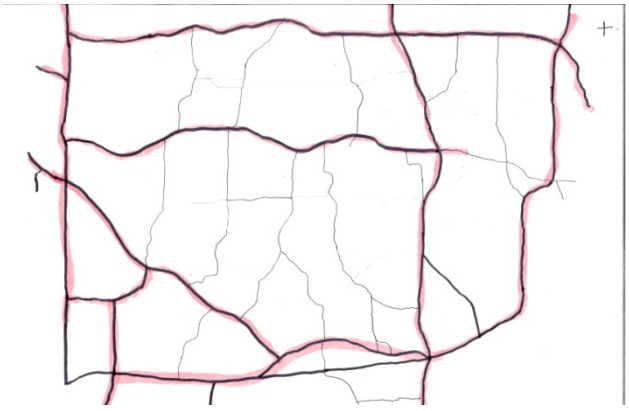

Figure 32: The actual grid of arterial and collector roads in the Denham Springs / Walker area.

The benefit of a grid-like system is that overall, the road system can have smaller, lower speed, and safer streets, can cost less, and yet can carry more traffic than less connected networks. A more connected system can also remove local traffic from arterial corridors, which significantly reduces congestion during peak travel periods.

With more of a grid system, with multiple alternate routes, the collector roads do not have to be widened to four-lane sections.

The extent of the existing arterial grid in the parish

The actual grid of arterial/collector roads found in a portion of western Livingston Parish is shown in figure 33. This illustration shows:

- A very incomplete grid at the arterial level and most of it is oriented east-west.
- There are no true collector roads, only a series of north-south routes made up of local farm-to-market roads whose capacity is limited by the frequent driveways.

Because most of the shopping in the Parish is in the urbanized corridor paralleling I 12, and the Arterial grid is missing in much of the developed area of the Parish, the net result is that local traffic must go significantly out of its way—or use the north-south farm-to-market roads. Once they get to the urban corridor, the east-west options are still limited to either Highway 190 or I-12. Travelers balance travel times between them until, during heavy travel periods, they tend to have approximately equal travel times

(i.e., congestion).

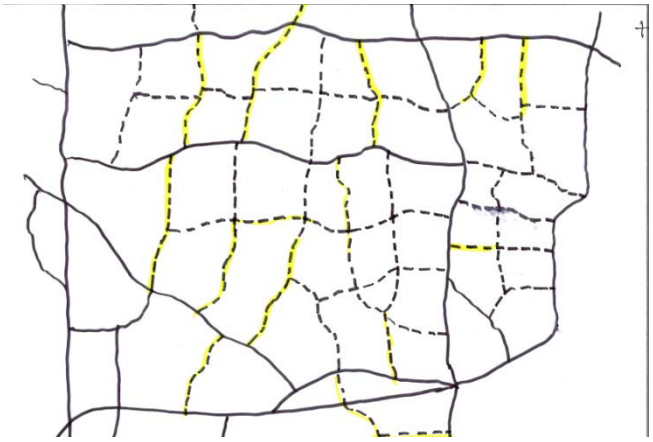

Figure 33: Option A. Dashed lines indicate new/widened roadways to form a more complete arterial grid. Yellow segments indicate sections where existing structures would be impacted by widening.

If the Parish continues to develop with the current system

- The north-south farm-to-market roads will continue to fill in with development and curb cuts for driveways, further reducing capacity.
- Cul-de-sac development of the interior of the "blocks" will eliminate future opportunities for completing key "missing links" in the grid that could alleviate and help spread out traffic.

The net result will be continued, increasing congestion.

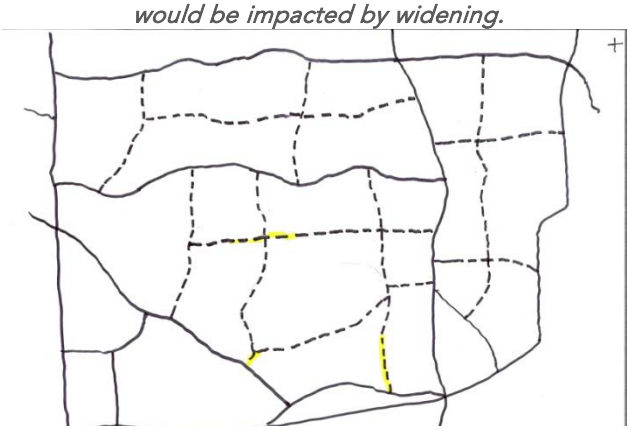

Figure 34: Option B. Create new arterial and collector roads in vacant areas between existing development. Note the yellow areas of impact to existing structures are much less.

Options for increasing connectivity

The alternatives are:

A. Create a more complete grid of roads (see Figure 34).

B. Widen the existing roads and add key missing links (see figure 35).

A. Creating an alternative arterial grid

In significant portions of the western parish, there are still undeveloped areas that would allow new arterial roads to be constructed. This approach would still require significant acquisition of rights-of-way and installation of new infrastructure, but would impact far fewer existing structures and utilities (see Figure 34).

In the Implementation section below, the CMP recommends a hybrid of Option A and B. The actual alignment of roads will require significant, detailed analysis in order to more fully understand the cost implications, environmental constraints, etc.

There is some urgency to making this decision in order for the Parish and/or DOTD to begin reserving rights-of-way before development precludes this possibility.

B. Widening existing roads

Figure 35 shows the existing major parish roadways widened along with adding several, very general new arterial corridors to fill in the "missing links".

A cursory evaluation of widening existing roads in just this part of the parish reveals that, if most of the key arterial roads were widened, the additional right-of-way needed would intercept approximately 2,000 structures.

Other non-transportation ways to reduce congestion

Attract major employment and stores

Much of the commuting traffic is due to the job and retail base in Baton Rouge and Ascension Parish. Many residents of Livingston Parish work in East Baton Rouge Parish and many are also attracted by the quality and diversity of shopping. The Livingston Economic Development Council is working hard to attract major employers and stores to Livingston Parish, but it is a long-term project and both employers and stores tend to follow development rather than precede it. So, we still need to grow and solve our traffic problems while we work on economic development.

Reduce travel needs by allowing/encouraging more complete communities

Although commuting is a major cause of traffic during peak periods, it represents a fairly small amount of total daily travel. Studies show that commuting is a little more than half of morning peak period traffic, a little less than half of evening peak period traffic, and only 20 percent or less of daily traffic.

Much of daily household travel is for other purposes – school trips, errands, shopping, recreation, etc. (This is described in popular media as the "soccer mom" phenomenon.) Where residential areas are separated from schools, shopping, parks and other destinations, people must drive long distances, often in heavy traffic, for routine daily activities.

One long-range strategy to overcome congestion is to make Livingston Parish a more "complete" place to live and work. This reduces driving by enabling people to make shorter trips. This is accomplished by allowing new development to include a mix of uses (homes, shops, employment) in the same development.

Where development has a greater mix – like our older communities had – the amount of household driving can be much less and can take place on local streets. This removes local traffic from congested arterials. It also reduces household exposure to congestion, lowering household costs, and improving quality of life.

Allowing the market to provide more "complete" communities would offer other benefits to Livingston Parish by diversifying the tax base and increasing local employment.

Reducing the number of access points onto major drives

Providing drop-off turn lanes into schools

The proposed Major Street Plan

Figure 36 is the recommended, initial Major Street Plan (MSP) for the parish. It indicates:

1. The general location of a modified grid comprised of existing and proposed arterial corridors. The proposed system includes a frontage road along both sides of I-12 to encourage buildings that front toward the interstate (see chapter 2, Land Use).
2. Proposed future I-12 interchanges.
3. Higher priority improvements as identified by:
    i. Parish Mayors.
    ii. The Citizens for Highways and Infrastructure in Livingston Parish.
    iii. The Capital Region Planning Commission.
4. Problem roadways (as identified in the Parish Hazard Management Plan).
5. Roadway flooding issues (as identified by the public in the CMP process).

Reserving road corridors

The MSP proposes general locations for future arterial roads only in areas where high and medium growth is anticipated.

The locations shown attempt to avoid wetlands as much as possible. Since planning level data was used in the creation of the MSP and the wetland dataset used is not highly accurate for individual wetlands, a more detailed study will be required to refine the alignments.

Therefore, the locations of the proposed roads are intended to be desire lines, not specific alignments. They must be verified by detailed engineering analysis, wetland verification, and should be further adjusted to accommodate future development.

However, these alignments should be preserved from other types of development until suitable replacement alignments can be reserved. As per the current Parish Code, future development should be consistent with the MSP. This means that if streets are proposed differently than in the MSP, the MSP should be amended before approving the modified layout.

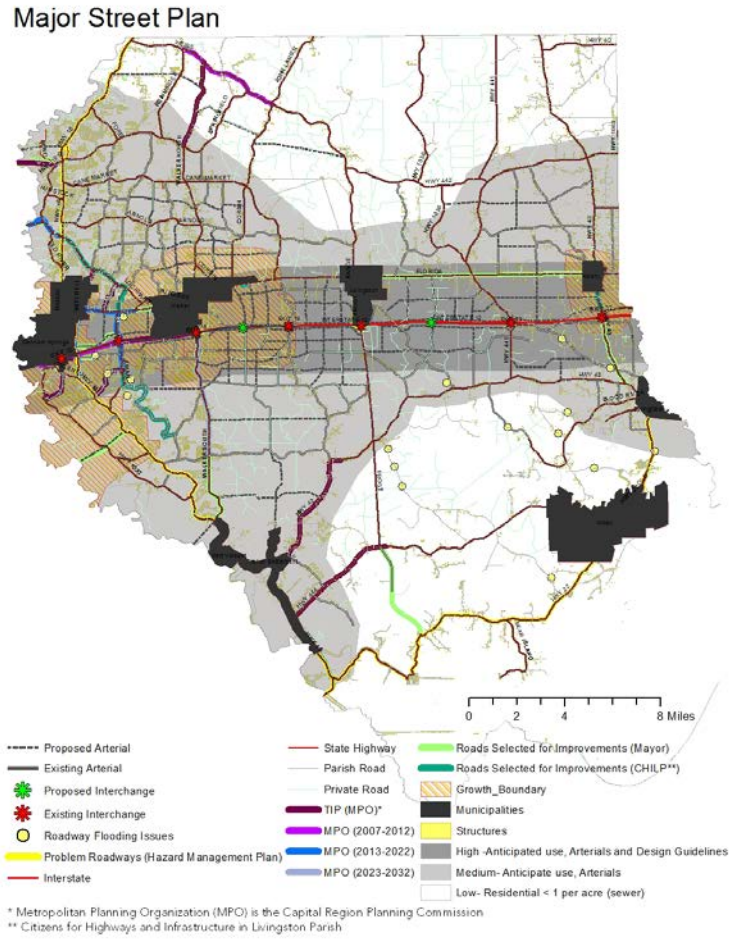

Figure 35: Major Street Plan (see end of plan for full page version of image).

How much servitude width should be reserved?

For a typical arterial it is recommended that initially a servitude of 142 feet be reserved, until revised by future study. This is based on preserving the potential for the following roadway components:

60′ up to 5 lanes of roadway or four lanes with a median (12′ lanes, 14′ median).

16′ two 5′ to 7′ shoulders (including future curb-and-gutter).

30′ two 15′ swales (or one 40′ canal) for storm water drainage ways[16].

14′ two 7′ servitudes for utilities (which also functions as a setback for sidewalks if developed).

10′ two 5′ sidewalks (if desired).

2′ two 1′ construction setbacks to the servitude line.

Figure 36: Livingston Parish Arterial right-of-ways

For a typical arterial it is recommended that the initial servitude expand to 180 feet at intersections, until revised by future study. This is based on preserving the potential round about.

[16] *Drainage ditch dimensions in the parish vary significantly according to functional needs from 0′ where there is a storm sewer, to 40′ where a major canal is required. Therefore, it is recommended that this dimension be verified, and adjusted on a case-by-case basis, according to the recommended parish-wide drainage master plan, or a specific drainage analysis.*

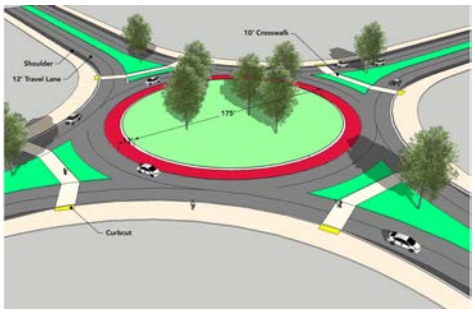

Figure 37: Round about

Future I-12 interchanges

Several possible future interchange locations are indicated in order to allow for planning of future infrastructure (see Figure 36).

Fiscal realities—the cost of maintaining roads

In Louisiana, as in all states today, state highway construction and widening projects are funded usually with a mix of 20% state funds and 80% federal funds.

In recent years, the costs of operating and maintaining the existing highway network have grown faster than state transportation budgets. As a result, an increasing proportion of the state transportation program must be devoted to care and upkeep of existing highways. At the same time, due to reductions in total vehicle miles of travel nationwide and consequent reductions in the gas tax proceeds, the funding of the federal transportation program has been shrinking. It appears that this problem will take some years to resolve.

So, it is probable that Livingston Parish will have greatly reduced external transportation funding for the foreseeable future.

Livingston Parish currently is responsible to maintain over 800 miles of roadways. According to several studies, the annual cost of maintaining a two-lane asphalt road is approximately $15,000 per mile (see text box "How Much Does it cost to Maintain a Road?". This means that the parish should be budgeting approximately $12 million per year for road maintenance. In recent years, faced with other compelling priorities, the parish has budgeted far less than that.

This suggests that the parish needs to:

1. find additional funding sources to finance future road needs
2. be very selective about the roads for which it accepts maintenance responsibilities in the future.

Implementation

Strategies

1. To continue to support growth in the unincorporated areas of the Parish, even at low-density suburban levels, reducing congestion is essential.

2. A key strategy to reducing congestion is to provide efficient alternate routes through the parish— a more complete network of arterial and collector roads.

3. The Comprehensive Master Plan (CMP) identifies very general corridors for future roads (to ensure that they are not lost to interim development). This element of the CMP will serve as the initial Major Street Plan as identified in the Livingston Parish code. Upon completion of the CMP, the Parish needs to conduct a more detailed Transportation Plan (an inventory of roadway assets, conditions, future transportation needs, refinements to the Major Street Plan, etc.) to guide the development of future parish (and state) roads.

4. To further increase connectivity to reduce congestion, as well to provide better emergency access and evacuation, the Parish also needs to enforce existing regulations regarding road connectivity between new subdivisions. (Interconnections between future subdivisions would also allow residents to take alternate routes to get to collectors and arterials that may be more direct, thus reducing congestion.)

5. The cost of parish road maintenance is high, and the parish has not been adequately funding maintenance at a sustainable level. To better manage parish road maintenance, the Parish needs address the following issues in the short term:

    a. Necessary maintenance levels need to be fully budgeted. (This will be helped by a detailed analysis in the Transportation Plan).

    b. Developers have typically not been required to build collector roads. As a result, that portion of a typical road network is often missing in the parish. Collector roads, or equivalent road impact fees, need to be provided by future major developments.

    c. Future road construction may involve either property relocation, or wetland mitigation.

6. Because of the cost of maintenance, the parish needs to be very selective about accepting additions to the Parish road system. Roadways not meeting existing parish standards (1,000 feet, five dwelling units, etc.) should be rejected.

7. Several groups have identified road priorities in the Parish. The Livingston Parish Council is currently discussing a road priority list but it has not been finalized. After then Parish Council has update their priorities, this list should also be update. The list should be updated yearly to address safety and congestion in the parish. Road with funding allocated (Federal, State, or Local) should be considered top priority.

    a. Existing road priorities:

        i. Extend Cook Road to Juban Road.

        ii. Extend Hooper Road (LA 408) from Eastern Baton Rouge Parish crossing of the Amite and connecting into LA 16 and Springfield Road.

iii. Construct road at the end of Walker South Road (LA 447) extending to LA 42 in Ascension Parish.

iv. Expand overpass at Interstate I-12 and South Walker Road (Highway 447).

v. Widen US 190 (Florida Blvd) from Denham Springs to LA 449 past Walker and from Livingston to Albany.

vi. I-12 / Pete's Highway interchange.

vii. Widen LA 64 from LA 16 to Magnolia Bridge.

b. To be prioritized, in no particular order:

i. Brown Road.

ii. Eden Church Road.

iii. Extend Lockhart from Cockerham to Burgess Road.

iv. Extend Juban Rd to Lockhart.

v. Extend Frost Road (south from intersection of LA 444 to LA 22).

vi. LA 444 from LA 16 to Frost Road.

vii. LA 447 South of I-12 to LA 16.

viii. LA 447 North to Corbin Ave.

ix. LA 447 I-12 overpass at Walker.

x. Juban Road from I-12 to LA 190.

xi. Juban South of I-12 to Brown Road.

xii. Pete's Highway Interchange.

xiii. Port Vincent Bridge replacement and widening.

xiv. Satsuma I 12 overpass.

xv. Tate Road from Pete's Highway to Juban.

xvi. Tiger Bend Road.

xvii. Turning lanes at US 190 and Highway 1029

xviii. Turning lanes at US 190 and Highway 449

xix. Upgrade LA16 (various locations at intersection with Walker South Road and from the northern border of French Settlement south to LA 22).

xx. Widen LA 43 (from interstate north to Steward Lane).

xxi. Widen LA 43 (from Interstate 12 south to Highway 42).

Actions

Short-term: (1-2 years)

1. Adopt the CMP Major Street Plan on an interim basis.
2. Notify the public of the intent to begin following the Parish Code with regard to requiring future developments is consistent with the Major Street Plan.

Longer-term: (3-5 years)

Commission a detailed Parish Transportation Master Plan, including:

1. An update of the Major Street Plan to:
    a. Avoid wetlands where possible.
    b. Refine interchange locations.
    c. Update the priories for new parish roads.
2. Establish servitude ownership and widths for all parish roadways.
3. Identify which parish roadways are consistent with Parish Code criteria for maintenance by the parish.
4. Investigate roadway flooding issues, problem roadways, and propose remedies.

Ongoing:

1. Implement Parish Code requirement relating to:
    a. Major Street Plan.
    b. Connectivity of future subdivisions.

6. Drainage

Challenges facing the parish

Frequent flooding

Livingston Parish is relatively flat. From approximately sea level in the southern portion of the parish, the land rises very gently to slightly more than 10 feet above sea level at Interstate 12. The north end of the parish is only approximately 40 feet above sea level. As a result, runoff from rainstorms drains very slowly towards the south-southeast at about 3 feet per mile until it reaches sea level at Lake Maurepas. This very gentle gradient makes runoff slow, causing water to back up and flood, but it also means that flooding occurs with relatively low energy and poses less threat to downstream areas.

However, the downstream areas are subject to tidal flux and when heavy rainfall events are coupled with high tides or tidal surges, these areas have an extremely high probability of flooding. This flooding is exacerbated when driven by the high winds that accompany hurricanes.

Over half of the unincorporated parish is considered to be within a 100-year floodplain[17]. The Federal Emergency Management Agency (FEMA) has recently updated the floodplain maps of the parish and increased the designated floodplains slightly in a number of areas.

Significantly increased development in the last decade has likely contributed to increases in the frequency of backwater flooding in the Amite drainage Sub-basin around areas such as Denham Springs, Watson, Walker, and between 4-H Club Road and Highway 16.


The Livingston Parish News

THURSDAY, JANUARY 10, 2013

75 CENTS

Washed out

Deluge floods roads across parish

SCHOOLS STAYED OPEN, THE Courthouse didn't, a casualty of heavy rainstorms that began Tuesday.

Figure 38: Headline in the Livingston Parish News

With the recent experience of Hurricane Isaac (2012) and other rainfall flooding events almost as significant, there is growing recognition of the need to increase system

A Snapshot of Flooding Events 1973 to 2013

April 1973 – 6" of rain. The Amite River spilled over its banks and over 1,800 homes and 70 businesses were flooded.

January 1977 – Hard rain caused extensive flooding. Farmers were hit hard.

May 1977 – Many rivers in the Parish overflowed their banks.

May 1979 – Over 10" of rain. Over 400 people evacuated to shelters. Flash flooding of streams was common.

April 1983 – Over 1,300 homes were destroyed. Over 5,000 people evacuated. Approximately 170 miles of roads were flooded. Water levels were the highest in 90 years.

April 1991 – 10"-15" of rain fell in two days and caused extensive damage. Numerous homes were flooded.

February 1993 – Over 12" of rain. Many homes sustained flood damage. Many roads and businesses were closed.

June 2001 – Over 600 homes and businesses were flooded. The Town of Livingston recorded over 18" in four days. The Amite River crested at 38.24', the fourth worst flood since 1961. 75% of the roads in Port Vincent flooded. Damage estimated at $8.9 million.

August 2013 – Isaac severe weather event.

[17] *Areas with a statistical probability of flooding of 1% in any given year.*

capacity, which is especially undersized in the highly developed areas in the western portion of the parish.

The drainage network of Livingston Parish

Stormwater drainage in Livingston Parish consists of a network of natural bayous and lakes as well as man-made swales, ditches, and lateral canals.

There is no general subsurface storm sewer system. For the most part, roadside drainage ditches are not lined with concrete and many are deeply eroded. Parish subdivision regulations set forth slide slope requirements and stabilization measures, but many ditches were constructed prior to these ordinances.

Man-made detention ponds have been required for most new site development since the subdivision ordinances were approved in 2001. No major retention areas (serving a broad area) have been constructed, but some natural depressions and wetlands are used to retain storm water, particularly in the heavily vegetated areas and wetlands in the northern half of the parish. The wetlands in the south part of the parish are influenced by tides and subject to storm surge during hurricane season, but otherwise function relatively well to retain storm runoff storage most of the year.

Sub-basins and watersheds

Drainage follows watersheds—broad valleys (often barely perceptible in flat areas) that convey water to creeks and bayous. Collections of watersheds that flow together to a common river or lake are called sub-basins. Figure 39 shows the portions of three hydrological sub-basins in the parish.

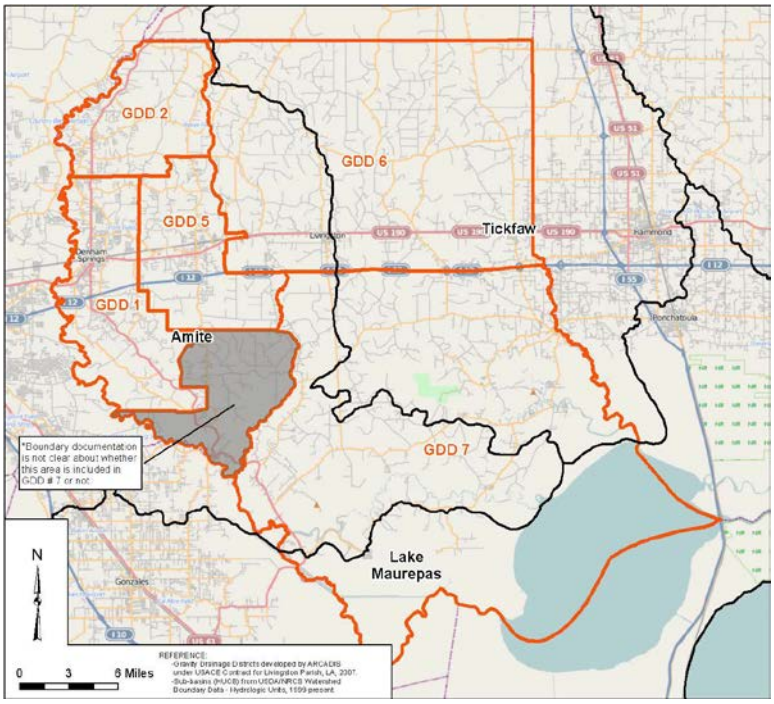

Figure 39: Three hydrological sub-basins in the parish: Amite, Tickfaw, and Lake Maurepas.

Figure 40 shows the watersheds within the sub-basins. The Amite-Lake Maurepas watershed covers the western edge of the parish, crosses into Ascension Parish, and

crosses back into Livingston north of Lake Maurepas, creating two segments within the parish boundary.

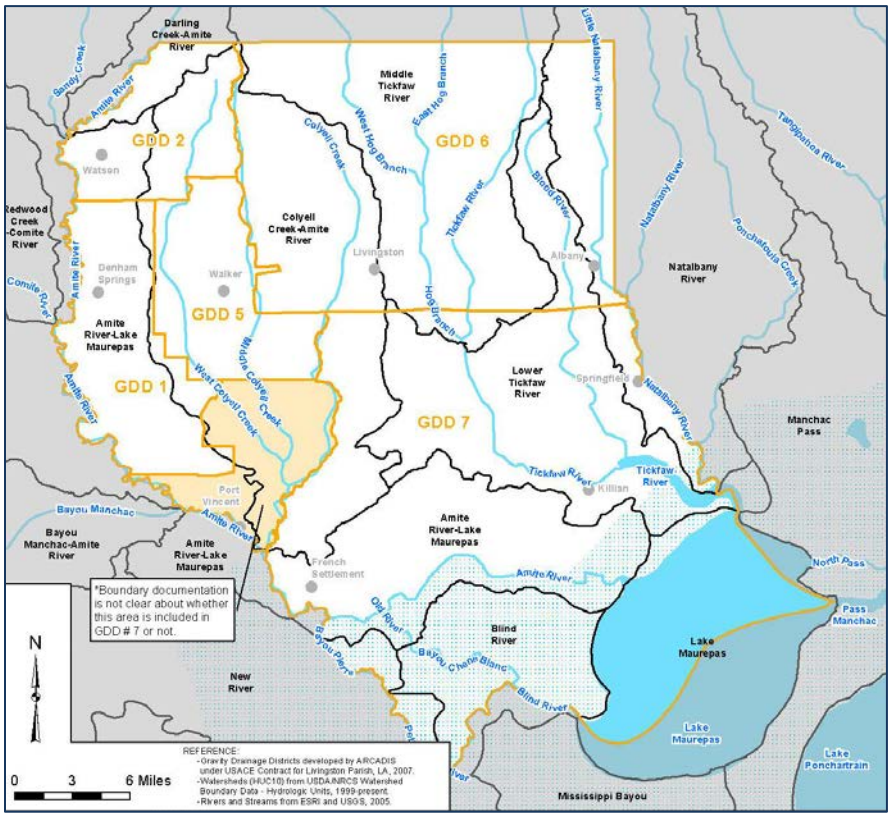

Figure 40: Watersheds.

Buildings and paving in the watersheds

Hard surfaces, such as buildings, roads, and parking lots prevent rainfall from absorbing into the soil, and increase the speed of runoff. Thus, development increases the need for man-made structures to hold runoff back so as not to exceed the capacity of the natural drainage ways—otherwise increased flooding results. As shown on Figure 41 the watersheds in the parish contain varying degrees of development.

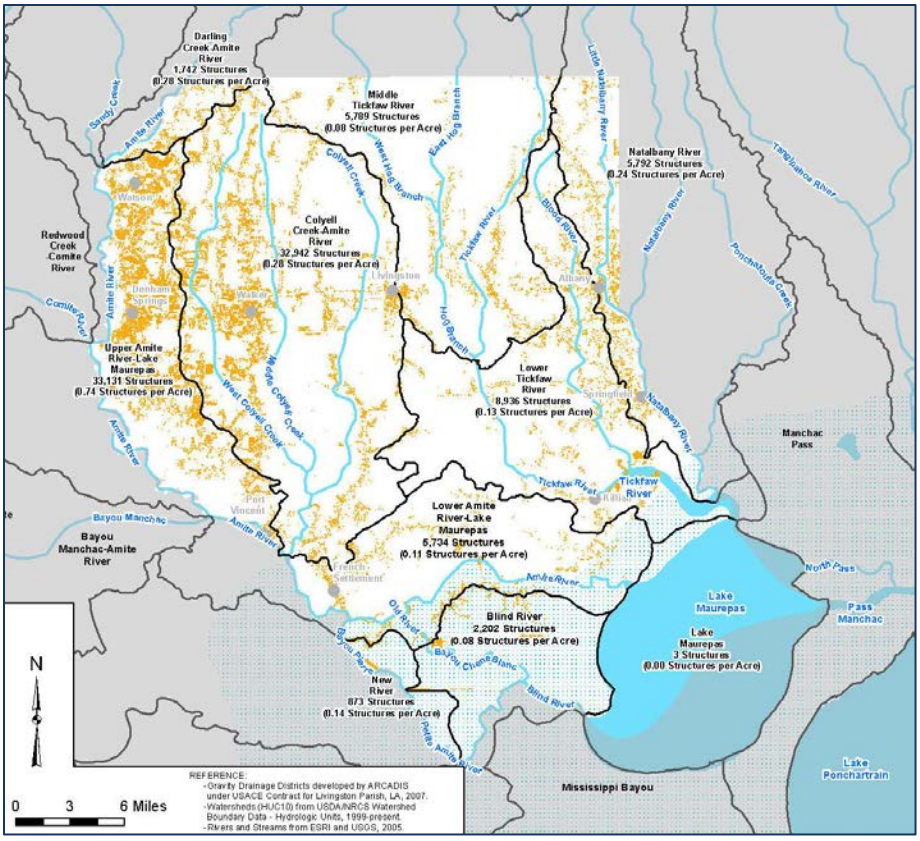

Figure 41: Streams and structures by watershed

Management of the drainage systems

The drainage system is constructed and maintained by several different entities.

Roadside swales and ditches:

- along state roads (between 1200 and 1600 linear miles) are managed by the state;
- along municipal streets are managed by the municipality;
- along parish roads (between 1350 and 1800 linear miles) are managed by the Parish Department of Public Works.

Natural drainage features are maintained by the governing drainage district, if active, or the Parish Department of Public Works in areas where the drainage district is not active.

Subdivision laterals are constructed by the developer, then after an 18-month maintenance period are turned over to the parish or to the drainage authority, if there is one.

Detention ponds are the responsibility of the developer for 18 months, then are either turned over to the homeowners association, a site occupant, or remain the responsibility of the developer.

Gravity drainage districts

Five gravity drainage districts (GDDs) have been created to operate and maintain public drainage works in the parish. The GDD boundaries are shown on Figure 42.

Three GDDs are funded; two remain unfunded.

Each GDD is a political subdivision of the parish and is governed by a board of five commissioners appointed by the Parish Council.

Although only about one-fifth of the land area of the parish is covered by a funded GDD, directors of the GDDs and the parish personnel report that the system works relatively well. The three active GDDs and the Parish Department of Public Works cooperate on an informal basis and share resources and information as needed. Figure 42 illustrates the jurisdiction of each active GDD; the area not covered by a GDD is managed by the parish.

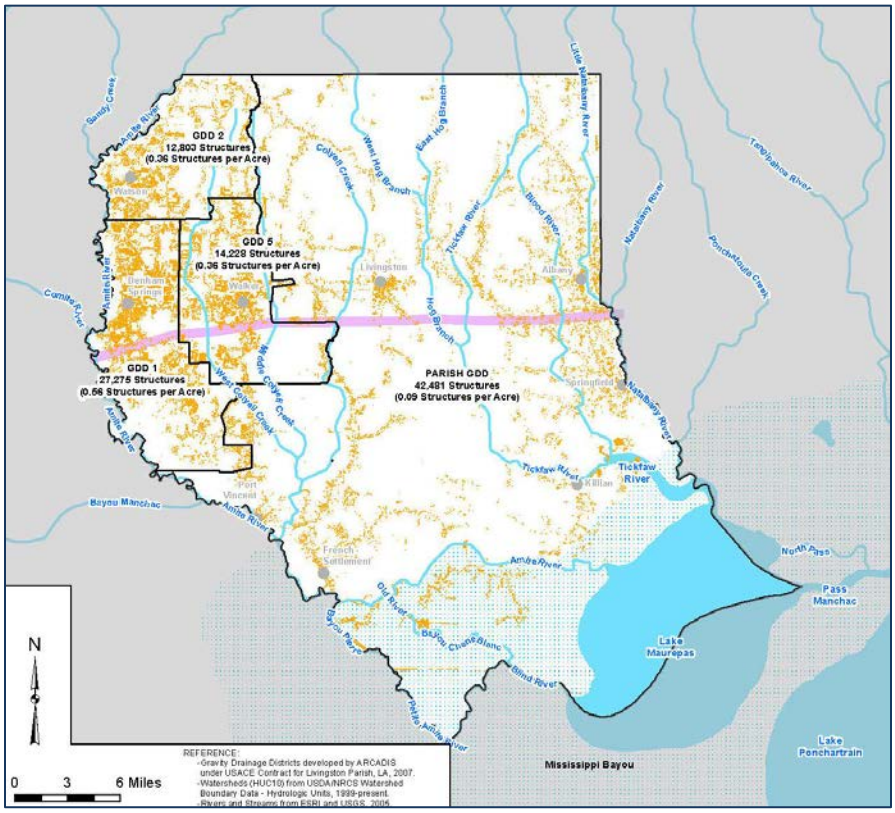

Figure 42: Jurisdiction of each active Gravity Drainage District.

Inter-district issues such as drainage conveyances that cross GDD boundaries are managed among the districts and parish. The GDDs do not feel they have issues with maintenance of the conveyances outside of their jurisdictions.

Funding of drainage improvements and maintenance

The funded GDDs generally levy a ½-cent sales tax, with the tax renewed by vote every 10 years. Some GDDs also collect a property tax, which in some districts is permanent and does not require renewal. Taxes dedicated to a GDD do not revert to the parish general fund.

State drainage operation and maintenance is funded through the Louisiana Department of Transportation and Development operations budget. Parish drainage is funded by the parish general fund.

While the GDD, municipal, and parish revenues are expected to increase with sales tax growth in the near term, the parish and municipal general fund budgets have many interests competing for funding. Only property tax millages and GDD sales taxes are dedicated to drainage. The state budget for drainage is likely to drop as gasoline tax revenues decline.

Drainage planning and coordination

In Livingston Parish, each drainage jurisdiction manages its own inventory and mapping of drainage systems, as resources allow. Coordination among the various drainage authorities is cooperative and informal; responses to blockages and other issues are often undertaken by the party with the best available resources, even when the problem occurs in areas outside their jurisdiction.

There is no comprehensive inventory or mapping of drainage features in the parish, but the regulations reference a master plan with the words "until such time as a Master Plan is adopted by the Parish Council."

Parish development regulations regarding drainage

In the unincorporated areas of the parish, a developer of a subdivision or roadway is required to provide a drainage plan as part of an approved site or construction plan. There is no long-range or master drainage plan for how the overall system will keep pace with development, although reference is made to a Master Drainage Plan in the parish code.

Detention basins are not explicitly required by parish regulations, but are usually the preferred choice for developers to meet the requirement to minimize downstream runoff. When used, detention basins are required to detain enough stormwater to limit the increase of off-site volume to not more than 10 percent. Parish regulations allow the developer/applicant to propose downstream improvements as another measure for minimizing the drainage impacts of new development, subject to approval by the review engineer.

Drainage study requirements and exceptions

A drainage impact study is required for each site proposed for development. Parish ordinances stipulate that the study should provide recommendations for actions that will prevent adverse impacts to surrounding properties; however, no specific net impact limit is stipulated. The informal "rule of thumb" policy is to maintain the same volume of pre-development flow off-site after the development has been completed.

Several exceptions to the requirement for a drainage impact study are listed in the drainage ordinances. A drainage impact study may not be required if a proposed development:

- creates no more than 20 percent impervious surface.
- results in an increase in impervious surface of no more than 10 percent.
- results in no more than a 10 percent increase in peak discharge.

- is already served by a network of public storm drainage facilities.

Servitudes and system management

In accordance with Livingston Parish Code, drainage servitude width can vary from 15 feet (for storm sewers and swales) to greater than 50 feet, depending on functional needs. Local drainage districts may request modifications to facilitate future maintenance; the parish review engineer may also allow variations based on sound engineering practices with the approval of the drainage district, where there is one.

Implementation

Strategies

1. Although the parish drainage system functions relatively well under typical conditions, increasing development in the parish is likely to challenge existing standards. The parish needs to carefully evaluate the cumulative impacts of its current policies (e.g. excepting less than a 10 percent increase from a drainage plan).
2. As development increases, wetlands and natural retention and detention areas will be filled in requiring replacement with man-made features. Costs of construction, and wetlands permitting and mitigation are expected to continue to rise.
3. Servitudes platted and approved prior to recent regulations may not be wide enough to allow sufficient access for even current maintenance or width for future widening that may be needed. Retrofitting existing developments to meet the current standards is needed, but likely not a recoverable expense. Revenue sources need to be explored, including drainage taxes.
4. Liability may be significant for substandard or incomplete drainage features that were approved by the parish and then transferred to the Gravity Drainage Districts. This needs to be addressed. Similarly, current inspection and approval practices remain informal, allowing for undocumented exceptions and variances from accepted standards.
5. The cooperative relationship that exists today among the various drainage authorities will be strained as more demands are placed upon fewer resources at the state and parish levels. More formal policies and procedures may be needed.
6. Wetland permitting has become a time-consuming and expensive task for the drainage authorities, who need permits to clean canals and ditches and clear maintenance servitudes. A combined permit (similar to the "nationwide" wetland permits for roads) should be sought collectively.
7. Although a wetlands mitigation plan is required for preliminary plat approval for subdivisions with improvements, the regulation relies upon the developer to determine whether wetlands occur within the site or not. The magnitude of the liabilities from a lack of wetlands permitting data and potential Section 404 violations needs to be assessed and avoided.

8. Because drainage management is governed by a variety of authorities, no one group appears to be an advocate for the pursuit of grant funding and implementation for drainage mitigation or planning. Cooperative action may be advantageous to all.

Actions

1. Schedule regular meetings of all drainage entities to formalize their cooperation and increase sharing of data, technology, and expertise.

   For example: Walker Office of Louisiana Department of Transportation and Development (LADOTD) completed a blanket Section 404 permit in 2010 for all its ditches in Livingston Parish. The permit manager for LADOTD is an expert in this kind of permitting and could provide guidance for other drainage authorities.

2. When considering creating or funding additional Gravity Drainage Districts (GDDs)

   a. Use the opportunity to align their boundaries with watershed boundaries.

   b. Focus resident approval on areas with most population and highest growth potential.

      For example: GDD No. 6 includes the Middle Tickfaw Watershed, a vast area of undeveloped forest that is sparsely populated with limited revenue sources. Drainage in this area is a lower priority than in the portion of the Natalbany River Watershed that includes Albany and Springfield, where a GDD would be sustainable and popular, particularly as new residents spillover from Tangipahoa Parish.

3. Create a Master Drainage Plan for the growth areas of the parish.

   a. Work through a coalition with GDDs, parish and municipal Departments of Public Works, LADOTD maintenance office, and other agencies.

      For example: The parish-wide GIS could include layers of natural drainage features and surface waters in the parish. This map can be combined with the separate existing drainage maps (Alvin Fairburn Associates has the information), and the drainage map managed by LADOTD, to create a basemap of existing drainage features. (GDD and municipal data will have to be converted from database descriptions to GIS.) Funding for this project may be available through the United States Army Corps of Engineers GIS project.

   b. Seek grant funding utilizing the drainage basemap as the point of departure.

      For example: The directors of GDD Nos. 1, 2, and 5 have expressed an interest in developing a coordinated plan for their districts. Funding for a drainage mitigation plan was secured in 2009 from Federal Emergency Management Agency and Governor's office of Homeland Security and Emergency Preparedness (OHSEP) for the Colyell Creek-Amite River Watershed, which includes GDD No. 5. A contractor was selected in

2012. However, the project contract had not been executed as of July 2012. This funding is part of a phased Hazard Mitigation Grant application awarded for a hydraulics and hydrology study, topographic survey, design preparation and permitting. If the engineering work produces a feasible project, the cost of the drainage improvements will be paid through a $1.5 billion federal appropriation for mitigation projects available to communities in accordance with Section 404 of the Stafford Act following Hurricanes Katrina and Rita.

4. Update parish ordinances to require proof of a jurisdictional determination for any site being developed in the floodplain, or an affidavit that no wetlands are present within the site. If wetlands are present, require a copy of the Section 404 permit application, approved permit, as well as the executed mitigation contracts as a requirement for final approval. These data can then be compiled at the permitting office and mapped over the drainage basemap to determine what activities have been permitted and when the permit expires.

   For example: According to the subdivision procedures, the permitting of a subdivision with improvements follows a logical path from preliminary plat through final plat and bonding. This sequence is followed by an 18-month maintenance period before the developer is released from his bond. Section 404 permitting follows a similar course and can be sequenced with permit milestones as shown in the table below.

Development Permit		Section 404 Permit
Informal Discussion	⇔	Pre-application meeting with USACE
Preliminary Plat	⇔	Request for Jurisdictional Determination
Drainage Impact Study	⇔	Section 404 Permit Application
Construction Plans	⇔	Execution of Mitigation Contract
Final Plat and Bonding	⇔	Permit Issued
Bond Cancellation	⇔	Certification of Completion (Postcard)

5. Require that final plats, drainage plans, jurisdictional determinations, and permit drawings be submitted in digital (ideally GIS) format so that the information can be captured in the parish-wide GIS. If not submitted in GIS format, a small fee could be instituted to cover the cost of digitization.

6. Conduct an engineering evaluation of the cumulative impact of the10% thresholds exemptions from having to do a drainage study.

7. DOMESTIC WATER

Livingston Parish has high quality domestic water that is primarily obtained from the Southern Hills Aquifer system. That system extends beneath Livingston and East Baton Rouge Parishes.

Water from the aquifer is delivered to parish residents through a variety of entities.

Ward 2 Water District (W2WD) is a special district that was created in 1975 to improve water quality for the resident of Livingston Parish. W2WD maintains 14 water wells and serves the residents in the Watson, north Denham Springs, and north Walker areas.

The municipalities in the Parish operate their own domestic water systems. These municipalities typically service the residents within their boundaries and often extend services to unincorporated areas outside of their boundaries. These municipalities include:

- City of Denham Spring
- City of Walker
- Town of Livingston
- Villages of Albany, Killian, and Port Vincent

Privately-owned water companies also supply over 1.5 MGD to the more rural areas of the Parish where municipal systems do not service. They include:

- Diversion Water Company
- French Settlement Water Company
- Colyell Community Water Association
- Fourth Ward Water Works

Challenges

Growing water demand outstripping capacities

The major parish water entities currently supply a total of approximately 11.7 MGD. With the projected growth in the Parish, the demand is expected to increase to 18.0 MGD by the year 2030.

Based upon a 2007 assessment[18] contracted by the U.S. Army Corps of Engineers (USACE), the water districts are currently pumping at or near their maximum capacity. As the population of Livingston Parish continues to grow, additional drinking water resources will be required.

With most of the growth occurring in the west and northwestern areas of the Parish, the City of Denham Springs, Ward 2 Water District, and the City of Walker will require the most significant improvements to meet the increase in demand.

[18] *"Master Plan – Water and Wastewater System Improvement and Enhancement, 2007 for Livingston Parish", U.S. Army Corps of Engineers, Forte & Tablada, URS.*

Long-range water quality

Though it is not an immediate concern, salt water intrusion into the aquifer appears to be beginning, as East Baton Rouge Parish has seen recent issues. Apparently, significantly higher volumes of water extracted from the aquifer have caused a drawdown in fresh water levels in the aquifer. This in turn has increased the amount of salinity migrating into the aquifer from south to north. Although there is significantly less water demand in Livingston Parish, there is less concern for aquifer drawdown. However, with the projected growth of the parish the situation should continue to be monitored.

The USACE report indicated that the Amite River also has the capability to provide water to the parish, though quality would decrease and treatment and distribution costs would significantly increase.

Low water pressure in rural areas

Fire Safety is also a concern, particularly in the rural areas of the Parish. The areas that are not served by public water suppliers, particularly in the southern areas of the Parish, often have low water pressure that does not meet fire standards. The lack of water pressure for fire protection is a public safety concern.

A proposed alternatives for increased water supply

The 2007 USACE report evaluated several approaches for supplying additional domestic water and recommended the preferred alternative described below:

USACE Alternative 5: Clusters Option and Connection with Ascension Parish. Construct smaller localized water wells, storage units, and distribution systems located throughout the Parish, also construct a new 3 MGD well to connect and service areas of Ascension Parish. Alternative 5 was identified in the Report as the preferred alternative for the Parish.

The benefits to this alternative include the creation of a comprehensive domestic water system throughout the Parish. This alternative provides positive revenue to the parish from the sale of domestic water to Ascension Parish, which would help to fund improvements to the water system.

The primary challenges faced by this approach:

1. Given that multiple agencies and private companies will be involved, this will require very high level of coordination and cooperation, including inter-governmental agreements for the connection of existing systems into regional distribution systems that cross multiple municipal boundaries.
2. The cost of implementation will be far greater than the parish has heretofore faced. The USACE-recommended plan had a construction cost estimate of $36 million (estimated in 2005). Livingston Parish is currently facing financial burdens and must consider the possibilities of passing a tax or bond measure to provide water. Grants and low interest loans could also be applied for and used a revenue source to help fund the water improvements.

Implementation

Strategies

1. In the recommended approach, Livingston Parish is the primary agency responsible for implementation. Duties include:
    - the establishment of a new parish-wide regional water district.
    - development and execution of agreements with existing private and municipal systems to combine services.
    - construction of new infrastructure.
    - operations and maintenance.
2. Ward 2 Water District has the trained personnel to operate and maintain water treatment facilities and could take on the role as the Parish-wide water service provider.
3. The Parish could potentially benefit from the re-use of reclaimed water from the LPSD treatment system to reduce the cost of water in landscaping and industrial applications and provide a revenue source to the Parish.
4. Consider augmenting the informal cooperation between sewer and water systems regarding fee collection, with a more formal combined structure that will assure a high level of collections fees to fund the sewer systems.

Actions

1. Retain an engineer to update and confirm the findings of the 2007 ASCE report with regard to domestic water supply.
2. Convene a "summit meeting" of the Livingston Parish water providers to:
    a. Discuss the findings and implications of the ASCE report (as confirmed above).
    b. Form a working group to develop recommendations regarding cooperation and eventual implementation of a regional wastewater including the combination of services with domestic water system.

8. EMERGENCY PREPARATION AND HAZARD MITIGATION

In 2011, Livingston Parish completed a Hazard Mitigation Plan Update (HMPU) that was adopted by the parish and most of the municipalities in the parish. This section of the Comprehensive Master Plan provides an overview of the HMPU as a context for making decisions about land use and infrastructure.

Challenges facing the parish

Flooding, hurricanes, tornados, and wildfire are the most prevalent hazards that confront Livingston Parish. The impact of these events is basically twofold:

1. Flooding-from riverine sources, stormwater, tropical storms, and hurricanes in various forms
2. Wind damage-resulting from hurricanes, tropical storms, and tornadoes

Flood damage

Even though the parish is at the northern edge of typical hurricane impacts, it has a history of damage linked to hurricanes and tropical storms.

- Ten major hurricane events traced back to 1960 have caused great damage to the parish.
- In that period ten other floods caused major damage.

Flooding sufficient to cause significant damage can be caused by:

- storm surge
- backwater
- riverine
- stormwater (rainfall)

In the case of storm surge, southerly winds and high tides rise over and through bayous, canals, and marshlands. According to NOAA, the most damaging (dollar amount) storm surge flood event experienced in Livingston Parish was Hurricane Rita in 2005 with statewide damages estimated at $432 million.

In backwater flooding a heavy rainfall event coupled with a swollen river, canal, or bayou and marsh hinders drainage outflow, usually in the same areas susceptible to storm surge. It is flooding caused by a restriction or block of downstream flow.

A Snapshot of Flooding Events 1973 to 2013

April 1973 – 6" of rain. The Amite River spilled over its banks and over 1,800 homes and 70 businesses were flooded.

January 1977 – Hard rain caused extensive flooding. Farmers were hit hard.

May 1977 – Many rivers in the Parish overflowed their banks.

May 1979 – Over 10" of rain. Over 400 people evacuated to shelters. Flash flooding of streams was common.

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February 1993 – Over 12" of rain. Many homes sustained flood damage. Many roads and businesses were closed.

June 2001 – Over 600 homes and businesses were flooded. The Town of Livingston recorded over 18" in four days. The Amite River crested at 38.24', the fourth worst flood since 1961. 75% of the roads in Port Vincent flooded. Damage estimated at $8.9 million.

2013, Isaac severe weather event.

Riverine flooding problems are a result of rising water in the Tickfaw and Amite Rivers. It is associated with non-coastal source.

Storm water flooding is a result of rainfall in a short period of time. This type of flooding occurs frequently in the parish.

The entire planning area of the parish is vulnerable to some sort of flood. According to NOAA, historical flood events from 1993 to 2008 caused $459 billion in property damage.

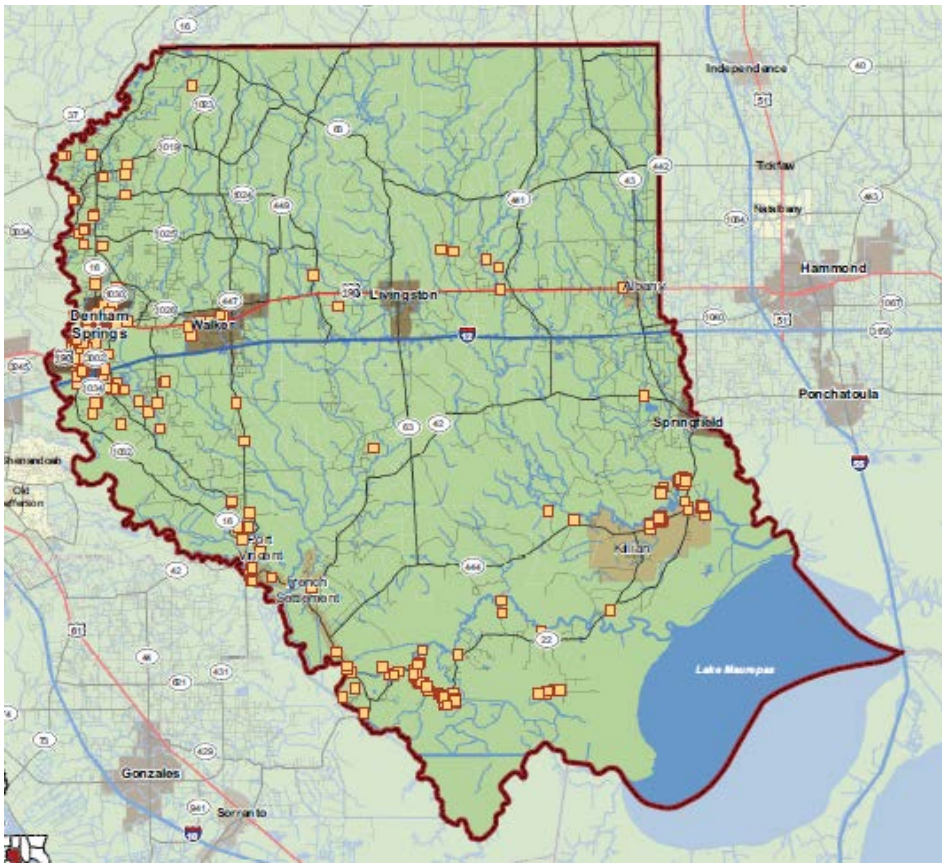
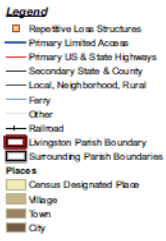


Figure 43: Repetitive loss structures.



Hurricane "Alley"?

From 1963 Livingston Parish has experienced the following 'official' hurricanes:

Betsy 1965

Juan 1985

Andrew 1992

George 1998

Allison 2001 (tropical storm)

Issidore 2002 (tropical storm)

Lili 2002

Ivan 2004

Katrina 2005

Rita 2005

Gustav 2008

Ike 2009

Isaac 2012

Wind damage

With its central location in the Gulf of Mexico, Louisiana seems to experience a high percentage of hurricanes. Even though Livingston Parish is inland, and doesn't receive the brunt of most storms, it is vulnerable.

From 1965 to 2009 hurricanes that reached Livingston Parish resulted in total damages estimated at $240 billion.

The parish tornado history is less significant, with 21 tornados from 1965 to 2009, resulting in $3.7 million damages.

Other challenges

- Only a few main roads exist to reach the areas of French Settlement, Port Vincent, and Killian. For example, a fire company in Holden has a difficult time providing assistance in Killian since there is no direct route between the two communities.
- Several roads in the southern portion of the parish are known to flood, including LA 22 and LA 16.
- The Southeastern Louisiana Evacuation Plan does not adequately consider traffic from Livingston Parish. The plan gives interstate priority to evacuation traffic coming from the New Orleans Metropolitan Area.
- There are buildings that flood on a regular basis-known as Repetitive Loss and Severe Repetitive Loss buildings-due to continued construction in known floodplains (below flood elevation).
- Due to population growth in the parish, the 911 call center has experienced a growth of 225,000 calls in 2004 to over 400,000 today. The call center has not seen a proportional growth in staff.

Implementation

Hazard Mitigation Plan goals and actions, incorporated as part of this plan

Flooding is one of the main threats to life and property in the Parish. In the 2011 HMPU the parish and its municipalities established goals and an action plan to achieve them. The goals are:

- **Goal 1:** Identify and pursue preventative measures that will reduce future damages from hazards.
- **Goal 2:** Enhance public awareness and understanding of disaster preparedness.
- **Goal 3:** Reduce repetitive flood losses.

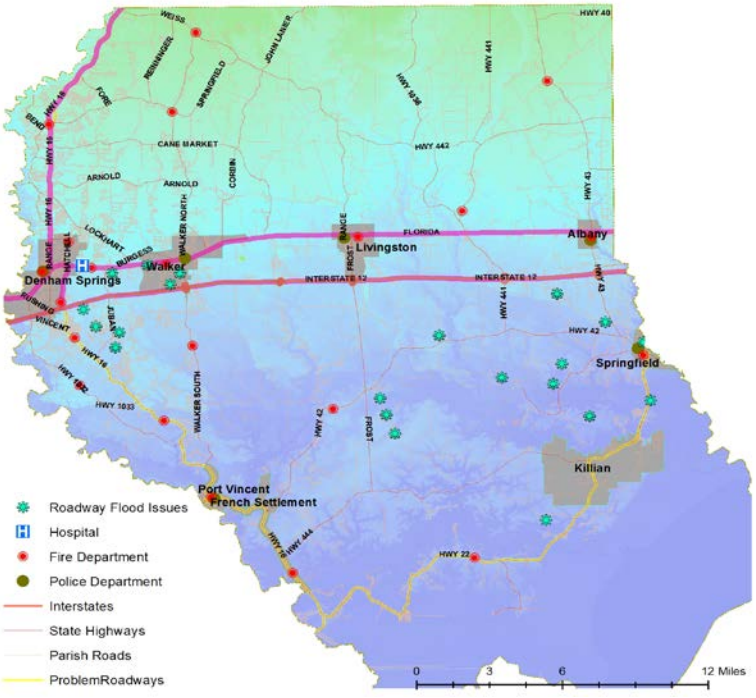


Figure 44: Emergency services and road problems.

- **Goal 4:** Facilitate sound development in the parish and municipalities to reduce or eliminate the potential impacts of hazards.

The key actions for the Parish (outside of the municipalities) that relate to land use decisions include\:

Action 1.4.1: Upgrade drainage ways to better carry runoff.

Action 1.4.2: Increase the capacity of stormwater detention areas.

Action 3.1.1: Elevate, acquire or reconstruct all Repetitive Loss and Severe Repetitive Loss structures.

Action 3.2.1: Ensure that all municipalities and the parish work together to produce a cohesive drainage plan.

Action 4.1.1: Enforce building codes to ensure that future development does not increase hazard losses.

Action 4.1.2: Guide future development away from hazard areas using zoning regulations.

Action 4.2.1: Participate in programs at the state and federal levels regarding environmental enhancement and conservation.

These goals and actions are also addressed in various ways in other sections of this Comprehensive Master Plan.

Additional actions

From public and technical input during the Comprehensive Master Plan, the following several additional recommendations are proposed:

- Identify critical corridors that are essential to emergency response vehicles when trying to reach the southern portion of the parish and those used in evacuation. Evaluate the road (roadbed, drainage infrastructure) for resilience in hazard events. Develop strategies to improve problem roadways. This could include a widening plan for essential routes. In addition, any of these critical roads that are known to flood will need consideration to be raised to the base flood elevation, either by fill or structure.
- When planning new roads, make roads that would provide emergency assistance and improve traffic flow a high priority. One suggestion is extending Old Frost Road to LA 22. An existing cut and ROW (for a railroad) already exists.

9. COASTAL MANAGEMENT

Livingston Parish is not located on the coast, however tidal inundation often reaches the parish and water from the Parish affects the coast. There are a variety of programs related to coastal protection and management that impact the parish are described below19.

This chapter provides a 'snapshot' of various coastal programs including their purpose, highlights as they apply to the parish, potential impact on the parish (relating to growth and development) and actions the parish should take to influence positive outcomes for the parish (such as a reduction of flooding risk and expedition of permitting).

Several caveats are to be noted:

- These programs change over time (e.g. the coastal zone boundary was redrawn and a significant portion of the parish was withdrawn from the coastal zone in 2012).
- They involve interagency cooperation (Louisiana Department of Environmental Quality, U.S. Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the Louisiana Department of Natural Resources, etc.) at several levels (local, state and federal).
- Program funding depends on authorization from the federal government. While many are currently un-funded, the CPRA projects that more funding will be available in a few years.
- The actions recommended are intended to increase local control and increase the likelihood that the parish will benefit from these programs.
- The programs include: regulation (i.e. permitting), technical assistance, and construction to restore coastal resources. They also include funding to reduce risk associated with inundation. They primarily focus on the preservation and restoration of wetlands.

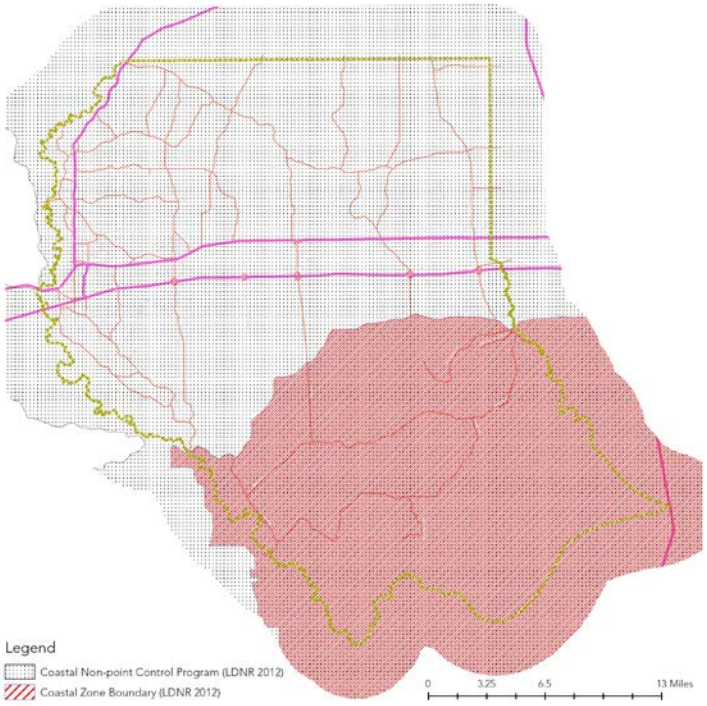


Figure 45: Coastal zone designations.

[19] *The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), the enabling legislation for the coastal program, was enacted to protect coastal resources, primarily wetlands. The state of Louisiana's Department of Natural Resources, is tasked with implementing the coastal resource programs.*

Coastal programs that affect Livingston Parish development and address local risk include:

1. Louisiana's Comprehensive Master Plan for a Sustainable Coast
2. the Coastal Zone Management Program
3. the Coastal Non-point Management Program

Louisiana's Comprehensive Master Plan for a Sustainable Coast

Focus: Coordination, funding and construction.

Purpose and highlights: The master plan is intended to increase flood protection, maintain natural processes, coastal habitats, cultural heritage, and elements of economic development along the coast. The plan is science and engineering based with the goal of improving flood protection to coastal communities, building a sustainable ecosystem, and ensuring the economic vitality of the coast through structural and non-structural projects.

Principles of the plan:

1. addressing long-term solutions, not stop gap measures
2. take a natural systems approach,
3. establish clear and transparent expectations,
4. acknowledge residual risk of projects,
5. include the public role through a participatory process,
6. account for uncertainties and
7. provide enough flexibility to allow adaptation to changing circumstances.

Types of projects considered:

1. **Restoration Projects**: Bank Stabilization, Barrier Island/Headland Restoration, Hydrologic Restoration, Marsh Creation, Oyster Barrier Reefs, Ridge Creation, Sediment Diversion, Channel Realignment, Shoreline Protection.
2. **Structural Projects:** Earthen Levee, Concrete Wall, Floodgate, Pumps.
3. **Nonstructural Projects:** Elevation of structures, Flood proofing, Voluntary Acquisition of Residential Structures.

Two primary factors drove decisions about the projects that should be in the 2012 Coastal Master Plan.

1. How well did the projects reduce flood risk?
2. How well did the projects build new land or sustain the land we already have?

Projects are modeled for their reduction in risk and ranked according to the model output. They are included in the plan at the time, based on their ranking. Projects identified in the interim can be added to the list if their rank is higher than others included in the plan.

Status and Administration: Active and administered by the Coastal Protection and Restoration Authority, the plan was first adopted in 2007, was updated in 2012 and will be updated again in 2017. The process for that update is currently underway.

Impact on Livingston Parish: The 2017 Master Plan Update is projected to include funding to reduce the risk of riverine flooding. Projects, especially shovel-ready projects that reduce flooding risk are likely to be considered in the planning process and included in the plan. During the plan update process, the CPRA will solicit participation in the process from parish representatives; they typically request involvement of the Local Coastal Program manager.

The plan also includes funding dedicated to the reduction the impact (property loss) from inundation. This includes flood proofing of individual structures. Funding is currently limited but CPRA projects funding will dramatically increase in next few years.

A project is also planned near the Parish that includes sediment diversion into the Maurepas Swamp in order to o sustain existing bald cypress-tupelo swamp habitat. It is planned in the vicinity of Convent or Hope Canal, but will affect the natural and recreational environment in Livingston Parish.

Coastal zone management program

Focus: Permitting of development to protect coastal resources.

Purpose and highlights: The coastal zone management program regulates development activity in designated coastal zones. A coastal use permit is required for projects in the coastal zone, including but not limited to: dredge and fill, bulkhead construction, shoreline modification, and other development projects such as marinas, subdivisions, drainage facilities and energy infrastructure.

Highlights: A prime objective of the program is to reduce the loss of wetlands and aquatic resources, as well as to reduce conflicts between coastal resource user groups. Essentially anyone that intends to disturb dirt within the coastal zone is required to apply for authorization prior to construction of any project. No net loss of wetlands is allowed. Currently, permits are typically either approved or approved with modifications.

While the programs are administered by the state, local parishes have the opportunity to exert some local control over the permitting process by opting to administer the program locally. There are requirements including the adoption of a local plan[20]. The State offers funding and technical assistance to local programs.

Impact on Livingston Parish: At this time, the area of the parish that is in a designated coastal zone (see figure _____) is not subject to development pressure. Therefore the permitting process regulatory hurdles do not significantly impact the parish residents or developers. However, for the projects that may occur in the Coastal Zone, an applicant must anticipate the review or risk being rejected or having modifications applied (adding cost to the development process).

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[20] *For more information on the development of the local program including program requirements please see the Local Coastal Programs Handbook, which can be downloaded from the Louisiana Department of Natural Resources, Office of Coastal Management website: www.dnr.louisiana.gov*

The other impact on the parish of the Coastal Zone program is the potential cost of administering the program. The parish has the option of local administration or relying on State administration (General Office of Coastal Management).

Local administration has several potential benefits:

1. Can expedite the review process for local applicants. For example, incorporating coastal permitting into the building department would reduce the number of agencies directly involved and increase one-stop shopping for development review.
2. Increases local control over uses of local concern: camps, private docks, bulkheads, cattle walks, landfills, subdivisions, maintenance of most private canals, etc.
3. Increases responsiveness to local concerns, i.e. resource conservation, economic development, etc.
4. A local hub of knowledge about the program.
5. Feedback into state programs – the recent Coast 2050 Initiative process interviewed local coastal program administrators for input into the emerging program.
6. Facilitate communication regarding access to funding for resource management.

Coastal Non-point Management Program (CNPMP)

Focus: Primarily permitting to reduce impact to costal resources.

Purpose: To provide for the implementation of management measures to protect coastal waters, generally, and to accomplish the following specific goals:

1. Identify land uses which may cause or contribute to degradation of coastal waters;
2. Identify critical coastal areas adjacent to affected coastal waters;
3. Provide for implementation of additional management measures to achieve and maintain water quality standards and designated uses;
4. Provide technical assistance to the public and local governments to implement management measures;
5. Provide for public participation in all aspects of the program;
6. Establish mechanisms to improve coordination among federal, state, and local agencies responsible for land use programs, permitting programs, water quality programs, enforcement authorities, habitat protection, and public health and safety;
7. Designate/delineate an inland boundary in order to more effectively manage land and water uses to protect coastal waters.

Geographic Area: All of Livingston Parish

Highlights: Regulates non-point source pollution from agricultural, forestry, hydro-modification[21], marinas and recreational boating, urban runoff and wetlands, riparian areas and vegetated treatment systems.

[21] *Hydromodification can be any activity that increases the velocity and volume (flow rate), and often the timing, of runoff*

Status and Administration: Currently being developed, will be administered by a combination of the Louisiana Department of Environmental Quality (outside the coastal zone) and the Louisiana Department of Natural Resource (inside the coastal zone).

Impact on Livingston Parish: Unclear, as the program has not been adopted. It is likely to be similar to the permitting process of to the existing coastal management zone, hence there it likely increase the burden on developers. Adoption of best practices could reduce that burden, by giving anyone wishing to develop a 'road map' to approval.

Implementation

Actions

1. Adopt best practices (e.g. hydro-modification, urban run-off, wetlands, etc.), identified by the coastal management program. This could decrease the time associated with review, increase the chances development will be approved without modification.
2. Consider the implementation of a local coastal program. Convene a subcommittee recommend to the Parish Council whether or not to form a local program, subcommittee should review the Local Coastal Programs Handbook and network with other parishes with local coastal programs[22] to evaluated the benefits (funding opportunities, local permitting) vs. the costs (fiscal, liabilities).
3. Actively participate in the 2017 Master Plan for a Sustainable Coast Plan update and advocate for programs that impact Livingston. Defer until the parish has an expanded planning staff with capacity to implement, and/or there is significant development pressure in the Coastal Zone area.

[22] *Ascension parish recently dropped their petition for local management due to a lack of local resources.*

10. WHERE DO WE GO FROM HERE? (ACTION PLAN)

All strategies and actions identified in chapters 1-9 are listed here. Immediately after adoption, these actions should be prioritized. The illustrations in the body have not been repeated here, for illustrations please refer to the appropriate section of the plan.

How to use the plan

As conditions change (e.g., community opinions change, the economy adjusts) updates to the plan become necessary. Two types of updates are envisioned:

- A **major** update to the Plan is one that substantially changes the land uses, goals, or intent of the plan. Major updates should include substantial public outreach to help 'check' that the plan reflects current attitudes (for an example of substantial public outreach please see the appendices).
- **Minor** updates are less overarching. They do not change the focus of the plan. They may include clerical corrections, minor updates to data, and other changes that clarify the intent of the plan. An example may be a neighborhood that is willing to dedicate substantial open space rather than the residential land use designated in this plan. Minor updates should be made as often as necessary. They may be made administratively, with notification of the Council, Planning Commission, and public.

Land Use

Strategies

In general, the key land use recommendations are:

1. Adopt zoning regulations in the I-12/Hwy 190 Economic Corridor
2. Create a process of "self-determination," organized by sub-areas, for the remainder of the parish to determine the extent to which they wish to adopt regulations to increase predictability of future development. Individual subareas should be given a reasonable time (say 2 years) to undertake the subarea self-determination process (modify their plan, decide on zoning). If a subarea fails to take any "self-determination" action, the parish may continue to use the Anticipated Land Use Map as a guide for decision-making, and consider adopting zoning.

Policies

3. All future large development projects (i.e. airport, roads, utilities, public buildings, etc.) should demonstrate how they are either consistent with the Comprehensive Master Plan (CMP) or how the CMP needs to be modified
4. All future capital improvements budget requests related to land use and infrastructure should demonstrate how they are either consistent with the CPM or how the CPM needs to be modified.

Actions

After the Parish adopts the Comprehensive Master Plan with the preliminary Major Street Plan element, it should engage in the following actions:

1. Short-term (1-2 years)
    a. Hire a full time planner to assist in subarea planning implementation (see mid-term actions below).
    b. Until self-determination subarea plans can be adopted,
        i. Council, Planning Commission and Parish Staff to use the anticipated land uses as a general interim guide for land use decisions.
        ii. Modify the Code of Ordinance's, Subdivision Regulations for the "economic corridor", to increase the buffer size for incompatible uses. (See _____ in the appendix for details).
    c. Create and adopt zoning for the economic corridor (Hwy 190/I-12).
2. Mid-term (3-5 years)
    a. Conduct sub-area planning
        i. Adopt or modify the 13 former police-jury ward boundaries as the boundary for sub-area planning (land use self-determination).
        ii. Form a steering committee of sub-area residents and businesses. Members should include representatives from a wide-range of trusted community members.
        iii. Invite residents and businesses to participate in meetings to develop sub-area plans for each sub-area. Review the Existing Land Use Map. Identify opportunities and constraints for future land use. Review the Anticipated Land Use Map as a basis for future self-determination. Organizer should present need for land use determination (such as infrastructure planning, congestion reduction, etc.) opportunities for future land uses (such as commercial along arterial corridors), and constraints (such as wetlands).
        iv. Identify a vision (at least a one page summary) of future growth for each sub-area.
        v. Determine the degree to which more detailed land use predictability is desired.
        vi. Choose the appropriate tool from the Toolkit (see _____ in the Appendix).
            1. If zoning is desired, select the appropriate zones from the Toolkit
        vii. Have local steering committee adopt the sub-area plans.
        viii. Recommend to the Planning Commission and Council:
            1. An amendment to the Parish Comprehensive Master Plan to include:
                a. the sub-area plan's vision,
                b. anticipated land use revisions, and

c. identified land use determination tools (such as zoning or other tools the sub-area wishes to be enacted).

3. Ongoing

a. Work with individual municipalities to determine their appropriate growth boundaries and ways to reduce the conflict between parish and municipal land use standards to encourage orderly growth of cities.

i. Form a working group for each growth area, comprised of representatives of the parish and municipal Planning Commissions.

ii. Options for project approvals in the growth area include:

1. Joint review and case-specific standards.

2. Adopt municipal standards.

b. Create a GIS system for the parish, integrated with the Parish Assessor's data, to keep track of development and land use data. Include Office of Emergency Management considerations to help provide new development that has appropriate emergency response.

An example of potential guidelines for the I-12 "economic corridor"

The following represents possible content that may be considered for the guidelines.

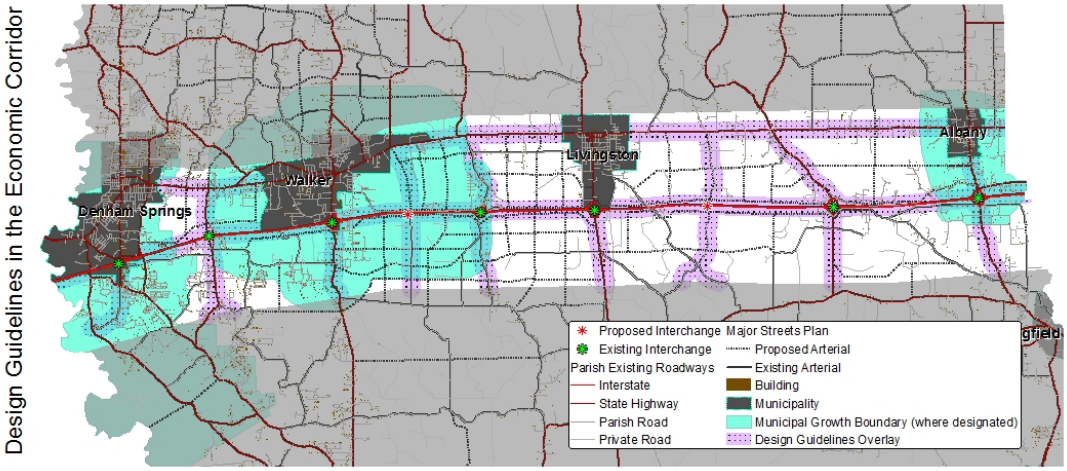


Figure 46: Design guidelines, the overlay indicates the area were guidelines will be applied

Land Uses

It is anticipated that the corridor will have eventually have zoning applied in order to provide for orderly development of the land and avoid incompatible adjacent uses. PERMITTED uses in the economic corridor would be those allowed in the underlying zoning.

Uses NOT PERMITTED would include the following:

- Adult entertainment and sales of adult materials.
- Pawn shops, check cashing, cash advance services (except for banks, credit unions, etc.)
- Bail bond office.

- Massage and tattoo parlors.
- Junk yards, auto-recycling, trash storage, trash transfer.
- Chemical and petroleum processing that requires visible or potentially hazardous emissions.

Roads

All land uses

1 The Major Street Plan encourages a grid of major and minor roads throughout the corridor in order to provide connectivity that will provide multiple means of travel through the area. This will a) avoid concentrating traffic on a few streets and b) provide alternative routes for emergency vehicles and egress).

2 Future individual developments are strongly encouraged to connect to adjacent development to continue this pattern at a local scale.

Site layout

All land uses

1 A frontage road along I-12 is indicated in the Major Street Plan. This is intended to encourage properties fronting on I-12 to orient their front facades toward the frontage road and therefore the Interstate.

2 Only front facades should also face Hwy 190 and the other arterial roads in the corridor.

3 Only modest amounts of parking should be placed between the building front and the adjacent roadway. Major parking as well as heavy equipment storage and outdoor fabrication should be located out of sight, behind the buildings fronting major roadways.

Commercial land uses

1 Parking lots along major roadways should be interconnected so as to not require patrons to have to re-enter traffic to move from one shopping to another.

2 Sidewalks at least 5’ wide should be provided along the street edge(s) of each property. They should connect to adjacent existing sidewalks, and should minimize walking distance.

Architecture

All land uses

1 Building facades fronting on major roadways (including I-12) should be treated as a front façade—i.e. with architectural detailing and materials befitting a public entry. Blank walls and rough construction materials (i.e. concrete block, tilt-up concrete, and sheet metal) should be avoided or minimized.

2 The color and materials of facades of buildings fronting on major roadways in the corridor should be consistent—from a color range selected for each sub-area.

3 Architectural materials should be durable, easy to maintain, easy to clean, and repairable in a manner that is consistent with the original finish.

4 Roof materials should be from a selected palate (e.g. standing-seam metal, architectural grade shingles, tile, slate, or synthetic slate). Buildings with flat roofs should have parapets or other architectural features that hide the roofing material and mechanical appurtenances from ground level.

5 For aesthetics as well as flood hazard, all mechanical equipment should be located on the roof, or on a raised platform at the rear or side of a building. It should always be screened from the street (e.g. with parapet walls or enclosures).

Commercial land uses

1 Buildings in each designated sub-area should have a distinct and consistent architectural character, but variety is also recommended (e.g. color and details). Building design shall make gradual transitions to surrounding conforming properties.

2 While some national retailers require standard materials and colors (known as "trade dressing") the desire to have overall consistent design in the corridor is equally important. Therefore, for the street frontage façade the % of trade dressing should be specified for each district—generally not exceeding 25% of the façade surface.

Landscape

Along I-12

1 Much of the I-12 corridor is still heavily forested to the property line adjacent to the highway. In other portions of the corridor, preserving a band of existing trees and clearing the understory, has:

a. created a distinctive corridor

b. unified the diversity of the buildings behind the trees

c. allowed visibility of the buildings and signage to highway travelers

d. It is highly recommended to continue this practice of preserving the tree band along the highway.

All land uses

1 Street trees (either existing or planted) are encouraged along all streets

Commercial land uses

1 Trees are encouraged to:

- shade and 'break up' large parking lots
- shade public walkways
- provide shade and visual interest in pedestrian areas

Signage

All land uses

1 Signage should provide for a means to advertise the presence of businesses not

only along I-12 and Hwy 190, but also along the major roadways throughout the entire growth area.

2 If desired by landowners, separate sub-areas (not individual buildings however) can be designated for differing signage character (e.g. sign size, materials, character, lighting, placement).

3 The management of the signage guidelines should be provided by a property owner's entity.

Trash and Recycling

All land uses

1 Loading docks should be located at the side or rear of street fronting buildings or otherwise screened from public view.

2 All solid waste, recycling, trash containers, and grease containers should be located as far as possible from public areas and screened from view (e.g. inside buildings or in attached enclosures)

Wastewater

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:
   c. Serve existing homes (this will help increase water quality and avoid curtailing development), and
   d. 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 solutions[23].

iii. Formulate a cooperative agreement for expanding existing systems.

iv. Begin the search for funding mechanisms.

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:

d. Reduce the allowable number of houses within new developments to be served by a package treatment system.

e. Require future developments on private wastewater treatment services (such as Mo-dad or TESI) to tie into public wastewater services when they reach their service area (at no cost to the public).

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.

Transportation

Strategies

1. To continue to support growth in the unincorporated areas of the Parish, even at low-density suburban levels, reducing congestion is essential.

2. A key strategy to reducing congestion is to provide efficient alternate routes through the parish— a more complete network of arterial and collector roads.

3. The Comprehensive Master Plan (CMP) identifies very general corridors for future roads (to ensure that they are not lost to interim development). This element of the CMP will serve as the initial Major Street Plan as identified in the Livingston Parish code. Upon completion of the CMP, the Parish needs to conduct a more detailed Transportation Plan (an inventory of roadway assets, conditions, future transportation needs, refinements to the Major Street Plan, etc.) to guide the development of future parish (and state) roads.

4. To further increase connectivity to reduce congestion, as well to provide better emergency access and evacuation, the Parish also needs to enforce existing regulations regarding road connectivity between new subdivisions. (Interconnections between future subdivisions would also allow residents to take alternate routes to get to collectors and arterials that may be more direct, thus reducing congestion.)

5. The cost of parish road maintenance is high, and the parish has not been adequately funding maintenance at a sustainable level. To better manage

[23] *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.*

parish road maintenance, the Parish needs address the following issues in the short term:

a. Necessary maintenance levels need to be fully budgeted. (This will be helped by a detailed analysis in the Transportation Plan).

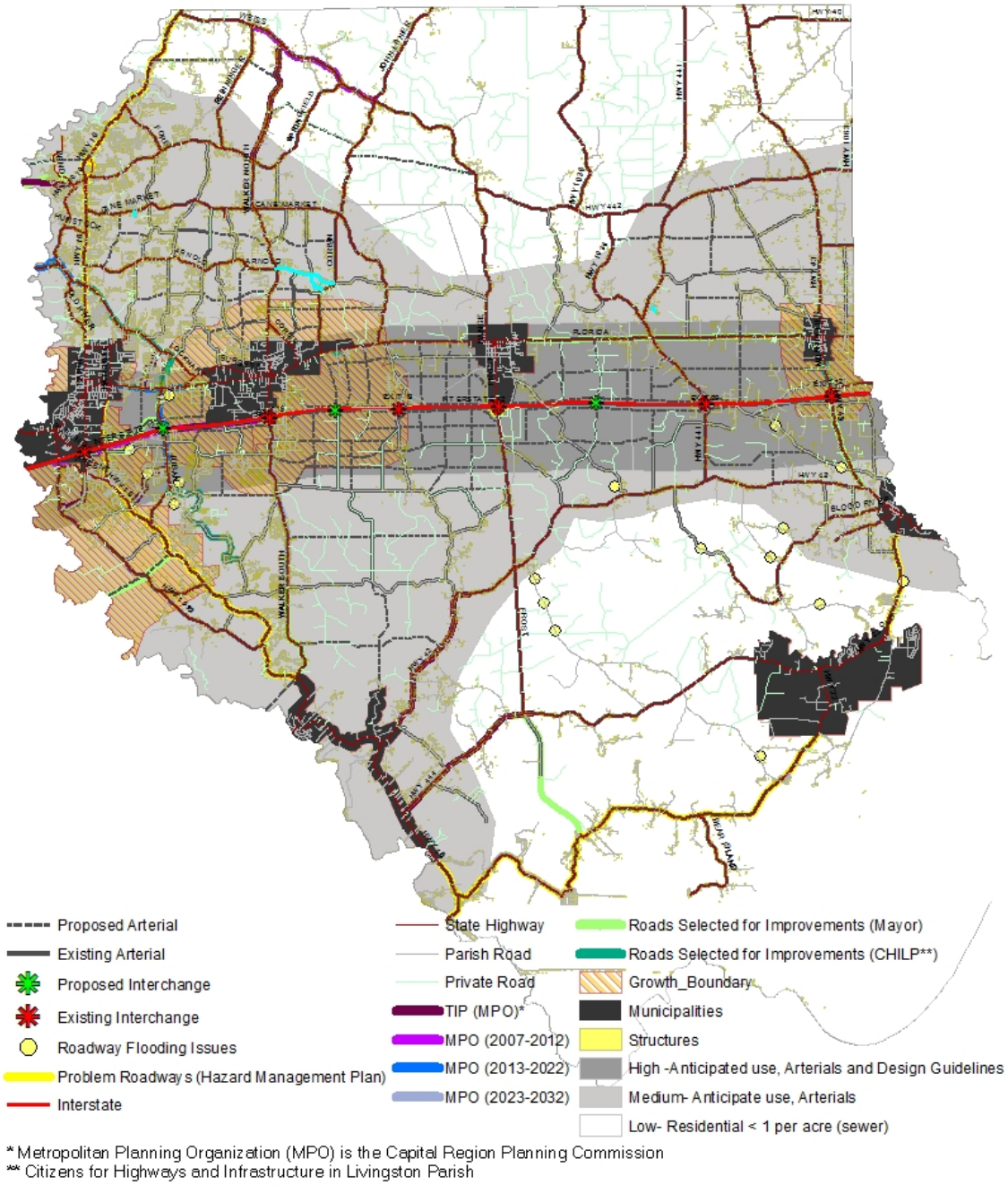
b. Developers have typically not been required to build collector roads. As a result, that portion of a typical road network is often missing in the parish. Collector roads, or equivalent road impact fees, need to be provided by future major developments.

c. Future road construction may involve either property relocation, or wetland mitigation.

6. Because of the cost of maintenance, the parish needs to be very selective about accepting additions to the Parish road system. Roadways not meeting existing parish standards (1,000 feet, five dwelling units, etc.) should be rejected.

Actions

Major Street Plan



Short-term: (1-2 years)

1. Adopt the CMP Major Street Plan on an interim basis.

2. Notify the public of the intent to begin following the Parish Code with regard to requiring future developments is consistent with the Major Street Plan.

Longer-term: (3-5 years)

Commission a detailed Parish Transportation Master Plan, including:

1. An update of the Major Street Plan to:
   a. Avoid wetlands where possible.
   b. Refine interchange locations.
   c. Update the priories for new parish roads.
2. Establish servitude ownership and widths for all parish roadways.
3. Identify which parish roadways are consistent with Parish Code criteria for maintenance by the parish.
4. Investigate roadway flooding issues, problem roadways, and propose remedies.

Ongoing:

1. Implement Parish Code requirement relating to:
   a. Major Street Plan.
   b. Connectivity of future subdivisions.

Drainage

Strategies

1. Although the parish drainage system functions relatively well under typical conditions, increasing development in the parish is likely to challenge existing standards. The parish needs to carefully evaluate the cumulative impacts of its current policies (e.g. excepting less than a 10 percent increase from a drainage plan).
2. As development increases, wetlands and natural retention and detention areas will be filled in requiring replacement with man-made features. Costs of construction, and wetlands permitting and mitigation are expected to continue to rise.
3. Servitudes platted and approved prior to recent regulations may not be wide enough to allow sufficient access for even current maintenance or width for future widening that may be needed. Retrofitting existing developments to meet the current standards is needed, but likely not a recoverable expense. Revenue sources need to be explored, including drainage taxes.
4. Liability may be significant for substandard or incomplete drainage features that were approved by the parish and then transferred to the Gravity Drainage Districts. This needs to be addressed. Similarly, current inspection and approval practices remain informal, allowing for undocumented exceptions and variances from accepted standards.

5. The cooperative relationship that exists today among the various drainage authorities will be strained as more demands are placed upon fewer resources at the state and parish levels. More formal policies and procedures may be needed.
6. Wetland permitting has become a time-consuming and expensive task for the drainage authorities, who need permits to clean canals and ditches and clear maintenance servitudes. A combined permit (similar to the "nationwide" wetland permits for roads) should be sought collectively.
7. Although a wetlands mitigation plan is required for preliminary plat approval for subdivisions with improvements, the regulation relies upon the developer to determine whether wetlands occur within the site or not. The magnitude of the liabilities from a lack of wetlands permitting data and potential Section 404 violations needs to be assessed and avoided.
8. Because drainage management is governed by a variety of authorities, no one group appears to be an advocate for the pursuit of grant funding and implementation for drainage mitigation or planning. Cooperative action may be advantageous to all.

Actions

1. Schedule regular meetings of all drainage entities to formalize their cooperation and increase sharing of data, technology, and expertise.

   For example: Walker Office of Louisiana Department of Transportation and Development (LADOTD) completed a blanket Section 404 permit in 2010 for all its ditches in Livingston Parish. The permit manager for LADOTD is an expert in this kind of permitting and could provide guidance for other drainage authorities.

2. When considering creating or funding additional Gravity Drainage Districts (GDDs)

   a. Use the opportunity to align their boundaries with watershed boundaries.

   b. Focus resident approval on areas with most population and highest growth potential.

      For example: GDD No. 6 includes the Middle Tickfaw Watershed, a vast area of undeveloped forest that is sparsely populated with limited revenue sources. Drainage in this area is a lower priority than in the portion of the Natalbany River Watershed that includes Albany and Springfield, where a GDD would be sustainable and popular, particularly as new residents spillover from Tangipahoa Parish.

3. Create a Master Drainage Plan for the growth areas of the parish.

   a. Work through a coalition with GDDs, parish and municipal Departments of Public Works, LADOTD maintenance office, and other agencies.

      For example: The parish-wide GIS could include layers of natural drainage features and surface waters in the parish. This map can be combined with the separate existing drainage maps (Alvin Fairburn

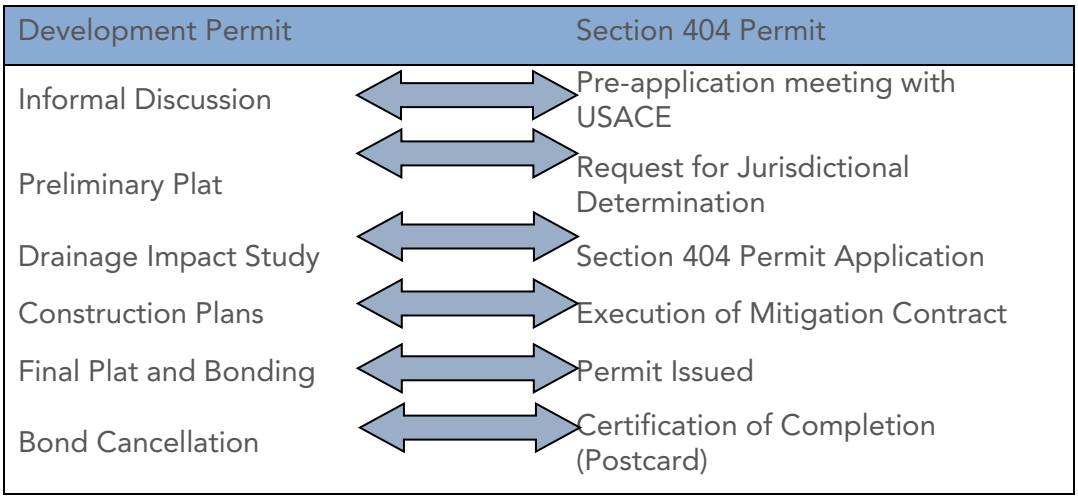
Associates has the information), and the drainage map managed by LADOTD, to create a basemap of existing drainage features. (GDD and municipal data will have to be converted from database descriptions to GIS.) Funding for this project may be available through the United States Army Corps of Engineers GIS project.

b. Seek grant funding utilizing the drainage basemap as the point of departure.

For example: The directors of GDD Nos. 1, 2, and 5 have expressed an interest in developing a coordinated plan for their districts. Funding for a drainage mitigation plan was secured in 2009 from Federal Emergency Management Agency and Governer's office of Homeland Security and Emergency Preparedness (OHSEP) for the Colyell Creek-Amite River Watershed, which includes GDD No. 5. A contractor was selected in 2012. However, the project contract had not been executed as of July 2012. This funding is part of a phased Hazard Mitigation Grant application awarded for a hydraulics and hydrology study, topographic survey, design preparation and permitting. If the engineering work produces a feasible project, the cost of the drainage improvements will be paid through a $1.5 billion federal appropriation for mitigation projects available to communities in accordance with Section 404 of the Stafford Act following Hurricanes Katrina and Rita.

4. Update parish ordinances to require proof of a jurisdictional determination for any site being developed in the floodplain, or an affidavit that no wetlands are present within the site. If wetlands are present, require a copy of the Section 404 permit application, approved permit, as well as the executed mitigation contracts as a requirement for final approval. These data can then be compiled at the permitting office and mapped over the drainage basemap to determine what activities have been permitted and when the permit expires.

For example: According to the subdivision procedures, the permitting of a subdivision with improvements follows a logical path from preliminary plat through final plat and bonding. This sequence is followed by an 18-month maintenance period before the developer is released from his bond. Section 404 permitting follows a similar course and can be sequenced with permit milestones as shown in the table below.



5. Require that final plats, drainage plans, jurisdictional determinations, and permit drawings be submitted in digital (ideally GIS) format so that the information can be captured in the parish-wide GIS. If not submitted in GIS format, a small fee could be instituted to cover the cost of digitization.
6. Conduct an engineering evaluation of the cumulative impact of the10% thresholds exemptions from having to do a drainage study.

Domestic Water

Strategies

1. In the recommended approach, Livingston Parish is the primary agency responsible for implementation. Duties include:
   - the establishment of a new parish-wide regional water district.
   - development and execution of agreements with existing private and municipal systems to combine services.
   - construction of new infrastructure.
   - operations and maintenance.
2. Ward 2 Water District has the trained personnel to operate and maintain water treatment facilities and could take on the role as the Parish-wide water service provider.
3. The Parish could potentially benefit from the re-use of reclaimed water from the LPSD treatment system to reduce the cost of water in landscaping and industrial applications and provide a revenue source to the Parish.
4. Consider augmenting the informal cooperation between sewer and water systems regarding fee collection, with a more formal combined structure that will assure a high level of collections fees to fund the sewer systems.

Actions

1. Retain an engineer to update and confirm the findings of the 2007 ASCE report with regard to domestic water supply.
2. Convene a "summit meeting" of the Livingston Parish water providers to:
   a. Discuss the findings and implications of the ASCE report (as confirmed above).
   b. Form a working group to develop recommendations regarding cooperation and eventual implementation of a regional wastewater including the combination of services with domestic water system.

Emergency preparation and hazard mitigation

Hazard Mitigation Plan goals and actions, incorporated as part of this plan

Flooding is one of the main threats to life and property in the Parish. In the 2011 HMPU the parish and its municipalities established goals and an action plan to achieve them. The goals are:

- **Goal 1:** Identify and pursue preventative measures that will reduce future damages from hazards.
- **Goal 2:** Enhance public awareness and understanding of disaster preparedness.
- **Goal 3:** Reduce repetitive flood losses.
- **Goal 4:** Facilitate sound development in the parish and municipalities to reduce or eliminate the potential impacts of hazards.

The key actions for the Parish (outside of the municipalities) that relate to land use decisions include:

- **Action 1.4.1:** Upgrade drainage ways to better carry runoff.
- **Action 1.4.2:** Increase the capacity of stormwater detention areas.
- **Action 3.1.1:** Elevate, acquire or reconstruct all Repetitive Loss and Severe Repetitive Loss structures.
- **Action 3.2.1:** Ensure that all municipalities and the parish work together to produce a cohesive drainage plan.
- **Action 4.1.1:** Enforce building codes to ensure that future development does not increase hazard losses.
- **Action 4.1.2:** Guide future development away from hazard areas using zoning regulations.
- **Action 4.2.1:** Participate in programs at the state and federal levels regarding environmental enhancement and conservation.

These goals and actions are also addressed in various ways in other sections of this Comprehensive Master Plan.

Additional actions

From public and technical input during the Comprehensive Master Plan, the following several additional recommendations are proposed:

1. Identify critical corridors that are essential to emergency response vehicles when trying to reach the southern portion of the parish and those used in evacuation. Evaluate the road (roadbed, drainage infrastructure) for resilience in hazard events. Develop strategies to improve problem roadways. This could include a widening plan for essential routes. In addition, any of these critical roads that are known to flood will need consideration to be raised to the base flood elevation, either by fill or structure.

When planning new roads, make roads that would provide emergency assistance and improve traffic flow a high priority. One suggestion is extending Old Frost Road to LA 22. An existing cut and ROW (for a railroad) already exists.

Coastal Management

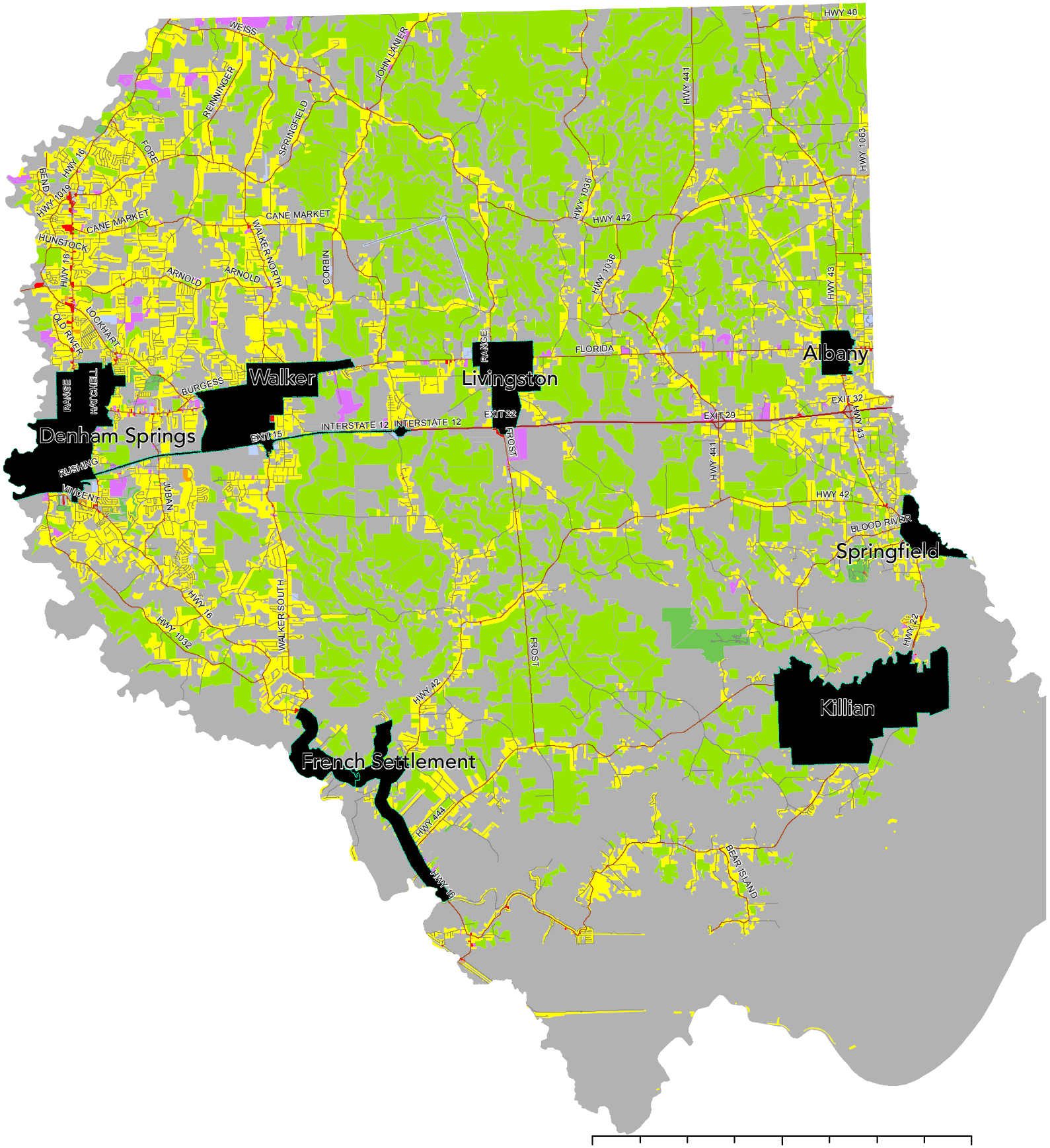
Actions

1. Adopt best practices (e.g. hydro-modification, urban run-off, wetlands, etc.), identified by the coastal management program. This could decrease the time associated with review, increase the chances development will be approved without modification.
2. Consider the implementation of a local coastal program. Convene a subcommittee recommend to the Parish Council whether or not to form a local program, subcommittee should review the Local Coastal Programs Handbook and network with other parishes with local coastal programs[24] to evaluated the benefits (funding opportunities, local permitting) vs. the costs (fiscal, liabilities).
3. Actively participate in the 2017 Master Plan for a Sustainable Coast Plan update and advocate for programs that impact Livingston. Defer until the parish has an expanded planning staff with capacity to implement, and/or there is significant development pressure in the Coastal Zone area.

[24] *Ascension parish recently dropped their petition for local management due to a lack of local resources.*

11. LARGE MAPS

Existing Land Use

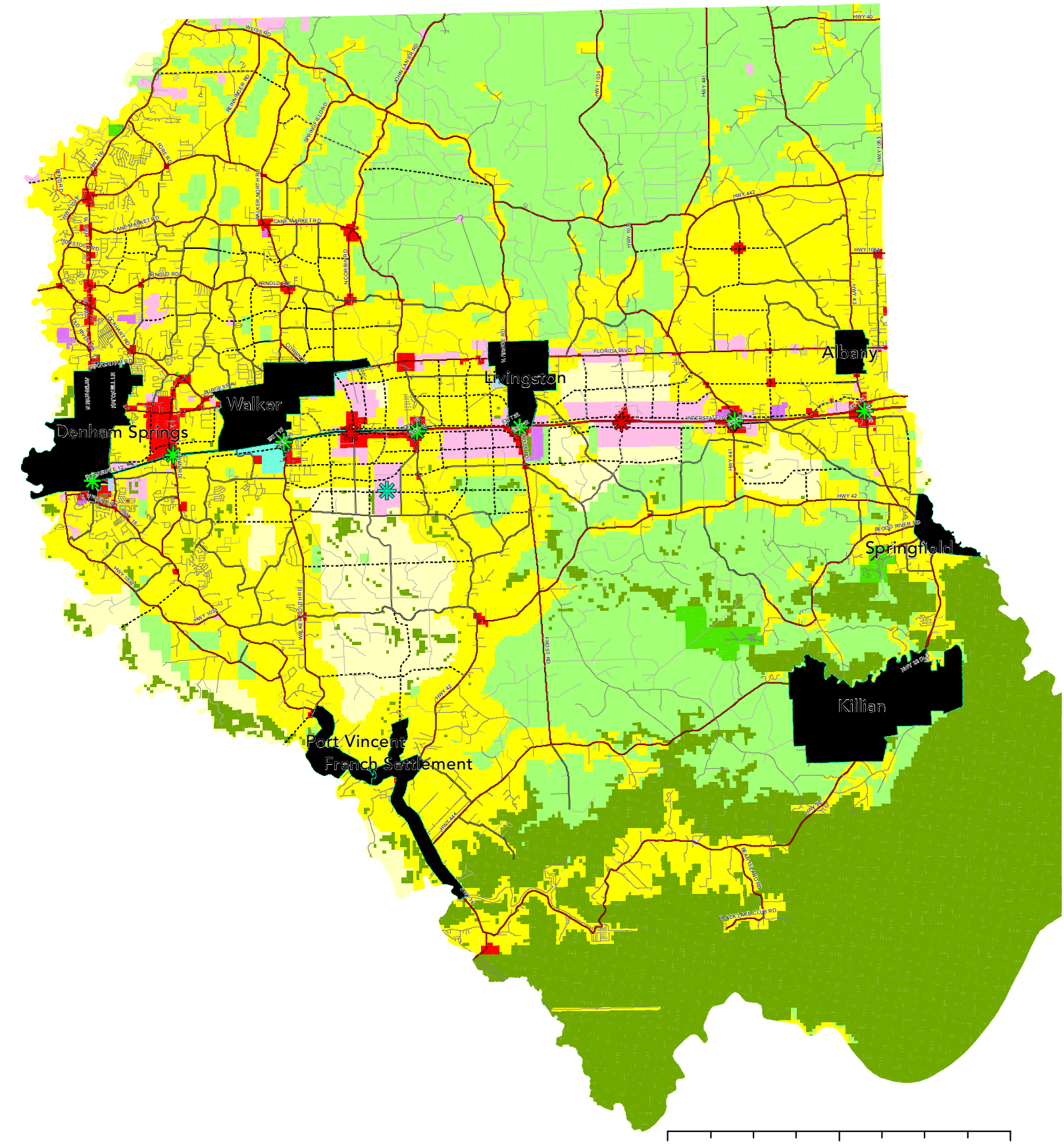


Existing Land Use

- Agriculture or Cropland (AC)
- Civic or Institutional (CI)
- Commercial (C)
- General Industrial (I)
- Multifamily (MR)
- Parks or Open Space (PO)
- Single-Family (SF)
- Vacant (V)

- Interstate
- State Highway
- Parish Road
- Private Road

Anticipated Land Use



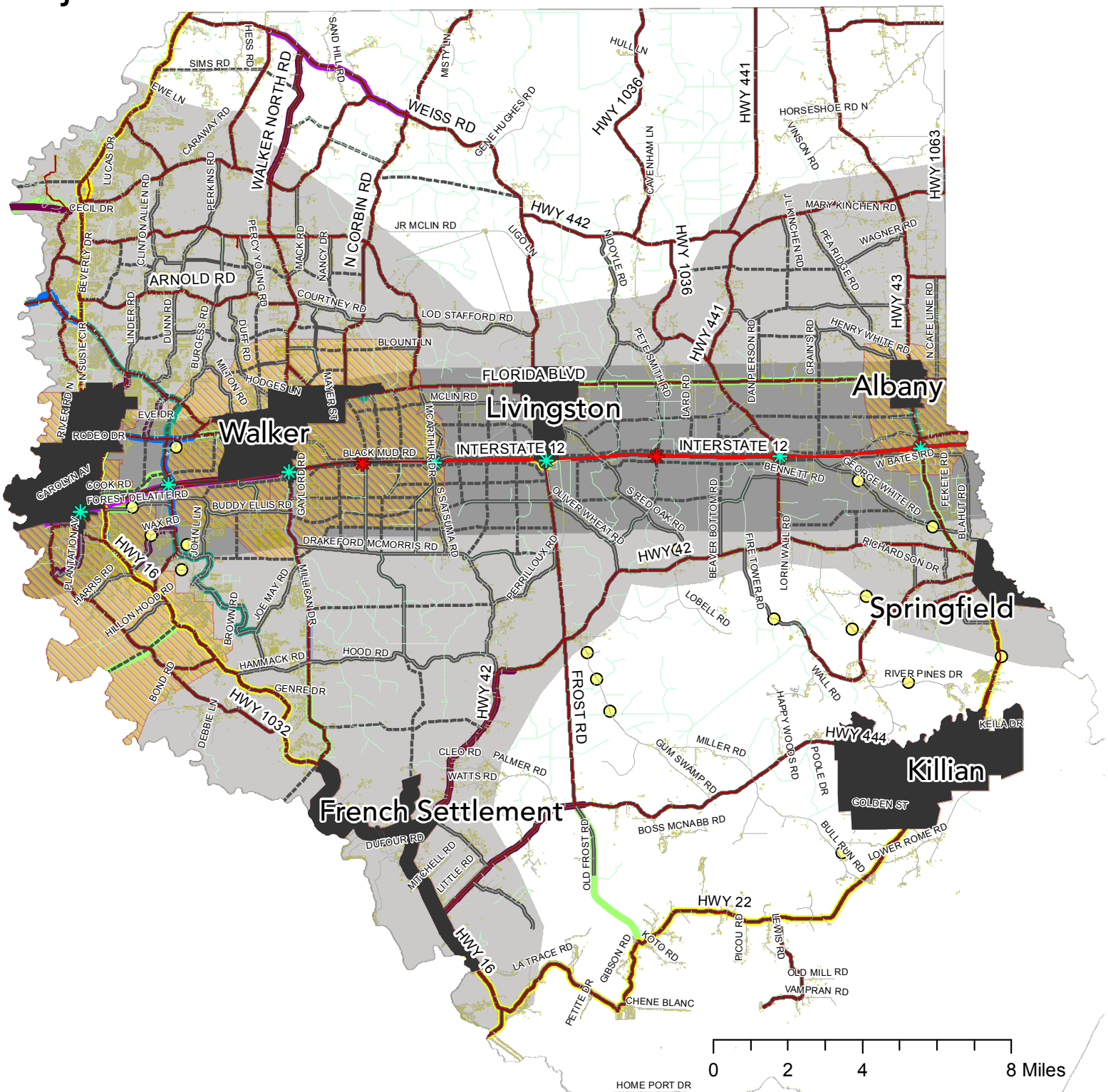
Anticipated Land Use

- Office (O)
- Civic (C)
- Light Industrial (LI)
- Heavy Industrial (HI)
- Commercial/Mixed Use (CMU)
- Multi-family (MF)
- Single-family (MF)
- Rural (R)
- Agricultural (A)
- Parks and Rec (P&R)
- Open Area (OA)

Major Streets Plan

- Proposed Arterial
- Existing Arterial
- Interstate
- State Highway
- Parish Road
- Private Road

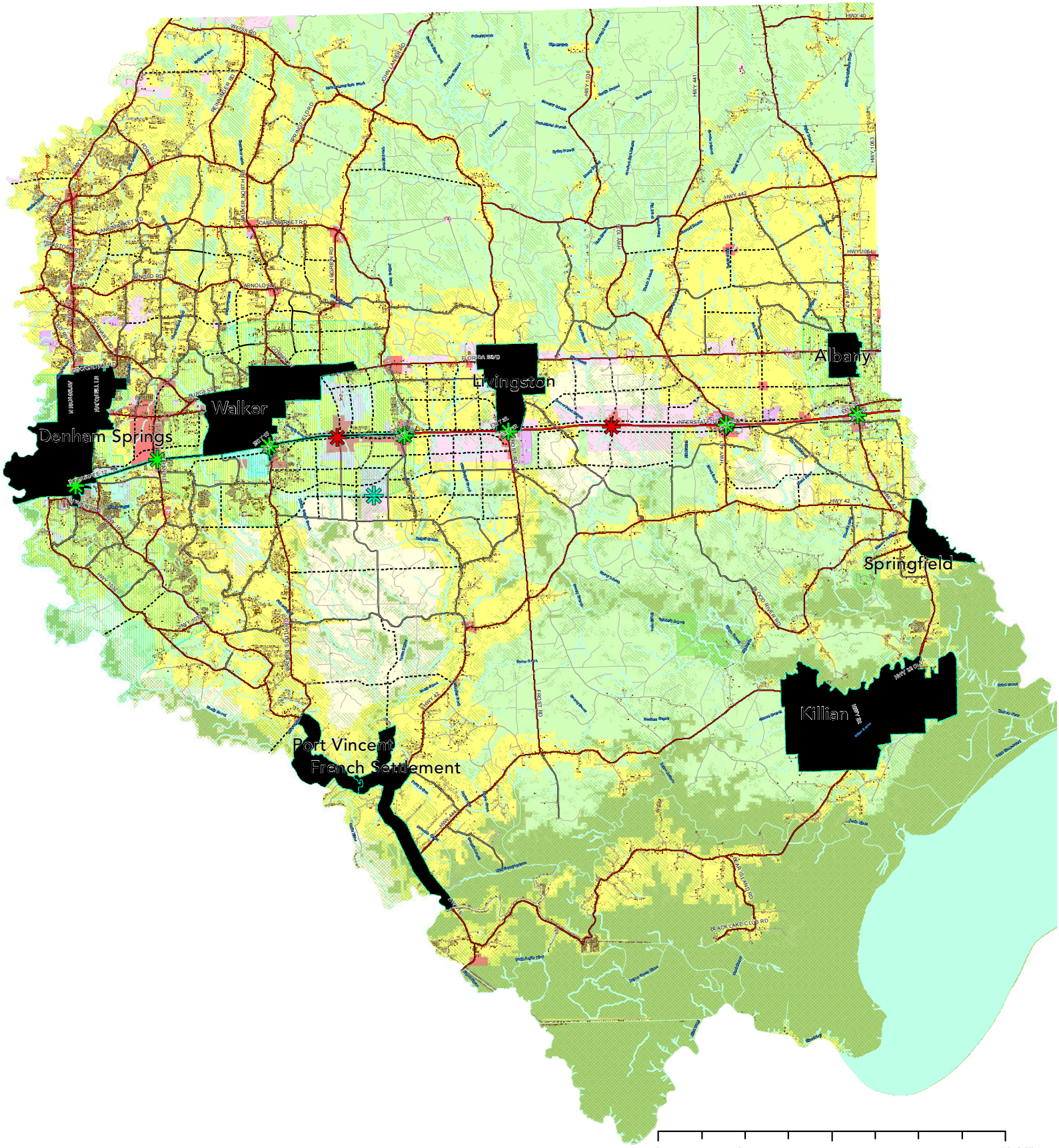
Major Street Plan



- Proposed Arterial
- Existing Arterial
- Proposed Interchange
- Existing Interchange
- Roadway Flooding Issues
- Problem Roadways (Hazard Management Plan)
- Interstate
- State Highway
- Parish Road
- Private Road
- TIP (MPO)*
- MPO (2007-2012)
- MPO (2013-2022)
- MPO (2023-2032)
- Roads Selected for Improvements (Mayor)
- Roads Selected for Improvements (CHILP**)
- Growth_Boundary
- Municipalities
- Structures
- High -Anticipated use, Arterials and Design Guidelines
- Medium- Anticipate use, Arterials
- Low- Residential < 1 per acre (sewer)

* Metropolitan Planning Organization (MPO) is the Capital Region Planning Commission
** Citizens for Highways and Infrastructure in Livingston Parish

Comprehensive Master Plan



Anticipated Land Use

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- Civic (C)
- Light Industrial (LI)
- Heavy Industrial (HI)
- Commercial/Mixed Use (CMU)
- Multi-family (MF)
- Single-family (MF)
- Rural (R)
- Agricultural (A)
- Parks and Rec (P&R)
- Open Area (OA)

Major Streets Plan

- Proposed Arterial
- Existing Arterial
- Interstate
- State Highway
- Parish Road
- Private Road
- Municipal Growth Boundary (where designated)
- Buildings