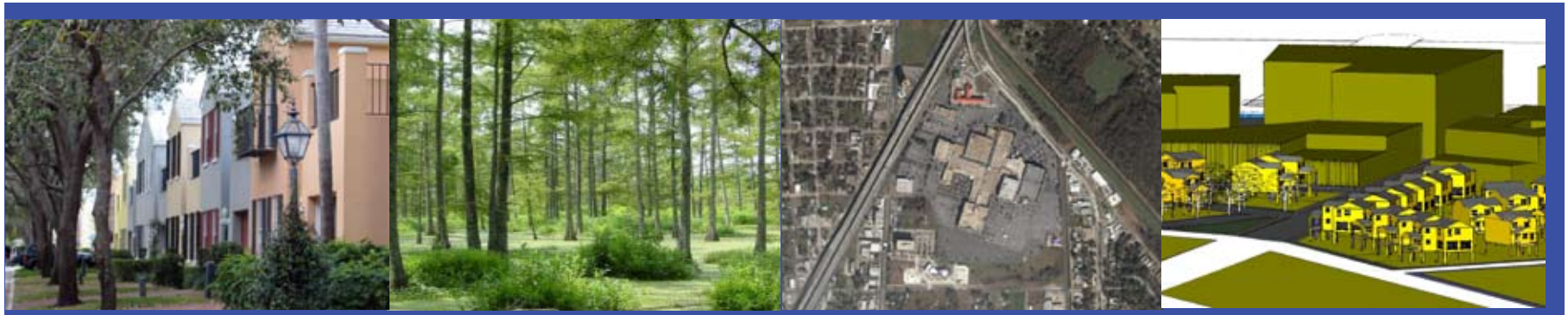
June 2006

Implementing *Envision Jefferson 2020:* Mixed-Use and Smart Growth Alternatives

Prepared for Jefferson Parish, Louisiana
and the New Orleans Regional Planning Commission
By University of Washington Department of Urban Planning and Design



Implementing *Envision Jefferson 2020*: Mixed Use and Smarth Growth Alternatives

Final Report

June 2006

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Jefferson Parish Planning Department
New Orleans Regional Planning Commission

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Introduction

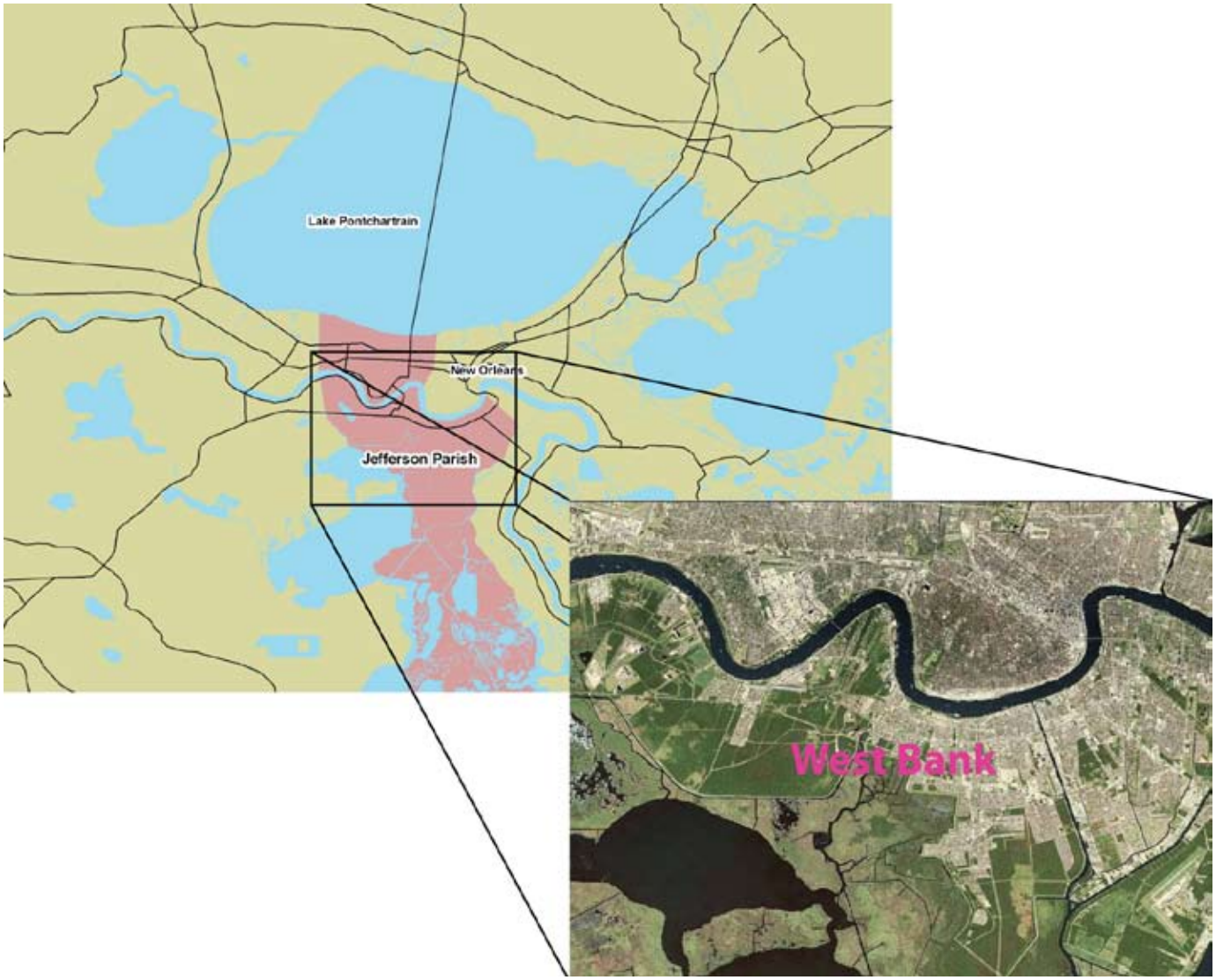


Background

Many months after Hurricane Katrina, while many Louisiana jurisdictions still struggle to address widespread devastation, Jefferson Parish (JP) is largely functional. With a stable, financially-secure government and undeveloped land on its West Bank, JP sees a near-term opportunity to attract significant residential and commercial growth. Parish leaders envision this new growth being shaped under the principles of "smart growth." The concept of smart growth is a compilation of land use, transportation and economic policies and practices that seeks to use urban and rural resources efficiently so that a community is more attractive, financially sound and safer for residents and businesses.

With this in mind, a University of Washington (UW) team has been charged with evaluating existing conditions, formulating recommendations, and outlining implementation actions to help JP accommodate mixed-use development on the West Bank. A multidisciplinary UW team, facilitated by Professors Frank Westerlund, Fritz Wagner, Bob Freitag, teaching assistant Eric Noll, and comprised of Master of Urban Planning and Master of Architecture students undertook this project at the direction of the JP Planning Department and the Regional Planning Agency (RPA). The UW team conducted an initial site visit in January, follow-up phone and in-person meetings with project staff, and have subsequently drafted a report with findings and recommendations for the Parish. During their visit to Jefferson Parish, the UW team met with elected officials and staff from the JP Planning Department, the RPA, JEDCO and FEMA and gathered first hand information for the study.

This report is designed to build on JP's long-range planning efforts, begun before Hurricane Katrina. In the Parish's Envision 2020 Plan, the centerpiece of this planning work, the Parish sees smart growth and mixed-use development as a specific land use type meriting further analysis. The recommendations in our report are designed to assist the Parish with future land use decisions in a time of projected growth. These recommendations



Map 1.1: West Bank Context map

range zoning changes, subdivisions updates, design guidelines, new participation processes, and greater regional cooperation.

The study area focuses on the West Bank of JP (the area south of the Mississippi River) and includes the incorporated cities of Westwego and Gretna. Other areas of Jefferson Parish including the East Bank, as well as New Orleans metropolitan region, were closely examined for use as reference points in the analysis of the existing built environment, infrastructure, transportation and other factors impacting recommendations for the West Bank.

Overview

There are three primary components to the scope of work for this report. First, we analyzed factors that represent trends, issues and challenges that Jefferson Parish faces or is undergoing. Second, we explore potential applications of mixed use development in the West Bank. Finally, based on this analysis, we outline implementation mechanisims, both regulatory and incentive-based, to assist Jefferson Parish with promoting mixed-use development as a means of accomodating future growth.

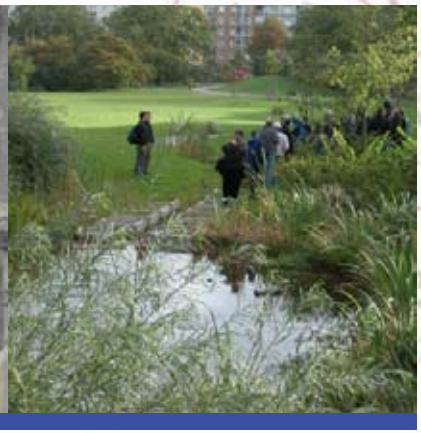
In order to plan for growth in Jefferson Parish, this analysis accounts for the significant changes in residential and employment forecasts in the wake of the storm. The Envision 2020 plan, post Katrina population projections, natural hazard considerations, and Smart Growth principles are the major factors guiding the analysis of mixed use development in this report.

This project's focus proposes significant mixed-use development in the West Bank that is consistent with the Parish's 2020 plan and ability to accommodate new growth, as well as the limited carrying capacity of the area's natural environment and infrastructure. In order to provide specific examples of potential mixed use alternatives, four sites are examined on the West Bank which represent a range of land types and development stages in Jefferson Parish. These sites include: Terrytown, Churchill Farms,

Leo Kerner Parkway, and Nine Mile Point/Bridgecity. Recommendations for regulatory and incentive based mechanisms are driven by the opportunities for mixed use development explored in each site exercise. Using these site alternatives as models for the larger area, this report demonstrates how the recommended regulatory changes (land use, zoning, and zoning overlay districts), incentives and recommendations can be used to implement Smart Growth in both the short and long term. Appendices provide additional background information on the report's sections.

JP has the opportunity to influence the planning process both within and outside the parish, by fostering regional collaboration around Smart Growth and mixed use development strategies. As the Envision 2020 plan continues to be updated, the recommendations and strategies outlined in this report are intended to build on the existing strengths, unique character, and community spirit that define Jefferson Parish.

Chapter II
Conditions and Key Factors



Introduction

The key factors examined in this report inlcude Tranpsortation, Infrastructure, Hazards, Environment, and Cultural Heritage. After visiting Jefferson Parish, these factors were selected because they are priorities for future planning and recovery efforts, particularly in the wake of Hurricane Katrina. The majority of development options and recommendations discussed in Chapter 3 stem from these key factors. The chapter opens with an overview of Jefferson Parish post-Katrina and then proceeds to examine the key factors and conditions. Although the hurricane has generated new problems and trends that are not adequately reflected in historical trends, these historical trends remain to be important issues affecting the future of the JP.

Hurricane Katrina and its Impacts

Jefferson Parish, JEDCO, EDGE, regional leaders and local businesses worked diligently on implementing the strategies and meeting the objectives of their respective planning documents. In August 2005, the Board of Commissioners of JEDCO met to adopt their five-year update to the Jefferson EDGE economic development plan. Less than a week after the adoption of the document Hurricane Katrina struck the Gulf Coast. New Orleans and neighboring Jefferson Parish incurred significant damage. The failure of the levees resulted in significant widespread flooding that left many homeless. Jefferson Parish's population, estimated at 453,000 in 2004 by the U.S. Census Bureau, had plummeted to roughly 260,000 by the first of October 2005 (GNOCDC). Since then, the population has steadily increased, but was still 90,000 less than pre-Hurricane Katrina as of January 1, 2006. This loss, however, does not equal the magnitude of loss felt in Orleans Parish, where it is estimated nearly 300,000 residents, over 60% of the parish's population, have not returned by January 1, 2006.

Despite an uncertainty about the future of the post-Hurricane Katrina New Orleans Metropolis, Jefferson Parish economic leaders went to work in October to revise their economic development plan to meet the realities of a post-Katrina environment. A month later, the plan was revised and gained the subtitle "Road to Recovery".

Economists with Louisiana State University predict that the number of jobs in the New Orleans metropolitan area will be 300 less than 2004 levels in 2006, while 2007 will see an increase of 31,000 jobs as reconstruction efforts accelerate. The small difference in 2004 and 2006 employment levels represents the fact that, while many businesses and employees have left the area, new jobs are being created directly as a result of reconstruction efforts. The outlook report, prepared by the economists, identifies housing as "the key factor in the area's performance over the next year" (McGraw Hill). In fact, it has been reported that nearly half of the area's 565,000 homes were left uninhabitable (Bankrate.com). It is anticipated that the continued influx of workers and people attempting to rebuild will continue to place a significant burden on the housing market. Additionally, as the population of Jefferson Parish ages and family size decreases, the population needing housing will be unable or unwilling to buy a traditional single-family home. Real estate reports through December 2005 show a significant increase in housing prices in Jefferson Parish, suggesting demand is outpacing supply (Times-Picayune, 1/2/06). Multi-family dwelling unit demand is particularly strong; one local businessman with ownership interest in over 15,000 multifamily units observed that for every 3 units occupied, two families are on a waiting list (interview with Henry Shane, 1/12/06).

According to accounts from Jefferson Parish planners as well as news stories from December 2005, KB Homes, a Los Angeles-based residential construction company, has entered into a joint-venture agreement with The Shaw Group to acquire 3,000 acres of Churchill Farms, with the intent of building up to 10,000 homes (Chicago Tribune 1/29/06). Based on household size statistics in the Parish, this new development could house over 25,000 people. KB Homes expects housing prices within the new development to be in the range of $150,000 and $250,000 and geared towards first-time and move-up homebuyers (Times-Picayune, 12/11/2005).

Juxtaposed with the substantial need for workforce housing, Jefferson Parish is poised to capture significant retail growth. Located in the Terrytown District directly across

from New Orleans on the West Bank is Oakwood Mall. The mall has been closed since the aftermath of Hurricane Katrina as many of its 100 businesses fell victim to looting and fire (Times Picayune, 10/19/2005). According to staff in the Parish President's office, General Growth Properties, owner of the Oakwood Mall, is interested in staying in the market, but is studying various redevelopment alternatives. Among these may be a complete reconfiguration of the mall (interview with Cherreen Gegenheimer, 1/11/06). Furthermore, as many businesses in Orleans Parish suffered significant storm damage, shoppers are changing retail habits that may have long-term implications.

The expansion of the Huey P. Long Bridge will serve as a significant improvement to the existing transportation system. It will link the Elmwood Industrial Park on the East Bank with the West Bank as well as mitigate traffic congestion. It will also provide better access to undeveloped West Bank land such as the planned Churchill Business and Technology Park, which is expected to generate thousands of jobs.

Although analysts agree that housing demand and job growth will remain strong over the next two years, long-term trends and impacts of Hurrican Katrinaat this point have not yet been fully determined. Some suggest that once severely damaged real estate is ready for habitation or reconstruction, housing prices will stabilize and possibly decrease. Meanwhile, unless long-term economic changes are implemented, job growth following reconstruction may return to pre-Katrina levels. It is therefore imperative that economic development goals articulated by the parish are sensitive to shifting demands and opportunities in order to take advantage possible changes in the future.

Sources:
Envision Jefferson 2020, Housing Element, Housing Data Report, p. 17
The Jefferson EDGE, March 2000, Prepared for the Jefferson Parish Economic Development Commission, Angelou Economic Advisors.
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Parish Overview

Jefferson Parish was established in 1825 and is the second most populous parish in Louisiana. It was named after Thomas Jefferson, commemorating his role in the Louisiana Purchase in 1803. There are six incorporated cities in the parish: Kenner and Harahan border the north bank of the Mississippi (i.e. vernacular "East Bank"); Westwego and Gretna border the south bank of the might Mississippi (i.e. vernacular "West Bank"); the City of Jean Lafitte is located several miles south of the Levee Protection System; and the City Grand Isle is located on a barrier island at the southern edge of Louisiana.

Less than 25% of the parish's population in 2000 lived in these six cities, all founded prior to World War II. Before about the middle of the 20th Century, unincorporated portions of the parish amounted to swamps, farms and large undeveloped tracts of land with the exception of the Old Metairie community. In 1950, the population of Jefferson Parish, including incorporated cities, was only 103,000. Ten years later, the population had doubled. Near the end of the 1950's, Jefferson Parish citizens adopted a home-rule charter providing for a council-president form of government that is more similar to modern municipal government rather than the antiquated police-jury parish that previously existed.

2000 Geographic Pop. Distribution

	East Bank	West Bank
Unincorporated	177,099	166,101
In Cities	80,402	31,864
Total	257,501	197,965

Table 2.1: 2000 Geographic Population Distribution

Over the following two decades, Jefferson Parish continued to grow as urban decay, increased mobility and accessibility to inexpensive land drove people out of the city and into the suburbs. The political power of the parish grew so as to establish itself as a de facto municipality. In 1966, state statutes were enacted that were applicable only to Jefferson Parish and which made annexation by existing incorporated cities very implausible (See Louisiana Revised Statutes 33-172.1).

Jefferson Parish continued its burgeoning growth through the 1970s until factors such as local and national recessions, declining birth rates, and out-migration halted the 30-year trend. The US Census indicates that the population of the Parish in 1980 was 454,592, only 874 persons less than in 2000.

Demographics

Underneath this ostensible indication of static equilibrium, the demographics of the population of Jefferson Parish have been in flux during the past twenty-five years. The African-American population of the parish increased by 65% between 1980 and 2000, to 109,327. There has also been a very significant increase in Hispanic and Asian American populations. During the same time, Caucasians have decreased by 17.5%. The figures on the following pages represent statistics derived from the 2000 Census. As is indicated, the greatest share of the population is between the age of 25 and 55. There is also a significant population of retirement age. The youth population is disproportionately small when considering the significant population of child-bearing age.

Economic Indicators

There were 31,684 businesses operating in the East Bank and 21,608 businesses operating in the West Bank in the 4th quarter 2004. The number of jobs in nine major business sectors declined an average of 6.13% over the 5-year period ending the 4th quarter of 2004. The unemployment rate at that time was 5.2% for the Parish, 6.4% for the state and 5.2% nationally.

Table 2.2: Projected Regional Employment by Industry

Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John the Baptist, and St. Tammany parishes

Industry	2000 Average Annual Employment	2010 Projected Employment	Change in Employment 2000-2010	Percent Change 2000-2010
Total, all industries	635,350	701,890	66,540	10.5
Agriculture, Forestry and Fishing	9,540	10,170	640	6.7
Mining	12,350	11,010	-1,330	-10.8
Construction	31,970	39,190	7,220	22.6
Manufacturing	47,110	45,720	-1,380	-2.9
Transportation, Communications, and Public Utilities	40,880	40,430	-450	-1.1
Wholesale and Retail Trade	156,070	175,060	18,990	12.2
Finance, Insurance and Real Estate	29,990	31,440	1,450	4.8
Services	257,780	296,060	38,280	14.9
Government	49,680	52,810	3,130	6.3

Source: Louisiana Department of Labor 2002

Business sectors losing jobs	Jobs	% Change
Agriculture	3,663	-15.7
Construction	14,412	-4.87
Transportation/Utilities	8,894	-36.09
Wholesale trade	13,195	-25.9
Retail trade	32,240	-37.03
Business sectors gaining jobs	Jobs	**% Change**
Manufacturing	17,995	0.16
Finance	18,334	48.54
Services	89,588	12.53
Government	6,584	10.92
Total	204,905	-6.13

Table 2.3: Business sectors losing/gaining jobs

Existing Land Use

An important exercise in the land use planning process is determining the existing uses of land. With the assistance of the University of New Orleans, Jefferson Parish has catalogued the existing land use for the entire parish. Uses within the hurricane protection levee system are most relevant to the current study, since it is generally considered the de facto urban growth area (UGA) for Jefferson Parish.

This de facto UGA contains nearly 65,500 acres of land outside of incorporated cities. Approximately 67.0% of this land mass is considered developed, leaving 21,600 acres undeveloped. A mere 3.1% of undeveloped land is on the East Bank, with the vast majority on the West Bank. UNO categorized the use of existing land within the UGA as below.

As shown in the table above, residential uses are by far the greatest consumer of land in developed portions of Jefferson Parish within the Hurricane Protection Levee System. A very substantial share of developed land is considered public or private right of way for roads, highways, railroads and drainage canals.

Within residential lands, there are 134,000 housing units, of which roughly 70% of these units are single-family dwellings. The 95,000 single-family dwellings consume nearly 16,000 acres of land, or 90% of residential land. Net density (exclusive of rights of way) for single-family properties is just below six dwelling units per acre. All multi-family dwellings (duplex, triplex, fourplex, etc.) have a net density of 24 dwelling units per acre. Multi-family dwellings that include only developments of five units or more have a net density of 32 dwelling units per acre.

Of particular consequence to this report are residential land use patterns on the West Bank. In this area there is a greater share (91.2%) of the residential land dedicated to single-family dwellings. Net densities in these areas are less on the West Bank than on the East Bank. Approximately 670 acres, or slightly more than one square mile, is developed as multi-family residen-

Table 2.4: Jefferson Parish Land Uses within the Hurricane Protection Levee System

Land Use	East Bank		West Bank		Jefferson Parish	
	Acres	% of Utilized Land	Acres	% of Utilized Land	Acres	% of Utilized Land
Residential	9,186.1	45.6%	8,511.5	35.9%	17,697.6	40.4%
General Sales or Service	1,851.9	9.2%	1,497.8	6.3%	3,349.7	7.6%
Manufacturing and Wholesale Trade	1,134.2	5.6%	1,365.2	5.8%	2,499.4	5.7%
Transportation, Communication, Information, and Utilities	215.6	1.1%	1,985.5	8.4%	2,201.0	5.0%
Arts, Entertainment, and Recreation	905.5	4.5%	1,080.7	4.6%	1,986.2	4.5%
Education, Public Adm., Health Care, and other Institutional	964.2	4.8%	1,294.1	5.5%	2,258.3	5.1%
Construction Related Business	133.2	0.7%	352.5	1.5%	485.7	1.1%
Mining and Extraction Establishments	2.6	0.0%	67.4	0.3%	70.0	0.2%
Fishing, Hunting, Forestry, and Agriculture	2.8	0.0%	1,495.8	6.3%	1,498.5	3.4%
Batture	431.4	2.1%	0.0	0.0%	431.4	1.0%
Rights of Way, Roads, Drainage	5,335.8	26.5%	6,045.4	25.5%	11,381.2	25.9%
Total Utilized	20,163.2	100.0%	23,695.8	100.0%	43,858.9	100.0%

tial use. This seeming predominance of single family housing should not obscure the fact that over 23% of housing units on the West Bank are actually multi-family. In fact, 8,700 (15%) of all West Bank dwelling units are part of multi-family housing complexes that contain more than four dwelling units. The table below represents these comparisons.

Comprehensive Planning Efforts

The Jefferson Parish Comprehensive Plan has been adopted in part, including elements related to land use, transportation and implementation. The major goals of the land use element are to achieve balance between public and private interest in the promotion of economic development; to provide adequate housing, services and facilities; preservation of existing residential neighborhoods; and conservation of natural resources. Policies must be compatible with these goals for effective implementation and mixed-use developments that are consistent with smart growth principles.

The following elements are currently being prepared for consideration by the Parish Council:

- Housing
- Economic Development
- Other Major Implementation Tasks Underway
- Future Elements
- Public Works
- Community Design
- Parks & Recreation

The primary goals of the future land use element of the comprehensive plan are to:

Table 2.5: West Bank Residential Lands

Residential Land Use Type	Area	% of Total	Units	Net Density
Single-Family	7,818.98	91.86%	44,179	5.7
Single-Family Town-house	24.66	0.29%	372	15.1
Two-Family	171.89	2.02%	2,192	12.8
Three-Family	7.39	0.09%	150	20.3
Four-Family	136.91	1.61%	2,268	16.6
Multi-Family	351.65	4.13%	8,738	24.8
Total	8,511.48	100.00%	57,899	6.8

- Provide for a sustainable urban environment that will support and enhance neighborhoods and businesses, and accommodate their growth;
- To provide suitable and adequate opportunities for commercial and industrial development that is convenient, visually pleasing and environmentally sound;
- Accommodate a diverse range of housing types and densities in a manner well suited to surrounding uses;
- Ensure that dependable and adequate public infrastructure supports the existing and future development needs of the parish.
- Jefferson Parish's land use plans include mixed-use development, which appears to consist primarily of different types of offices. Residents of the parish have named land use compatibility and the use of buffers between non-compatible uses in existing neighborhoods to be of utmost importance in future planning. Several goals are specific to desired development patterns on the West Bank:
- The preservation of existing residential neighborhoods;
- The protection and strengthening of the Harvey Canal area as an industrial and business district;
- The facilitation of the development of a business and technology park;
- The protection and enhancement of the major economic activity centers; and
- The promotion of high quality planned developments that will attract residents from throughout the region, stimulate business growth and capitalize on the TPC golf course and the widening of the Huey P. Long Bridge.

The transportation element identifies a number of goals that seek to "develop an interconnected network of streets, walkways, bicycle paths, public transportation and light rail that provides a variety of options for movement through the parish and metropolitan area" and "enhance the competitive position of the parish and provide for the movement of goods and employees by taking full advantage of opportunities that support, expand and improve transportation system components." Further conditions of the transportation infrastructure will be discussed later in this report.

Economic Development Strategies and Goals

The Economic Development and Growth Effort (EDGE) was formed in 1986. Its formation led to the creation of the Jefferson Economic Development (JEDCO) in 1987, which provides a link between public and private enterprise in furthering economic goals for the Parish. Other efforts and plans followed. In 2000, JEDCO, in collaboration with EDGE and other regional leaders adopted the Jefferson EDGE: the Jefferson Parish Economic Development Strategic Plan. The mission of those creating this document was to "create an economic development plan based on a new vision which guides Jefferson Parish, enjoys broad community support, can be readily implemented and establishes benchmarks for measuring progress."

The Executive Summary of the Strategic Plan called for the advancement of 13 ranked objectives:

- Develop a Jefferson Parish land use master plan encompassing planning and zoning; permitting; market feasibility and analysis; and a land inventory
- Develop an Internal Strategic Marketing Plan that promotes Jefferson Parish to its existing stakeholders
- Increase technology awareness in the Jefferson Parish public and private sectors
- Provide leadership in the development of a regional workforce system that creates a globally competitive workforce and enables citizens to achieve economic self-sufficiency
- Create a Jefferson Parish Technology Park
- Promote the redevelopment and reuse of blighted and underutilized properties
- Promote tourism opportunities in Jefferson Parish related to eco-tourism, sports, film production and outdoor recreational activities

- Promote economic development opportunities with the New Orleans International Airport
- Improve the New Orleans MSA's transportation infrastructure capacity
- Improve the climate for venture capital in Jefferson Parish
- Capitalize on regional port activities connected to the expansion of the Port of New Orleans, the Millennium Port project, and waterways opportunities in Jefferson Parish
- Develop a Jefferson Parish Technology Academy and to promote technology skills development in the parish's public and private schools
- Create a brand identity that sets Jefferson Parish apart from New Orleans by making Jefferson Parish the "Community of Choice"

During the five years after the adoption of the plan, JEDCO, EDGE and Jefferson Parish diligently worked on completing these measurable objectives. The preparation and adoption of the parish's comprehensive plan, "Envision 2020," was a significant benchmark in promoting economic development goals. Significant work came about to lay the preliminary foundations of the Parish's contemplated technology park. JEDCO and EDGE received recommendations from Deloitte and Touche during 2003 for identifying the future site of the Technology Park. Deloitte and Touche evaluated 19 sites on either side of the Mississippi River to determine which had the greatest potential for development for technology uses. The Churchill Farms site along Nicole Boulevard was identified as the ideal site. Reasons for this recommendation included the following:

- Owner was willing to give title to 25 acres pro bono to JEDCO to develop the technology park
- Substantial vacant land bordered the site (3,700 acres) that could be developed to form a cohesive development pattern, raising the appeal of the vicinity
- Good access to transportation corridors based upon the expansion and potential realignment of Highway 90 (future Interstate 49)
- The Tournament Golf Course is a nearby amenity that can be considered complementary

- The site offers greater opportunities for establishing an image consistent with a technology park

Concurrent with this analysis, JEDCO hired Hammer Siler George Associates, Inc. to develop strategies with which JEDCO and EDGE could increase their ability to attract technology-related jobs and business to the Parish. The resulting report drew upon research related to existing economic drivers in the region and trends that could be advantageous to the Parish. They recommended the specific industrial sectors as priority businesses to attract:

- Turbines and Turbine Generator Sets
- Control Systems
- Manufacturing Telephone Equipment Systems
- Ship Building and Repairing
- Diagnostic and Therapeutic Apparatus
- Wireless Voice/Data Computer Networking
- Cellular & Other Wireless Telecommunications
- Computer Systems Design
- Computer Software
- Computer Systems Design & Networking
- Other Computer Related Services
- Motion Picture Production and Distribution
- Engineering Services IT Consulting

As resources and synergies become available and viable, the consultant's report recommended the parish work to attract businesses in these sectors:

- Telecommunications Contractor
- Manufacturing medicinal and Botanical Products
- Manufacture Industrial Cleaners/Detergents

- Paints and Allied Products
- Manufacturing Bio-chemicals
- Natural Gas Liquid Extraction
- Food Products Machinery
- Electronic Computers
- Printed Circuit Boards
- Engine Electrical Equipment
- Magnetic and Optical Recording Media
- Boat Building and Repairing
- Manufacturing Alarm Systems
- Analytical Instruments
- Manufacturing Measuring/Controlling Devices
- Other Telecommunications Services
- Computer Graphics
- R&D in Physical, Engineering & Life Sciences
- Testing Laboratories

According to reports prepared in conjunction with *Envision 2020*, projected jobs and housing demand that will result from the Technology Park development is unclear. Envision 2020's analysis suggests that only a portion of forecasted jobs will be new, and most will come from existing businesses. The analysis predicts only 200 new jobs per year in the 10-year projection. It is not expected that many of the existing businesses will relocate within the Parish. Similarly, employees of the existing businesses live outside of the parish and are not expected to relocate.

Transportation

The primary role of the transportation network in Jefferson Parish is to meet the basic daily travel needs of residents. To meet these needs the parish is responsible for over 3,500 lane miles of paved streets. The Transportation Element of the Comprehensive Plan, in conjunction with the initial research compiled for the Thoroughfare Plan, provides many insightful solutions to some of the Parish's most pressing road-related needs. The expansion of the Huey P. Long Bridge and U.S. 90 are two of the most notable transportation projects. However, roadway modifications are not the only solution to traffic congestion.

This section offers a vision of how mixed-use areas and neighborhoods can be effectively linked with an integrated, multimodal transportation network of highways, collector streets, sidewalks, bikeways and transit to help reduce traffic congestion and improve mobility on the West Bank.

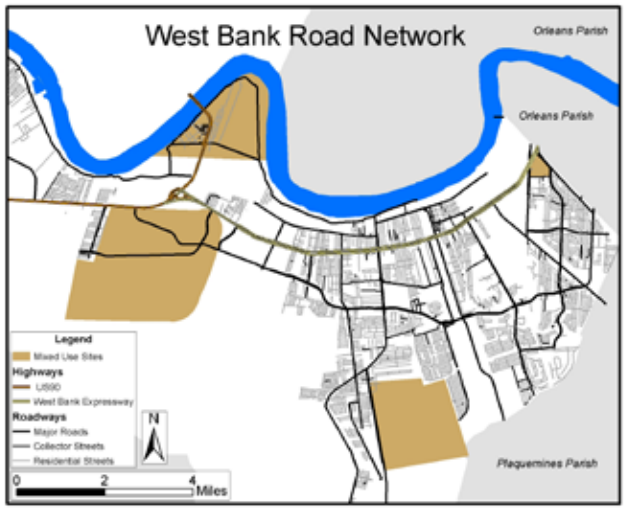

Figure 2.6 Road Network Map

Opportunities for Improved Linkages

Public Transit

Prior to Hurricane Katrina thirteen bus routes serviced the West Bank. The routes connected the primary urban centers of the West Bank along major thoroughfares, stopping approximately every two blocks. The existing routes, prior to Hurricane Katrina, are disbursed evenly throughout the West Bank and service the Multi Use Corridors (MUCD) illustrated on the current zoning map.

Although the transit system has not yet developed to a level in which it is able to service neighborhoods on a local scale due to relatively low rider-

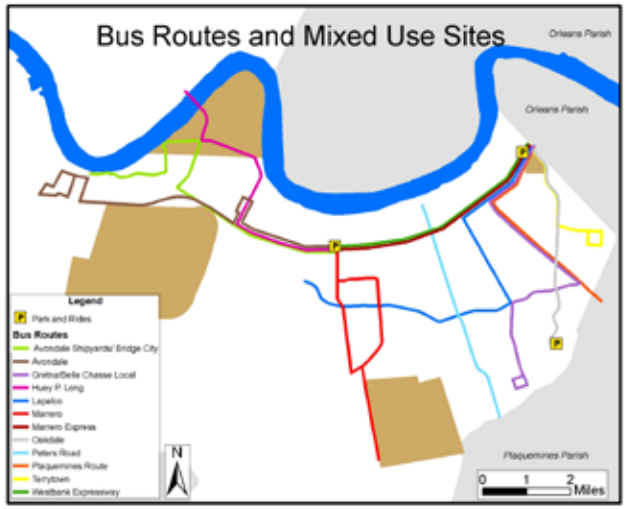

Figure 2.7 Bus Route Map

ship, there are three opportunities to increase ridership and improve service on the West Bank:

- Increase express bus service
- Improve access to park and rides
- Implement employee incentive programs

Figure 2.8 Bike Path

Pedestrian Access

Sidewalks

In general, West Bank pedestrians are limited by a dilapidated, ineffective, and in many areas a nonexistent sidewalk system. Pedestrian pathways are a critical link in the connectivity of an effective multimodal transportation network. In mixed use and residential areas it is crucial to enforce sidewalk requirements in order to create and maintain walkable communities. A cursory survey of West Bank sidewalks reveals that better enforcement of the code is necessary.

Crosswalks

There is a significant lack of crosswalks at intersections that connect primary retail and residential areas on the West Bank. Insufficient and poorly placed crosswalks across arterials create hazards for both pedestrians and drivers. Sidewalk priorities should be in and around mixed-use areas and between residential and commercial centers to reinforce the walkability and safety of neighborhoods. Maintaining traffic flow along busy arterials is an essential means of limiting traffic congestion. However, a policy initiative eliminating unsafe pedestrian crossings on busy arterials is critical. Directing pedestrian traffic to designated intersections and encouraging development to occur in nodes around those intersections is an example effective pedestrian-oriented policy.

Bike Routes

The existing bike routes atop the levees and under the Westbank Expressway are a good example of how routes and trails can take advantage of the built environment and the West Bank's water amenities. There is ample opportunity on the West Bank to extend the existing paths to connect with other levees and canals. With investment in a network

of paved and dirt paths that incorporate well designed and maintained landscaping these unique water features can be transformed into desirable amenities, while providing a network of pathways that connect neighborhoods and retail centers.

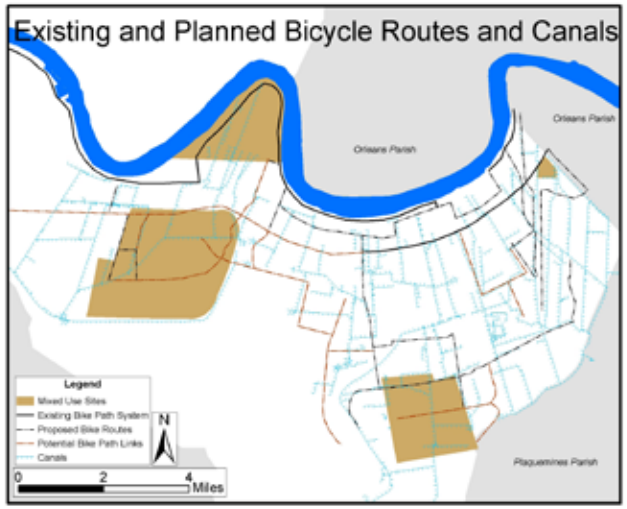

Figure 2.9 Existing and Planned Bicycle Routes

Infrastructure

The following offers a brief summary of local infrastructure systems and their current capacity. Infrastructure systems enable and sustain a healthy economy and a high quality of life by ensuring that there is adequate drinking water, sewerage treatment and drainage. Any planning for new development regions should be closely coordinated with the departments responsible for these infrastructure systems. Given limited resources, the parish should ensure that infrastructure (public facilities) spending is efficient and serves desired growth strategies.

Drainage

The Jefferson Parish environment demands a rigorous drainage system. As such, the consolidated drainage district no. 1 was created 1961 (Code 1961, §§ 17-9, 17-10; Ord. No. 21059, § 1, 8-23-00), whereby the Jefferson Parish Department of Drainage plans, operates and maintains drainage infrastructure. The system uses subsurface drainage lines and larger drainage canals to transport storm water. The water is transported by gravity through this system of subsurface drainage lines and canals into the suction bays of various pump stations. Here it is pumped into the surrounding water bodies outside of the flood protection system.

In Jefferson Parish, there are 340 miles of canal waterways, drainage ditches, cross drains, culverts and internal levee systems and 1,465 miles of street subsurface drainage systems. The West Bank, excluding the areas of Crown Point, Lafitte and Barataria, operates 67 pumps and 19 drainage pump stations, this number includes three new facilities soon to be completed. Upon completion of the new pump stations, the total capacity is 26,049 cubic feet per second (cfs). This provides on average 0.54 cfs per acre.

According to a recent citizen survey, drainage and flooding are still primary concerns of Jefferson Parish citizens. The Parish President and Council have responded to this survey by appropriating available sales tax monies for localized drainage improvement capital projects and local matching funds for Federal projects such as the United States Department of Agriculture Watershed Programs repairing canal bank failures and Army Corps of Engineers Southeast Louisiana Urban Flood Control capital improvement projects. These capital improvements, estimated at $430 million, are in progress throughout Jefferson Parish.

Sewerage

The Consolidated Sewerage District No. 1 (Ord. No. 18420, §§ 1--5, 12-4-91) was created in 1961, and serves the east and west banks, excluding incorporated cities. The mission of the Department of Sewerage is to collect and treat sewerage and industrial wastewater with two goals in mind: protection of public health and preservation of our water quality.

Four major functions are required to fulfill those goals:

1. Treatment of wastewater
2. Pumping of untreated sewage
3. Collection of untreated sewage in gravity line system
4. Pumping of the treated water to the Mississippi River for discharge

In total, there are five Treatment Plants that together treat 57,000,000 gallons of wastewater daily. Their inventory consists of over 500 Lift Stations which each have from 2-7 pumps, over 1300 miles of gravity pipe, 100 miles of force main pipe with 21,120 manholes.

Water

Jefferson Parish Water Department has provided a high quality drinking water to the residents of Jefferson Parish for over 60 years without any major interruptions in service. Despite the variable water quality of the Mississippi River, drinking water in Jefferson Parish has continued to be of a very high quality. Currently, the water department provides water utility services to approximately 140,000 accounts. The two plant water purification complex is located in the west bank in Marrero. The two plants were constructed in 1958 and 1971, respectively. Present rated production capacity for the east bank is 87 million gallons per day and the rated production capacity for the west bank complex is 44 million gallons per day.

Hazards

There is a multitude of natural hazards facing Jefferson Parish, each of varying frequency with varying impacts. Many of the hazards that impact JP are weather related; hurricanes, flooding, thunderstorms, lightning, high winds, tornadoes, hailstorms, storm surge, and winter storms are all caused by extreme weather systems. JP also faces terrestrial and environmental hazards, such as subsidence and wildfire. Hurricanes and flooding are the most frequent hazards, resulting in the greatest impacts; their impacts should be considered when developing or redeveloping areas of the West Bank.

The various hazard components and risks associated with hurricanes come from storm surge, rainfall, and wind. High winds impact utilities and transportation, as well as buildings (residential, commercial, and industrial). Moreover, essential services and emergency services (police, fire, medical) may be rendered ineffective due to tremendous amounts of disruptions to transportation and communication channels. If a hurricane's path is over the West Bank, its 19 pump stations will likely be overwhelmed and the area will be flooded. Silt, trash and other obstructions in the drainage system can further lengthen the inundation period.

Loss of life, property damage, and negative economic impacts are all risks from hurricanes. The current population of the West Bank, approximately 198,000, is likely to increase as development in the West Bank gains momentum. The southern portions of JP (i.e. West Bank, Grand Isle and Lafitte) are the most exposed areas of the parish, a situation further exacerbated by diminishing buffers (e.g. wetlands).

Along with hurricanes, flooding is a major hazard facing Jefferson Parish. Flooding occurs because of high levels of precipitation that cannot be pumped out of the low lands within the levees system quickly enough. Flooding also occurs as a result of levee breach or over topping, as happened in New Orleans and Metairie because of Hurricane Katrina.

Figure 2.10 Elevated Home

JP, in its entirety, is within the 500 year floodplain, as defined by the National Flood Insurance Program, and the West Bank, with the exception of areas near the river, is at or below sea level and within the 100 year floodplain. The West Bank has varying base flood elevations from 1 to 7 feet. Flood depths of 5-15 feet above ground level are possible in the West Bank; extreme water depths have the potential to occur as a result of levee breaches and heavy rainfall.

Hurricanes and associated flooding pose a significant threat to the West Bank, but there are a series of natural and man-made lines of defense protecting areas of development in the parish from storm surges and waves. The natural systems protecting JP by dampening storm surge include barrier islands and land bridges of wetlands, marshes, and swamps, while man-made protections include flood gates, levees, pump stations, elevated structures, and evacuation

Jefferson Parish's urban areas are largely surrounded by levees and floodwalls. Levee systems enclose the West Bank, keeping the water in from naturally receding -- requiring pumping systems. Presently, Jefferson Parish's drainage system provides protection against a 10 year flooding event, but does not have the capacity to pump out larger floods efficiently.

Flood waters and storm surge can threaten the ability to occupy most ground-level structures. Hence, elevated structures minimize the risk from flooding and storm surge. During an event the structures provide areas of refuge from flooding and surge. Additionally, an open plan on the ground floor minimizes surge effects on the structures' stability and functionality. Finally, post-event benefits of elevated structures include immediate occupancy and minimal reconstruction.

Evacuation is often necessary during hurricane and flooding events. Existing evacuations routes service the West Bank, although a regional evacuation could cause delays and blockages on the primary evacuation routes. Additionally, much of the local road network is susceptible to flooding, rendering evacuation procedures inadequate. Alternative evacuation measures must be considered for vulnerable populations. Options for places of refuge should be pursued in the West Bank of Jefferson Parish.

The availability of "naturally" elevated places of refuge is non-existent in Jefferson Parish, which is largely at or below sea-level. However, designed structural places of refuge

present a viable option in new development. The development of three to five story structures should be encouraged as place-of-refuge options for residents unable or unwilling to evacuate. These refuge facilities can also serve as operational sites for emergency services during a hurricane or flooding event.

Mixed-use developments and communities provide opportunities for places of refuge among the residing and surrounding community. The multi-story characteristic of many mixed-use structures allows for safety on the upper levels. Meanwhile, the lower levels of retail or office use are impacted by flooding or storm surge. The three to five story mixed-use structures are minimally affected by an increased wind velocity; however, high-rises are more vulnerable to increased wind forces.

Over time the character of the risks in JP will change because of climate change induced sea level rise, increases in hurricane force and frequency, and land subsidence. Recent estimates indicate global sea level rise will be between 15 and 95cm by 2100.[1] Effects of sea level rise are exacerbated in JP because coastlines in southern Jefferson Parish are sinking or eroding away with incoming water eating at the marshes and wetlands that buffer and drain the higher drier land.

Hazard Considerations

Based on the impacts of hurricane and flood risk in Jefferson Parish's West Bank, the following are considerations for new development. These considerations are further discussed in the development concepts in the chapters that follow:

- Evaluate the capacity of evacuation routes to increased populations in the West Bank

1 USGS Open-File Report 00-179, http://pubs.usgs.gov/of/2000/of00-179/

- Explore incentives for elevated structures above the NFIP requirements
- Encourage mixed-use developments/communities as areas of refuge
- Promote elevated parking facilities, serving as emergency service functions

Figure 2.11 Wetlands

Environmental Considerations

The following subsections outline key environmental considerations for Jefferson Parish.

Wetland Loss

In the aftermath of hurricanes Katrina and Rita, it has become increasingly clear that the livelihood of Jefferson Parish and the region is extremely dependent on the preservation of coastal wetlands. While Jefferson Parish experienced less flood and storm damage than communities on Louisiana's coast, much of the hurricane damage was amplified by the rapid deterioration of coastal wetlands over the last fifty years. Not only do wetlands provide natural flood protection, absorbing roughly one foot of storm surge for every three miles of wetland, but they can also improve water quality through filtration of contaminants. Coastal waters are also an integral part of the economy; providing a rich and diverse seafood and fish supply, as well as facilitating tourism and recreational activities. Lastly, they are an important piece of local culture. The parish has laid the foundation for improving local environmental management practices through the adoption of the JP Coastal Zone Management Plan (CZMP) and the Department of Environmental Affairs (DEA) policy action items. However, as hurricane recovery efforts begin, Jefferson Parish has the unique opportunity to take a regional leadership role in environmental management through new policy and planning regulations.

Development and Wetland Loss

Even though the terrain of JP no longer resembles a traditional wetland due to centuries of dredging, filling, and human settlement, the hydrology of the area is technically still a "wetland". As such, all of the development that occurs in Jefferson Parish is intimately connected with the

hydrologic flow of the coastal region. Drainage and dredge and fill activities combined with a rapid increase in impermeable surfaces, has altered the natural flow of surface water entering lakes and coastal waters.

Current Management Strategies

- JP Coastal Zone Management Plan (JP CZMP): Initiated in 1976 and identified pressing issues for the parish, including diminishing water quality and land loss. The goals for the local coastal management program are as follows:
  - to improve the quality of the water discharged from the parish's sanitary sewer system and drainage system
  - to review and monitor permits for dredging, filling or draining activities in parish wetlands
  - to encourage compatible multiple use of the parish's coastal resources.
- DEA Initiatives: Federally-mandated programs implemented by the DEA include:
  - Industrial Pretreatment Program
  - Stormwater Management Program
  - Underground Storage Tank Compliance Program

The CZM and DEA initiatives outline key infrastructure improvement goals and programs as the primary means to address wetland mitigation. Environmental recommendations and implementation strategies can be found in Appendix G.

(Jefferson Parish Coastal Zone Management Plan, 1976).

Parks and Open Space

Significance of Parks and Open Space

Jefferson Parish has several large park areas ranging between 140 acres to 12,000 acres, as well as several smaller parks and a network of pedestrian paths and bike trails (Jef-

ferson Parish Coastal Zone Management Plan, 1976). The west bank of JP has approximately eighteen playgrounds. In an urban environment, parks and open space provide a place for neighborhoods and communities to gather, a quiet place to slow-down and reflect, and a place to recreate. The integration of open space across an urban area also provides environmental benefits by increasing the area of permeable surfaces, natural ground cover, and continuity of wildlife habitat.

Opportunities with Parks and Open Space

Recreation and utilization of wildlife areas is an integral piece of Louisiana's economy and culture. As Jefferson Parish continues to rebuild and develop, the addition of small pocket parks may serve as an added asset to local residents, families, and visitors. Close examination of the west bank demonstrates that the area could be better served by public open space, particularly by the addition of smaller parks within walking distance of local neighborhoods (Jefferson Parish Comprehensive Plan). Smaller "pocket" parks are less expensive to build, and are easier and less costly to maintain than large scale open space. The network of canals and natural waterways also affords the opportunity to use these water features as amenities, and expand on the existing pedestrian and bike trails. The preservation of existing waterways and construction of new wetland areas is yet another opportunity for Jefferson Parish to both enhance the existing natural landscape with passive open space, while at the same time utilizing these water features for functional drainage purposes (i.e. retention ponds). For a more in depth discussion of parks and open space in JP, please see the Environmental Section in Appendix B.

Cultural Heritage

As Jefferson Parish and the greater New Orleans Metropolitan region rebuild after Hurricane Katrina, it is important that new development be relevant to the region's unique cultural heritage. Pressures to rebuild quickly could create anonymous places that are unfamiliar to people as they return home. However, by incorporating distinguishing elements of the cultural context in new development, the parish can preserve and enhance the local landscape and create a familiar sense of place. This section addresses defining elements of the built, cultural and natural environments that could provide context for new development in the Parish.

Historic architectural patterns combine the functional and the fine: raised buildings protect against flooding, double-pitched hipped roofs efficiently shed rainwater, and the *galarie* allows access to summer breezes and contact with street life. The Creole architectural tradition of ground-floor retail with residence above is a prime example of mixed-use design and can serve as model for advancing further mixed-use development in the parish. These architectural traditions can inform new development of compact, elevated, multi-story mixed-use suited to the local environment that create appealing, functional and familiar locales.

The extensive levee system is a crucial part of the regional development, as it has permitted growth beyond the natural boundaries. Nowhere else in the United States do levees and pumping stations play such a prominent role in preserving the built environment. Canals and levees wind through the region, protecting against flood waters and providing trails of open space. Retired pumps have potential to be re-used as points of interest in a park and a way to commemorate the area's unique history and the balance between man and nature.

New Orleans is internationally renowned for its extraordinary culture, and new development in Jefferson Parish can capitalize on the region's cultural mosaic by creating public space for open air concerts, art centers and com-

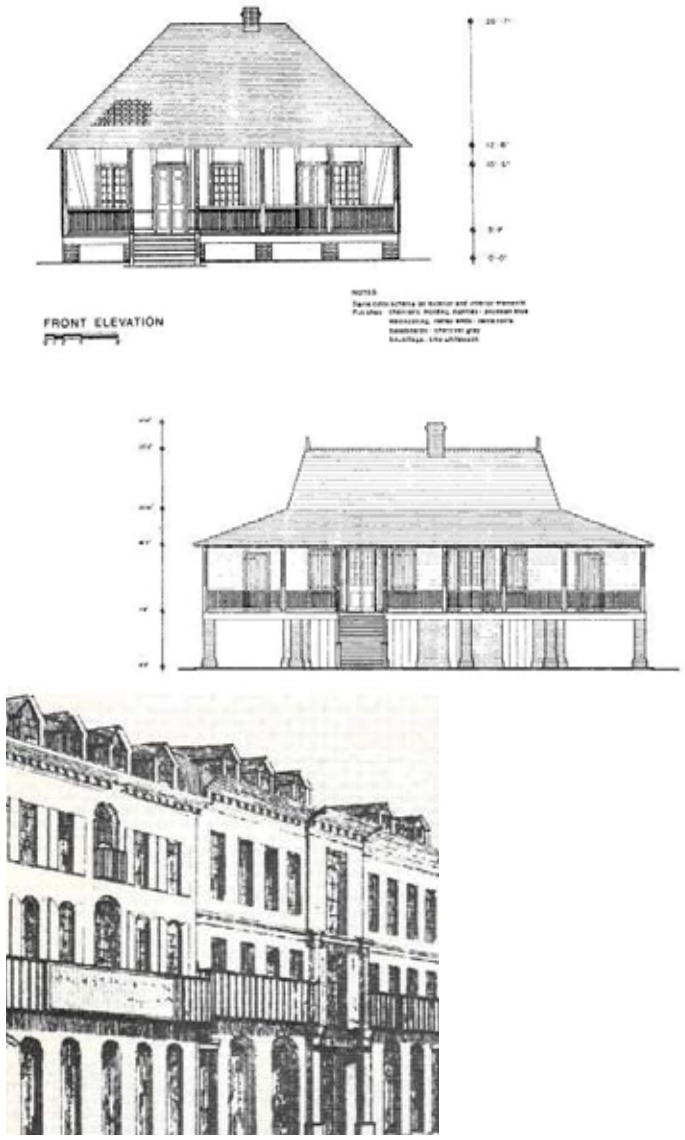

Figure 2.12: Historic Architectural Patterns 1

Figure 2.13: Historic Architectural Patterns 2

munity centers. Local musicians and artists can be commissioned for installations that will bring people together, foster community and create a sense of place. The cultural mosaic can be incorporated in design patterns represented by a physical mosaic at a town center, providing cultural heritage in an otherwise nondescript retail setting.

Jefferson Parish offers numerous recreational activities, including fishing, hunting and boating. Southeastern Louisiana's wealth of bayous, swamps and wetlands are accessible by land, by kayak or by airboat and are a natural source of recreation for visitors and local residents.

Recognizing the importance of these assets to the Parish, new development can support and enhance the rich natural amenities. Creating wildlife and waterfowl preserves for hunting, and improving stream quality for fishing, would support recreational activities while ensuring the natural environment remains viable for future generations.

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Figure 2.14: Community Character

Chapter III
Mixed-Use Design
Concepts and Applications




The purpose of this section is to outline the benefits of mixed-use, to discuss how Jefferson Parish is currently working towards mixed-use, and to provide some specific examples in Jefferson Parish where mixed-use and Smart Growth development concepts can be applied. These examples include conceptual explorations that can lay the foundation for defining and implementing mixed use in Jefferson Parish.

This overview of common mixed-use elements and associated benefits is followed by a series of site design proposals for four West Bank sites: Terry Town, Nine Mile Point and Bridge City Avenue, Leo Kerner Parkway Corridor and Churchill Farms. These sites were selected because of their significant potential for development or redevelopment and/or designation on the Jefferson Parish Future Land Use Map as mixed-use areas or high intensity commercial. Thus, building on Envision Jefferson 2020 and a clearer understanding of existing conditions and key factors, this chapter identifies mixed-use design priniciples, concepts and applications that could be implemented in Jefferson Parish.

Introduction to Mixed Use

> "Communities can be shaped by choice, or they can be shaped by chance. We can keep on accepting the kind of communities we get, or we can start creating the kind of communities we want."
>
> -Richard Moe, National Trust for Historic Preservation

What is Mixed-use?

In a very general sense, mixed-use developments combine several land uses on one site, vertically or horizontally, in a coordinated way. These land uses can include office, retail, hotel, or residential development. This definition of mixed-use may be simple but the outcome can contain any combination of features that will vary greatly from project to project depending on the needs of the community. In a higher density neighbor-

hood, for example, a mixed-use development may contain more pedestrian oriented features that respond to the large concentration of people living nearby. Another possibility is a mixed-use development that emphasizes office space. This can be successful with such conditions as a strong high tech business market and a large white collar employment demographic. There are many issues to consider in designing and building a successful mixed-use development and each one will have its own unique response to the characteristics of its surrounding community.

More specifically, in relation to Jefferson Parish, mixed-use can be viewed as a development technique that can incorporate Smart Growth principles in response to the objectives laid out in "Envision 2020" in a post Hurricane Katrina environment. As the comprehensive plan for unincorporated Jefferson Parish, Envision 2020 sets the guidelines for development that will affect the way the Parish grows and takes shape. The implementation of this plan will establish a foundation for vibrant, economically vital and well-connected communities, attracting people to live, work and play in the Parish for generations to come. To define how mixed-use can help Jefferson Parish achieve these goals, it is important to have a good understanding of the nine overarching principles of Smart Growth. These principles, listed below, are outlined in more detail in the Smart Growth Appendix.

- Utilize Compact Building Design.
- Ensure a Diversity of Housing Types and Opportunities.
- Create and encourage Walkable Neighborhoods.
- Establish Distinctive Communities with a Strong Sense of Place.
- Develop recreation and natural Open Space.
- Focus Redevelopment in Existing Communities.
- Provide a Variety of Transportation Choices.
- Ensure Predictable, Fair and Cost Effective Planning Practices.
- Provide an environment for Community and Stakeholder Collaboration.

Benefits of Mixed-Use

Described in this section is an overview of some of the economic, social and environmental benefits that Jefferson Parish could realize with sensible mixed-use develop-

ment. This section also includes resources for further information on these benefits.

Economic benefits

Beyond the aesthetic quality of many mixed-use developments, jurisdictions can realize many fiscal benefits:

- Reduced development costs
- Reduced public service costs
- Reduced transportation costs
- Economies of agglomeration
- More efficient transportation infrastructure

Social benefits

Jefferson Parish is seeking to continually create a more livable community. Mixed-use can bring many social benefits that contribute to livability for all segments of the population:

- Improved transport options and mobility, particularly for non-drivers
- Improved housing options
- Community cohesion
- Preserves unique cultural resources
- Increased physical exercise and health

Environmental benefits

The open space, hunting and fishing spots, and landscape are incredible assets for Jefferson Parish. Mixed-use, through its environmental benefits, can help preserve these amenities for the coming generations:

- Greenspace and habitat preservation
- Reduced air pollution
- Increased energy efficiency

- Reduced water pollution
- Reduced "heat island" effect

While these are general benefits for mixed-use projects across the country, in this report we will focus on those, particularly economic and social, that are particularly relevant to the West Bank of Jefferson Parish.

First we need to understand what makes suburban locations attractive and how that can be taken into consideration in designing mixed-use that works for Jefferson Parish. Primarily, people find suburbs more attractive than urban areas because they include more greenspace, more parking, newer housing, lower crime rates, more community cohesion and identity, traditional lifestyles and more prestige. These preferences can be included in the design of mixed-use, creating in many ways the best of all worlds.

Sources

- http://www.sgli.org/SGisSBfinal.pdf (Smart Growth is Smart Business report)
- http://www.vtpi.org/sgcritics.pdf (Victoria Institute report)
- http://www.jeffparish.net/envision/DraftCompPlan.htm (Jefferson Parish Comprehensive plan)

Current Mixed-Use Designations in Jefferson Parish

As part of the greater New Orleans Region's efforts to implement smart growth principles, Jefferson Parish has included three future land use designation in Envision 2020 plan to speak to mixed-use development. Thousands of acres on the West Bank are designated as mixed-use on the Future Land Use Map (FLUM). Below are the three categories and their associated definitions and parameters as provided in Envision 2020.

Neighborhood Mixed-Use (NMU)

The neighborhood mixed-use land use category designates compact, mixed-use development where single-family structures and multi-family residential development are developed with a mixture of smaller, low-intensity retail and professional offices within walking distance and with convenient access to transit. The neighborhood mixed-use category will accommodate a land use mix containing a maximum ninety-five (95) percent residential mix with transit stops, commercial, public, recreational, and office uses. The maximum permitted residential density is twelve (12) dwelling units per acre.

Community Mixed-Use (CMU)

The community mixed-use land use category designates medium density office, commercial, residential, and recreation lands, and mixed-use centers. The community mixed-use category will accommodate a land use mix containing a maximum eighty-five (85) percent residential mix with transit stops and stations, commercial, public, recreational, and office uses. The maximum permitted residential density is twenty (20) dwelling units per acre.

Regional Mixed-Use (RMU)

The regional mixed-use land use category designates high density developed with a core of professional offices, hotels, public uses, recreational uses, and retail services. The focus of this category is on offices and retail services that will attract residents from the region. The regional mixed-use category will accommodate a land use mix containing a maximum forty-five (45) percent residential mix with transit stations, public uses, recreation, commercial and office uses. The maximum permitted residential density is sixty-five (65) dwelling units per acre.

Existing Tools to Promote Mixed-use

Local land use plans are implemented through a host of laws, strategies, projects and individual decisions that in composite, define the physical and economic geography of a parish or municipality. In some cases older, outdated regulations may impede new forms of development that are desired. Additionally certain laws, when improper or inadequate policy analysis does not occur prior to enactment, may result in consequences that differ from the initial intentions.

Recently, the parish has continued to make revisions to these land use regulations. Specifically, the parish is currently drafting an entirely new subdivision code to reflect goals and policies articulated in the Envision 2020 plan. The narrative below identifies potential gaps that should be filled to help achieve the goals set out in the Vision 2020 plan.

Subdivision Code

The existing subdivision code defines a two-step platting process. A preliminary process is defined wherein the approval of a preliminary plat provides an opportunity to the parish to determine the nature of improvements, the layout of the plat and what conditions will be meet in order for final approval. A final plat approval is given once the conditions have been met and the work is in substantial conformance with the preliminary plat as approved. Final plat is a prerequisite for selling off individual lots in the plat. According to Jefferson Parish staff, current practice has consolidated these two processes (1/11/06 meeting with Jefferson Parish Planning Department staff).

In Jefferson Parish, subdivision improvements include drainage, street paving, utilities and fencing off canals. Currently there is very little guidance to instruct potential developers to include, voluntarily or otherwise, site improvements that speak to the aforementioned principles. There are no provisions that require dedication, or fees in lieu, of parks, open space, or school sites. Likewise, there are no landscaping requirements for public right-of-way that would be dedicated to the parish.

Zoning Code

In addition to identifying land uses that can be located in particular districts or zones, the zoning code for Jefferson Parish identifies the minimum lot size within each zone. It also provides for minimum parking requirements and in mixed-use corridor districts, landscape buffers. Except in mixed-use zones, there is no requirement for landscaping on lot setbacks . In the existing Mixed-use Corridor District, the mixture of residential uses with commercial uses in a single building are limited by the requirment that the residential uses comprise only 50% of the floor area space of the building. Developers have indicated that these types of requirements have made true mixed-use development in the Mixed-use Corridor Districts extremely challenging (Interview with members of Planning Advisory Board, 1/11/06).

Exploring Mixed-Use Applications in the West Bank

Four sites were selected to explore the application of mixed-use concepts in the West Bank, and based on these concepts, offer reccomendations for modifying or expanding the exisiting tools for promoting mixed-use in the Parish. These sites were identified because of their significant potential for development or redevelopment and/or their designation on the Jefferson Parish Future Land Use Map as community mixed-use, neighborhood mixed-use, regional mixed-use, mixed-use corridor or high intensity commercial. The sites present a range of opportunities from redevelopment of exisitng neighborhoods to greenfield development on the urban fringe. The four sites are:

- Terry Town
- Nine Mile Point and Bridge City Avenue
- Leo Kerner Parkway Corridor
- Churchill Farms

In the analysis of each of these sites, we provide a brief description of existing conditions and explore potential development scenarios. The development scenarios draw upon the opportunities presented at each site, and examples provided by the case studies outlined in Appendix F. These scenarios will illustrate different applications of mixed-use and smart growth principles, taking into consideration the key factors identified earlier in this report. The objective of the site studies and development scenarios is to draw out potential strategies, regulatory changes and economic incentives that could be implemented by Jefferson Parish to achieve stated goals related to mixed-use. These implementation mechanisims, both regulatroy and incentive based, are presented and discussed in detail in the implementation chapter.


Nine Mile Point
Terrytown
Churchill Farms
Leo Kerner Parkway

Map 3.1: Terrytown Context Map

Terrytown

Location

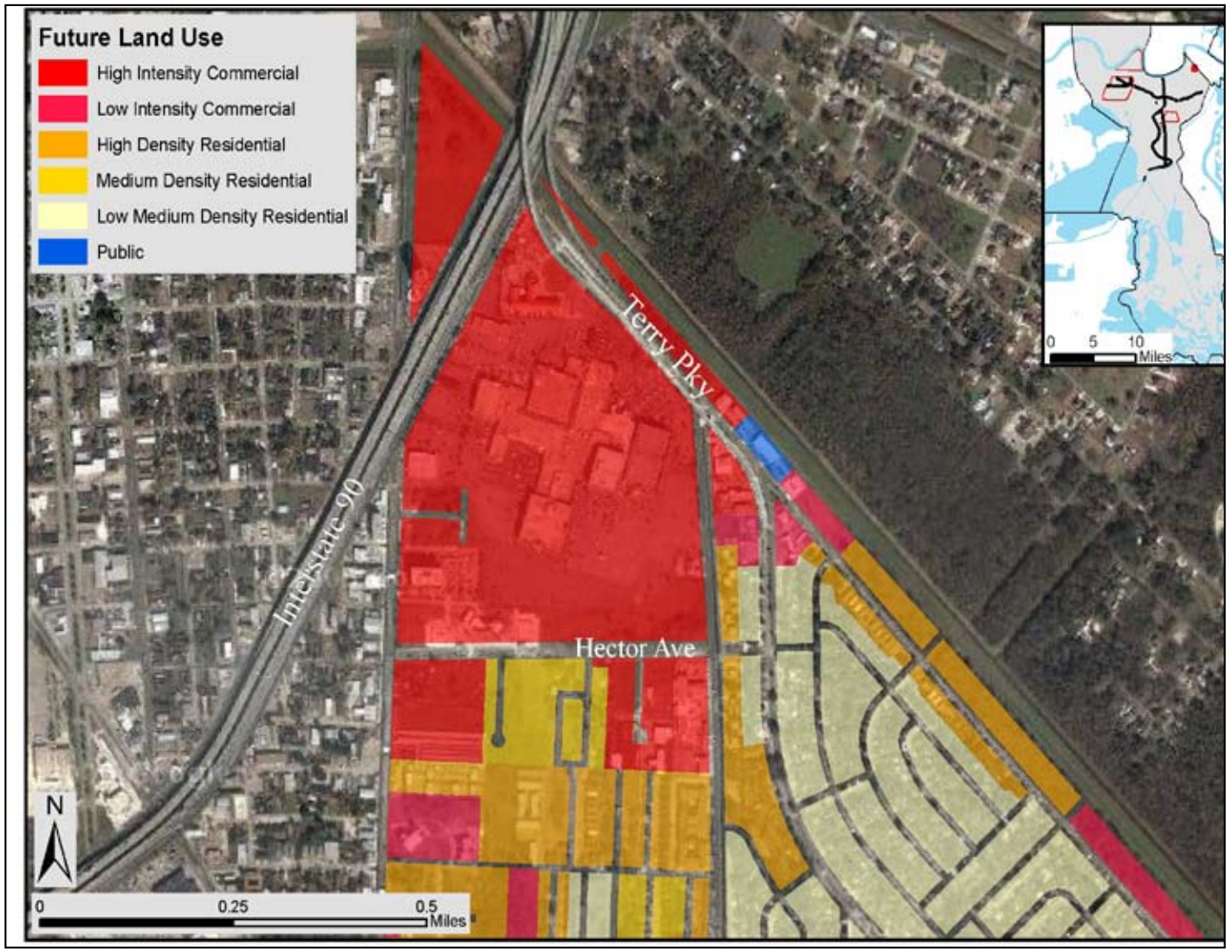
This area is located at the site of the existing Oakwood Mall shopping center, at the intersection of the West Bank Expressway and Terry Parkway.

Existing Conditions

- Major thoroughfares include the West Bank Expressway, Terry Parkway and the Greater New Orleans Bridge.
- Proximity to Gretna Terminal park and ride
- Elevation ranges from 6 feet below sea level to 7 feet above sea level.
- Existing zoning is MUCD, H1 and C2.
- FLUM designates site as high intensity commercial and medium density single family residential.
- High intensity commercial land use is located at the intersection of the West Bank Expressway and Terry Parkway, the site of Oakwood Mall.
- Single family residential located south and southwest of the Mall.

CENSUS 2000 STATISTICS FOR TERRYTOWN	
Total Population	25,397
White	56% (14, 216)
Black	35% (8,813)
Asian	3.5% (885)
American Indian	.01% (130)
Median age	32 years old
Total Housing Units	9, 656
Occupancy Status	97% occupied; 3% vacant
Owner occupied	53% owned; 47% rented
Income	
Median household income	$36,897
Individuals below poverty level	16% (#?)
Working population	74% (18,822)

Table 3.2: Terrytown Census Statistics



Map 3.3: Terrytown Future Land Use

Opportunities

The Terrytown site was selected as an example for potential mixed use development featuring regional retail and office space. The area needs to be redeveloped as a result of significant vandalism in the aftermath of Hurricane Katrina, and the existing site can be redeveloped to include a mixed use destination.

The Terrytown site is zoned for high intensity commercial use on the Future Land Use Map (FLUM), but is suitable for mixed use as the current zoning contains commercial and residential land uses that can be a good foundation for introducing mixed use concepts. The residential concentration surrounding the site suggests suitable density to support a mixed use development.

Some direct comparisons can be drawn to the Redmond Town Center case study. Both are regional retail centers in a suburban environment with easy access to the downtown urban core. Redmond Town Center is a mixed use development of 120 acres with a mix of retail, office, and hotel properties, which is similar to the designation of Regional Mixed Use on the Jefferson Parish FLUM.

- .Proximity to the Greater New Orleans Bridge provides easy access to downtown New Orleans and East Bank Jefferson Parish. Proximity to the West Bank Expressway and Terry Parkway allows easy access to West Bank Jefferson Parish
- Possible view sheds of downtown New Orleans and Mississippi River
- Land ripe for redevelopment after vandals severely damaged existing shopping center
- Large site with high potential for infill development

Map 3.4: Terrytown Alternative A

Alternative A: Vertical Mixed-Use Featuring a Walkable Town Center

Alternative A envisions a 3 story mixed use regional retail center with office space on the second and third stories. The Southern side of the site features medium-density residential with retail on first floor, and medium-density single land use residential. Parking would be provided in above-ground garages located behind the retail buildings, thereby maximizing the street-level retail while also meeting the parking needs. Three story building mass would provide hazard protection by way of vertical evacuation opportunities and storage sites for passive survivability.

This alternative emphasizes walkable open space with multiple retail centers and gathering spaces for shoppers, workers, residents, families and visitors. These open space centers would contain landscaping and architectural features that create a sense of place for shoppers, such as fountains, patios and native plant landscape boxes.

Alternative A offers a diversity of housing opportunities, including low-rise condominiums, apartments and townhouses. The abundant single-family residential adjacent to the site would not be affected by the redevelopment, but would benefit from the proximity of a well-planned retail destination.

The retail, office and residential development envisioned for this site would occupy the same land mass currently occupied only by a large shopping area. By creating more compact buildings and pedestrian-level open space, this site would maximize land use efficiency, minimize negative environmental impact and provide a greater diversity of retail, residential and office opportunities to West Bank residents.

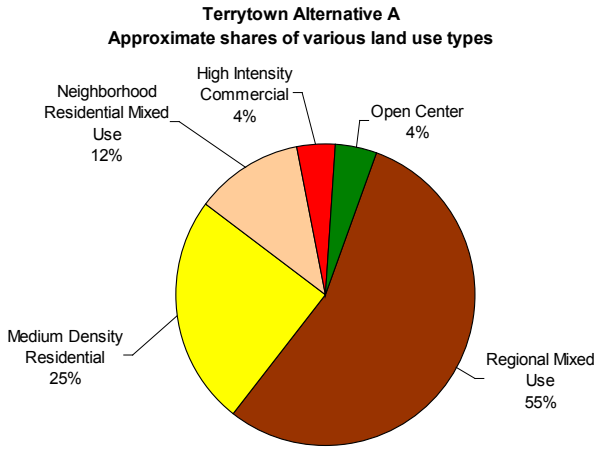


Figure 3.5: Terrytown Alternative A Shares of Land Use

Figure 3.6: Terrytown Alternative A

Map 3.7: TerrytownAlternative B

Alternative B: Horizontal Mixed Use Retail Center

Alternative B envisions a 2-3 story regional retail center surrounded by office buildings. In this alternative the land use is mixed horizontally rather than vertically, meaning the office and retail uses exist side by side, rather than stacked vertically. Parking would be provided in above-ground garages located behind the retail buildings, thereby maximizing the street-level retail while also meeting the parking needs. Three story building mass would provide hazard protection by way of vertical evacuation opportunities and storage sites for passive survivability.

Medium-density residential would be featured on the Southern side of the retail and office development. This alternative does not highlight open centers, although due to the small nature of the site it is presumed that it would still be considered "walkable."

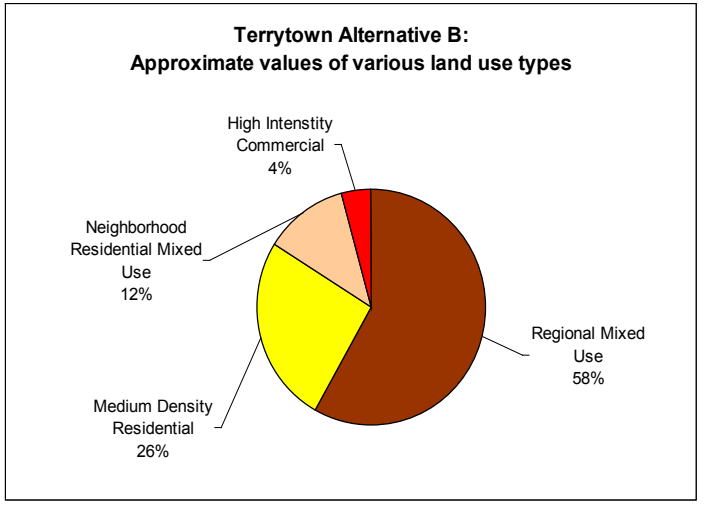


Figure 3.8 Terrytown Alternative B Values of Land Use Types

Consideration of Key Factors

- Maximize transportation options by taking advantage of existing arterials and Gretna Terminal park and ride.
- Provide opportunity for vertical evacuation
- Environmentally-friendly compact design and open space

Map 3.9: Nine Mile Point Context Map

Nine Mile Point/Bridge City Avenue

Location

This Nine Mile Point site is located on the West Bank side of the Huey P. Long Bridge. The site encompasses both sides of the bridge, extending east past Nine Mile Point and south to the West Bank Expressway.

Existing Conditions

- Major thoroughfares include Huey P. Long Bridge (SR90) and Bridge City Avenue
- Elevation is 10-30 feet above sea level
- Zoning primarily single family residential, light industrial with and heavy some medium density residential and high intensity commercial. Single family residential zoning is designated between Bridge City Avenue and the Huey P. Long Bridge, as well as immediately to east along the bridge.
- There is a significant amount of undeveloped land in between the residential zone and the light industrial zone on the eastern half of the site.
- Future land uses designate primarily high and light intensity industrial, light and medium density residential, technology business park with some high intensity commercial, parks and public facilities. Industrial uses are intended for along the river south of Bridge City Avenue and east of Nine Mile Point.
- Adjacent to the Mississippi River
- On relatively higher ground than most areas on the East and West Banks
- Easy access to East Bank and New Orleans via the Huey P. Long Bridge

CENSUS 2000 STATISTICS FOR NINE MILE POINT	
Total Population	8,323
White	45%
Black	48%
Other	8%
Median age	29.5 years old
Total Housing Units	3,067
Occupancy Status	8% vacant
Owner occupied	60% owned; 32% rented
Income	
Median Household	$23,002
Individuals below poverty level	32%

Table 3.10: Nine Mile Point Census Statistics

Census Data

Comparing this census data to the rest of the US indicates that this area's population is younger, less affluent, less educated and more impoverished. The population does however, have relatively the same level of homeownership as compared to the rest of the country.

- Sweeping views of downtown New Orleans
- Significant quantity of undeveloped land
- Avondale Shipyards, a significant Parish employer is located just south of the area

Opportunities

This site was selected for mixed use development for several reasons. Impressions from the site visit, as well as zoning and Future Land Use Map (FLUM) designations indicate that the river front in Jefferson Parish is typically reserved for industrial uses. The river front, however, can be an amenity, with access to trails and views of the river and downtown. If done effectively, a mixed use development can satisfy the needs of the existing industrial uses, while creating a local and regional destination consisting of quality residential, retail and employment centers. Such a development takes advantage of the site's close proximity to the underutilized Mississippi riverfront and can provide economic benefits for both the community and the parish.

Additionally, with the expansion of the Huey P. Long Bridge, this site provides an ideal location for a transit park and ride structure or West Bank transit center. This structure should have a duel use as a safe house in the event of a natural disaster. The parking structure should be designed to withstand hurricane force winds so as to protect rescue workers and evacuees.

While Nine Mile Point is not currently designated for mixed use development on the FLUM, there are a number of reasons why the development of this site should be encouraged. First, the existing juxtaposition of different land uses in close proximity to each other on the site provides a good foundation to introduce mixed use concepts. The FLUM describes the site as having balance of single family residential, commercial and industrial uses. Secondly, there is a large quantity of undeveloped land on the site. Third, the expansion of the Huey P. Long Bridge provides easy access to the East Bank and New Orleans and creates the opportunity for further development and growth on the West Bank with Nine Mile Point as the gateway. Fourth, the elevation of the site is above sea level and relatively higher than the rest of the parish. The decreased risk of future flooding makes this site a logical location to encourage development.

Some direct comparisons can be drawn to the West River Commons case study located along the Mississippi River in Minneapolis, Minnesota. Both are located along the river at a major thoroughfare crossing. Additionally, West River Commons is a mixed use development with a scale that would be appropriate for a pedestrian retail environment along Bridge City Avenue.

Map 3.11: Nine Mile Point/Bridge Avenue Future Land Use

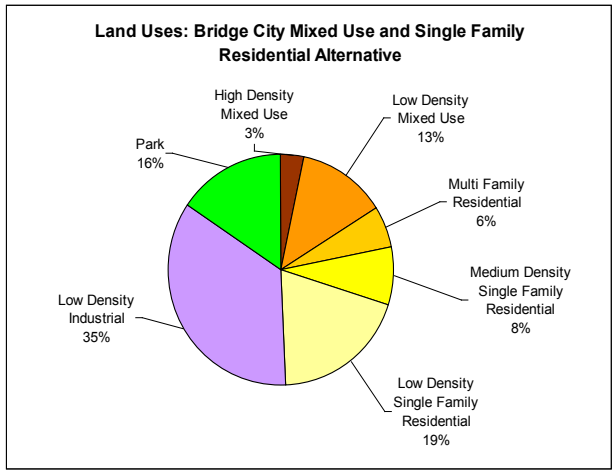


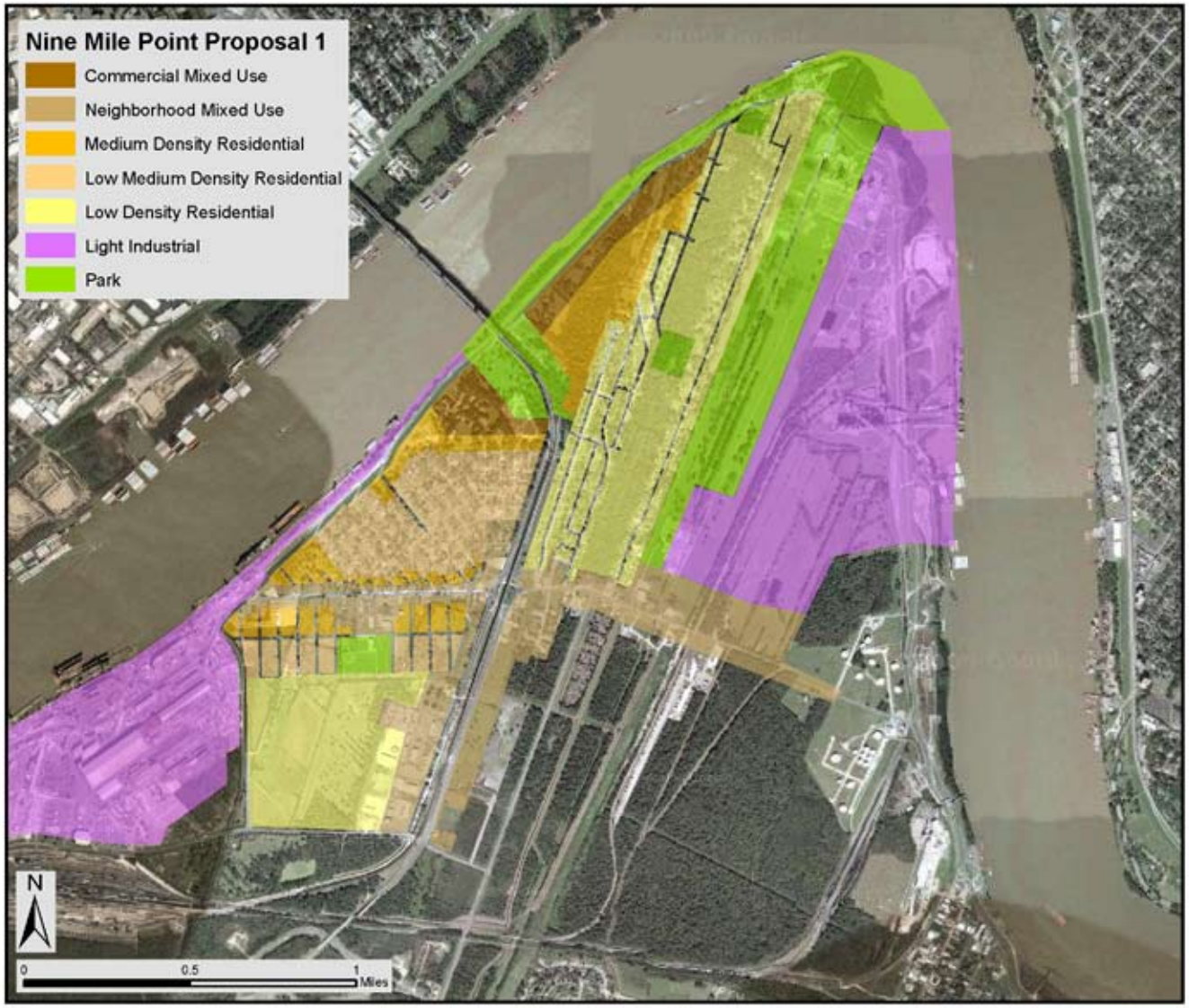
Figure 3.12: Bridge City Mixed Use and Single-Family Residential Alternative

Alternative A: Bridge City Mixed Use and Residential Emphasis

The anchor of this alternative is a 2-3 story mixed use and pedestrian oriented street along Bridge City Avenue. Bridge City Avenue runs east/west and is located just to the west of US 90. The scale of buildings along this street is relatively small and the buildings themselves are compact creating a walkable environment. Street furniture, plantings, wide sidewalks and colored pavers should be used to create an inviting streetscape. The ground floors of the buildings that line Bridge City Ave. house retail and residential uses that open out onto the street.

This mixed use corridor is framed by multi family townhouses and apartments and medium density single family homes, providing a variety of housing types. The existing park on the south side of Bridge City Avenue provides open space in a bustling retail and residential area. Integrating the park with the Bridge City Avenue will create a vibrant place for residents, families, visitors and workers to gather.

The areas along the water to the east and west of the bridge are ideal locations for 3-5 story mixed use buildings that support ground level retail and service based office space. The non-residential uses on the ground floor minimize the residential damage in the event of flooding. Buildings in this area should be designed to facilitate ground floor interaction with the street. Additional office space and condominiums are available on the upper floors. These upper floors take advantage of the sweeping views of the river and downtown New Orleans. Additionally, the upper levels could function as places of refuge or satellite offices for emergency services during a hurricane or flooding event. The higher intensity mixed use areas are framed to the south and east by multi family residential townhouses and apartment buildings. Low density single family homes are located further to the east of these areas.



Map 3.13: Nine Mile Point Alternative A

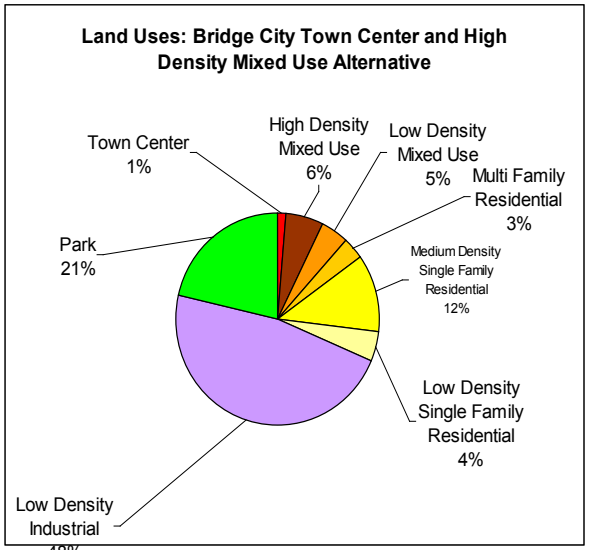


Figure 3.14: Land Uses: Bridge City Town Center and High Density Mixed Use Alternative

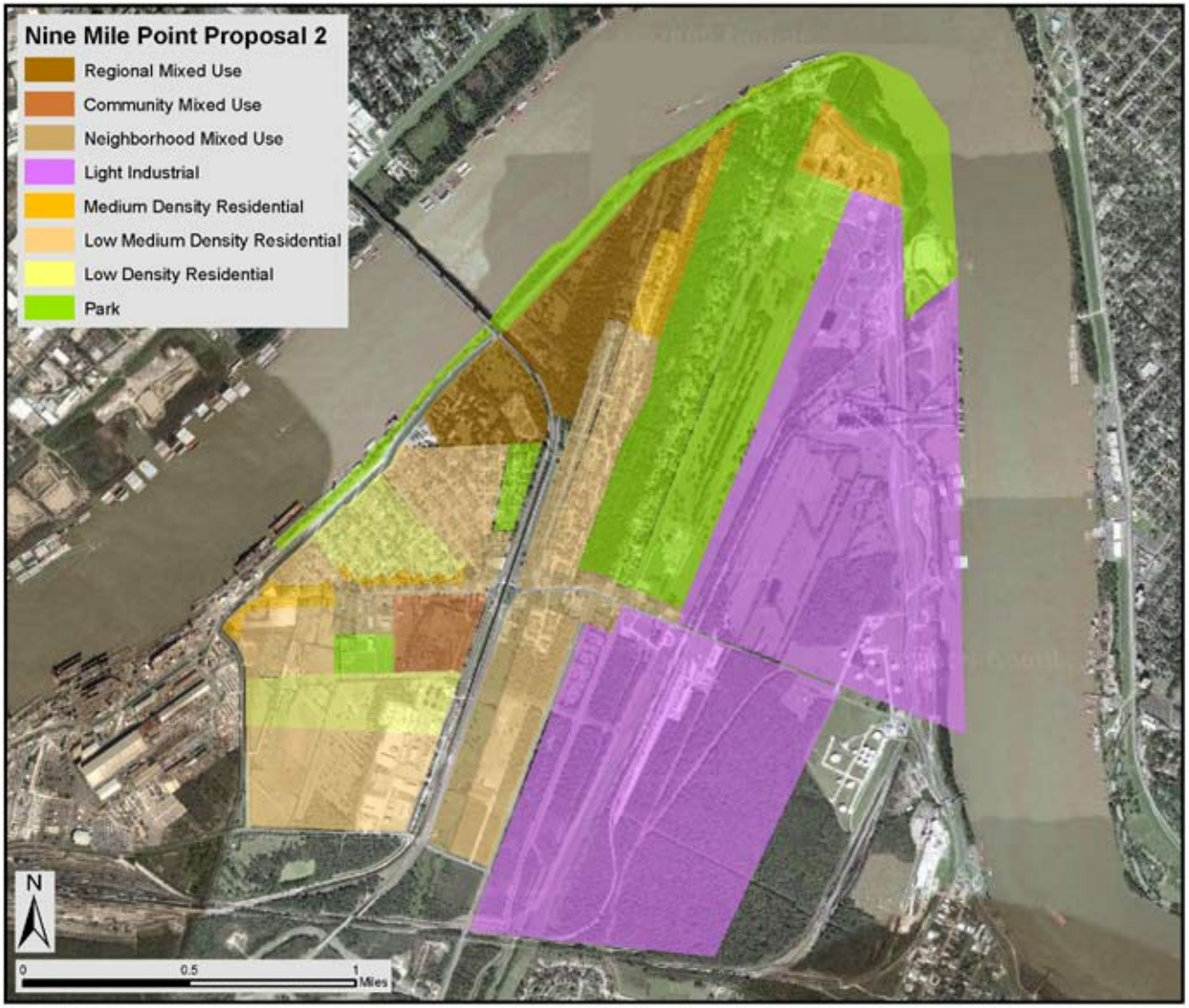
Parks and passive open space provide a buffer between the residential areas, the bridge, and the existing industrial uses. This green space should be designed in such a way as to link inland uses with the waterfront via trails and planned parks. However, much of this open space is intended to be passive, not requiring maintenance or supporting extensive activity.

Existing industrial employment centers along the river are to be preserved. This industry is located southwest of Bridge City Avenue and on the east side of Nine Mile Point. This area is also an appropriate location for warehouses and other light industrial uses.

Alternative B: Town Center and Cluster Development

The second alternative adds a town center element to the Bridge City mixed use corridor. The Bridge City Town Center is an extension of the mixed use corridor on Bridge City Avenue and remains at 2-3 stories to maintain a pedestrian friendly, walkable environment. The Redmond Town Center in suburban Seattle provides a good example of the town center model intended for this area. Bridge City Town Center is an open air style shopping center that supports a variety of retail, which opens out on to the street. This design style includes plenty of pedestrian and public space that can be enhanced with plantings, street furniture, and public art. Also, the adjacent park is integrated with the town center, providing an attractive contrast in active green space. The town center's location on Bridge City Avenue, viewable from US90, functions as a gateway to Bridge City. This particular location for the town center is additionally beneficial, as the development can capture dramatic views of the bridge and provide an attraction for passers by.

In addition to Bridge City Town Center, alternative B also represents a more compact building design and higher density development, especially along the river on both sides of the bridge. Compact buildings leave more room for open space and promote walkable communities. The 7-10 story buildings capture views of the bridge, nearby green space, the Mississippi river, and downtown New Orleans. Multi story buildings could also serve as places of refuge during an emergency. These higher density areas embrace the cluster development concept, concentrating building density and height



Map 3.15: Alternative B

in specific areas. This alternative represents a long term vision for Bridge City with a stronger emphasis on density and office space, especially for the areas of high intensity mixed use. With the appropriate zoning, these high intensity mixed use areas can grow into regional employment center, with a mix of retail and hotels. Furthermore, the proximity to the Huey P. Long Bridge and other major road networks and existing elevations (above sea level) merits emergency services to consider the site as a possible satellite office.

Additionally, concentrating development in a smaller area reserves more available land for open space. Most of the area designated to be open space in this alternative is currently undeveloped and should remain as passive open space, providing natural habitat and preserving land, while keeping park maintenance costs at a minimum. This open space also provides an effective buffer between residential and industrial zones as well as maintains views and natural areas for nearby residential and mixed use areas. However, some of this undeveloped land provides an ideal opportunity for a destination park along the Mississippi river with vegetated trails connecting to the river front and soccer and baseball fields.

Table 3.16 Comparison of Conceptual Site Alterna tives

	Existing Conditions	Alt. A	Alt. B
Acres	2,700	2,700	2,700
Population	8,323	12,200	21,600
Employment	3,000	4,400	10,000
Housing Units	3,067	4,500	8,000
Retail Space (sf)	30,000	100,000	400,000
Office Space (sf)	150,000	500,000	1,500,000
Green Space (acres)	10	300	600

Key Factors

- Compact building design encourages walkable communities and preserves open space
- Site plan provides multiple housing types and encourages mixed income communities

- Logical location for an additional West Bank transit center with duel purpose as a safe house in the event of a natural disaster.
- Takes advantage of the Mississippi River as a natural amenity and an important component of Louisiana's cultural heritage.

Map 3.17 Leo Kerner Parkway Context Map

Leo Kerner Parkway Site

Location

This area is located between Leo Kerner Parkway and Peters Road in the southern part of the Jefferson Parish West Bank.

Opportunities

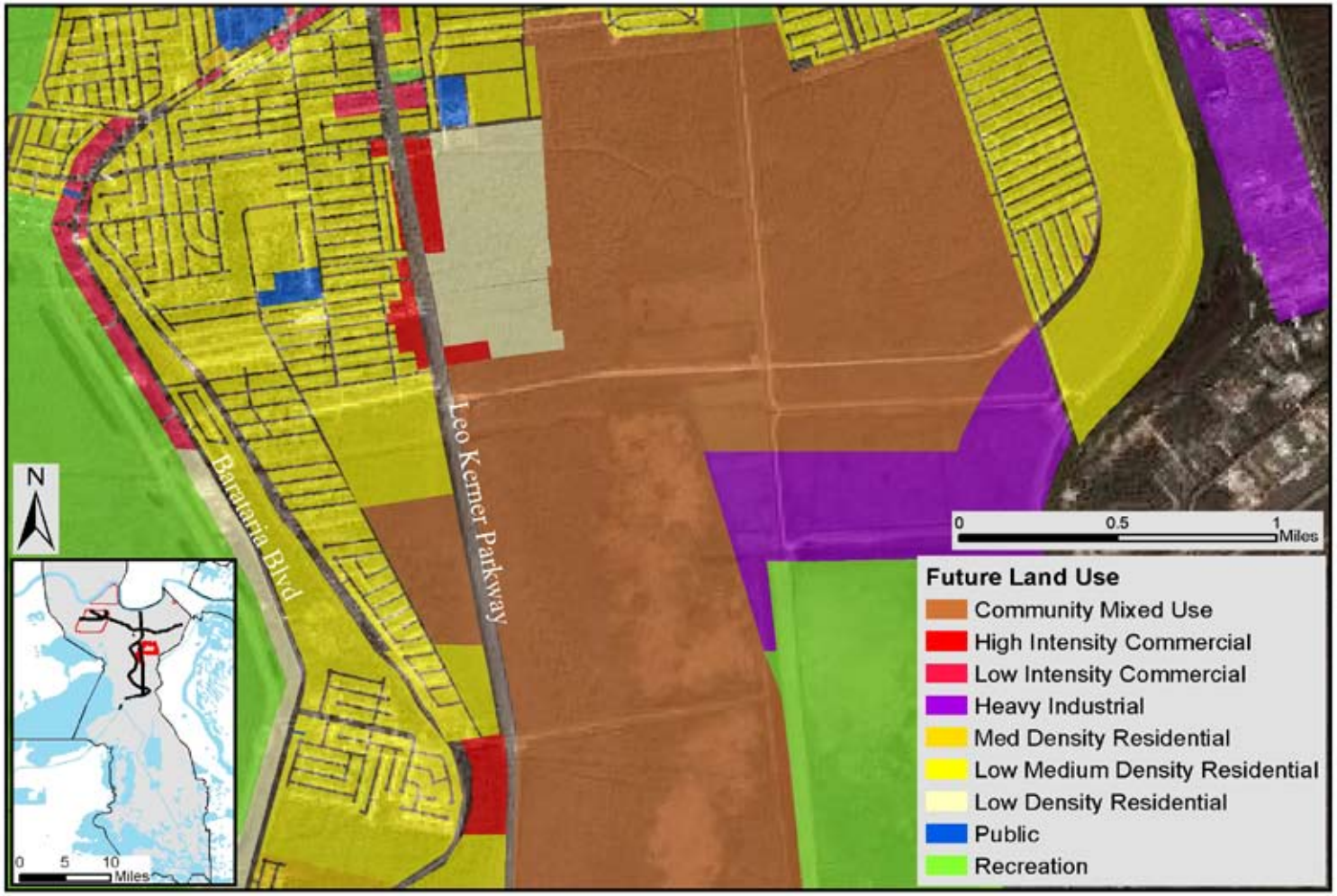
- Significant quantity of undeveloped land
- Site surrounded by single family houses on the north, east and west
- Proximity to commercial area on Lapalco Blvd.

The Leo Kerner Parkway site was chosen because of its designation as Community Mixed-Use (CMU) on the Parish's FLUM. The surrounding single family neighborhoods are isolatedby vacant lands to the east and west. Due to their relative isolation these neighborhoods present an opportunity to create a mixed-use commercial area within the large site area.

The Haile Plantation outside of Gainesville, Florida provides a good example of the type and scale of development appropriate for the LPK site. Haile Plantation is a successful mixed use, planned community with a town center. See Appendix F for more details.

Existing Conditions

- Good transportation access via Leo Kerner Parkway
- Site lies within the hurricane-protected area
- Light vegetation and no current development on the site
- Site bisected by several drainage canals



Map 3.18: Leo Kerner Parkway Future Land Use

Alternative A: Jefferson Village

Alternative A is a mixed-use development unlike any other in Jefferson Parish. This large site is ideal for showing JP the possibilities of a new suburban lifestyle. This lifestyle is one of a walkable mixed-use community that features a range of housing types, densities, uses, open-spaces, and transportation options.

The site includes two pedestrian-oriented neighborhood commercial areas which include residential. In the smaller neighborhood commercial area, uses could include a small grocery store, coffee shop, video store and apartments and/or townhouses. In the larger mixed-use area, uses might include a large supermarket, restaurants, clothing stores and other services, small service-based offices, and apartments/townhouses.

In addition to providing for new retail mixes, this alternative includes a mix of densities of housing types—ranging from moderate density single family in the outlying areas which gradually densifies toward the commercial centers to include some single family attached and multifamily residential. Jefferson Village includes cluster development patterns designed to meet housing density goals with single family units, while also providing for significant open space. Cluster development helps facilitate development, while maintaining the natural character of the area and creating a lower-density feel.

This alternative has been designed with transportation and access issues in mind. The density of the development is such that in addition to a new street network, public transportation options will also be possible. Other transportation modes will be served by canal greenways which provide pedestrian and bicycle paths.

A key component of Jefferson Village is its open space provisions. The largest areas of open space are included in the center of the development, at the convergence of the two existing canals, greenspaces along the existing canals, and pocket parks located throughout the development. These open spaces will provide residents with a range of options, including recreation and natural spaces. The open spaces will be designed to be both aesethically pleasing and functional. For example, detention ponds will help prevent flooding and overflowing of canals and septic systems during heavy rains.

Map 3.19: Alternative A: Jefferson Village

Alternative B: Town Center and Cluster Development

Alternative B, or Jefferson Cove, is a development that incorporates walkable mixed-use, while maintaining the single family nature of JP. This alternative represents an approach incorporating some smart growth principles and mixed-use into a single-family neighborhood.

Jefferson Cove includes neighborhood commercial designed to serve its residents and some from the surrounding areas. This small mixed-use pedestrian-oriented commercial district would include services such as a grocery store, coffee shop, dry cleaner and some townhouses. This area will not directly compete with the larger services and retail on Lapalco Blvd.

The housing mix, primarily single family detached with some single family attached (townhouses) in the neighborhood center, will be denser than surrounding Jefferson Parish developments, but feel more spacious due to its cluster form.

In this alternative, some public transportation will be possible and the neighborhood will be connected by a network of roads, sidewalks, bicycle lanes and recreational paths. The network of smaller parks and greenways along the canals will also utilize this transportation system.

Table 3.20: Comparisons of Leo Kerner Parkway Design Alternatives

	Alternative A	Alternative B
Acres	1,900	1,900
Population	23,000	16,000
Employment	300	100
Housing Units	9,500	6,650
Average Housing Units/ Acre	5	3.5
Retail Space (sf)	55,000	30,000
Office Space (sf)	10,000	0

Map 3.21: Alternative B: Town Center and Cluster Development

Churchill Farms North

Location

Churchill Farms North is located northwest of the Lapalco Blvd. and Nicole Blvd. intersection, south of US 90. Generally the site is undeveloped.

Opportunities

- Proposed Interstate 49 to service the area
- Proximity to US 90 via Lapalco Blvd.
- Largest contiguous undeveloped area (4,000+ acres) within levee system
- Proximity to Tournament Players Club golf course
- Access to Bayou Segnette State Park
- Proximity to Alario Center and Bayou Segnette Sports Complex
- Adjacent to Churchill Technology and Business Park

The Churchill Farms North was selected as a mixed-use development site for several reasons. The FLUM designates nearly the entire site as Community Mixed-Use (CMU) area. This designation continues southward to land owned by Joseph Marcello. Combined, this area makes up the largest contiguous undeveloped area within the Hurricane Protection Levee System. The northwest corner of the area is zoned General Commercial (C2) reinforcing its natural suitability for retail and commercial uses that are regional in nature; this corner will abut the proposed Interstate 49 route. The remainder of the site and neighboring undeveloped lands are designated "Unrestricted" indicating a need to rezone the property once specific proposals are developed that will comply with the comprehensive plan and existing topographical constraints.

Map 3.22: Churchill Farms Context Map

The imminent construction of Churchill Technology and Business Park south of the site further complements the site's ability to successfully provide a mixture of uses. The technology park is expected to accommodate office buildings, a hotel and conference center, and a public science magnet school.

The Tournament Players Club golf course is a regional attraction proximate to the site. Additionally, upon the completion of Interstate 49 the site will function as an attractive regional retail center. Furthermore, the area is largely undeveloped, facilitating the arrival of support services for future regional retail and office centers.

The Alario Center also offers appeal to development on the Churchill Farms North site. The sports complex hosts large scale musical, sporting, and other family events. The exposure the area is receiving is indicative of its suitability for mixed-use development.

KB Homes is expected to build up to 10,000 homes on properties owned by Joseph Marcello. The property for this development is over 3,700 acres and designated Community Mixed Use. The development's first phase is proposed for the property directly north of Nicole Boulevard and will contain several hundred homes of varying lot sizes. A small "town center" is also proposed.

The various proposed, planned and existing developments in the region appear to surround a large donut hole-shaped area of over 600 acres on which, before this report, no overall development concepts have been developed. Because of its location, these lands north of the Marcello property offer a strong adjacency to existing development and transportation corridors. Additionally, development to the north of the Technology Park and the proposed KB Homes development may provide a higher level of integration of those developments with the existing urban fabric and facilitate synergy between the various mixes and intensities of uses.

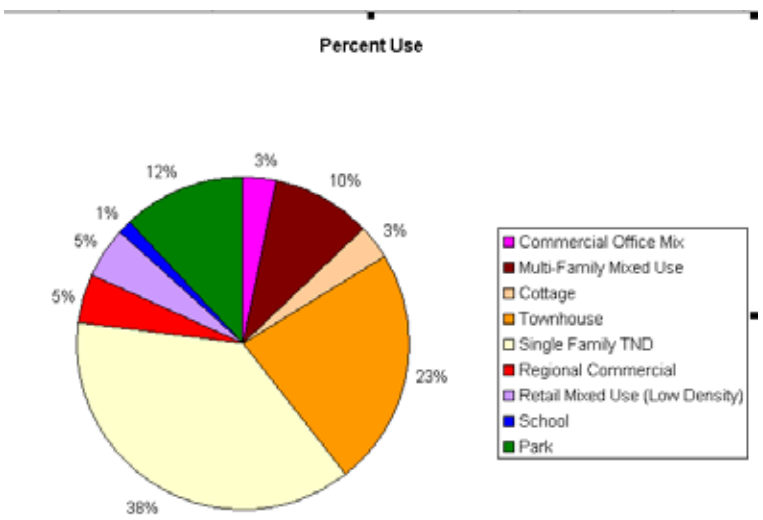
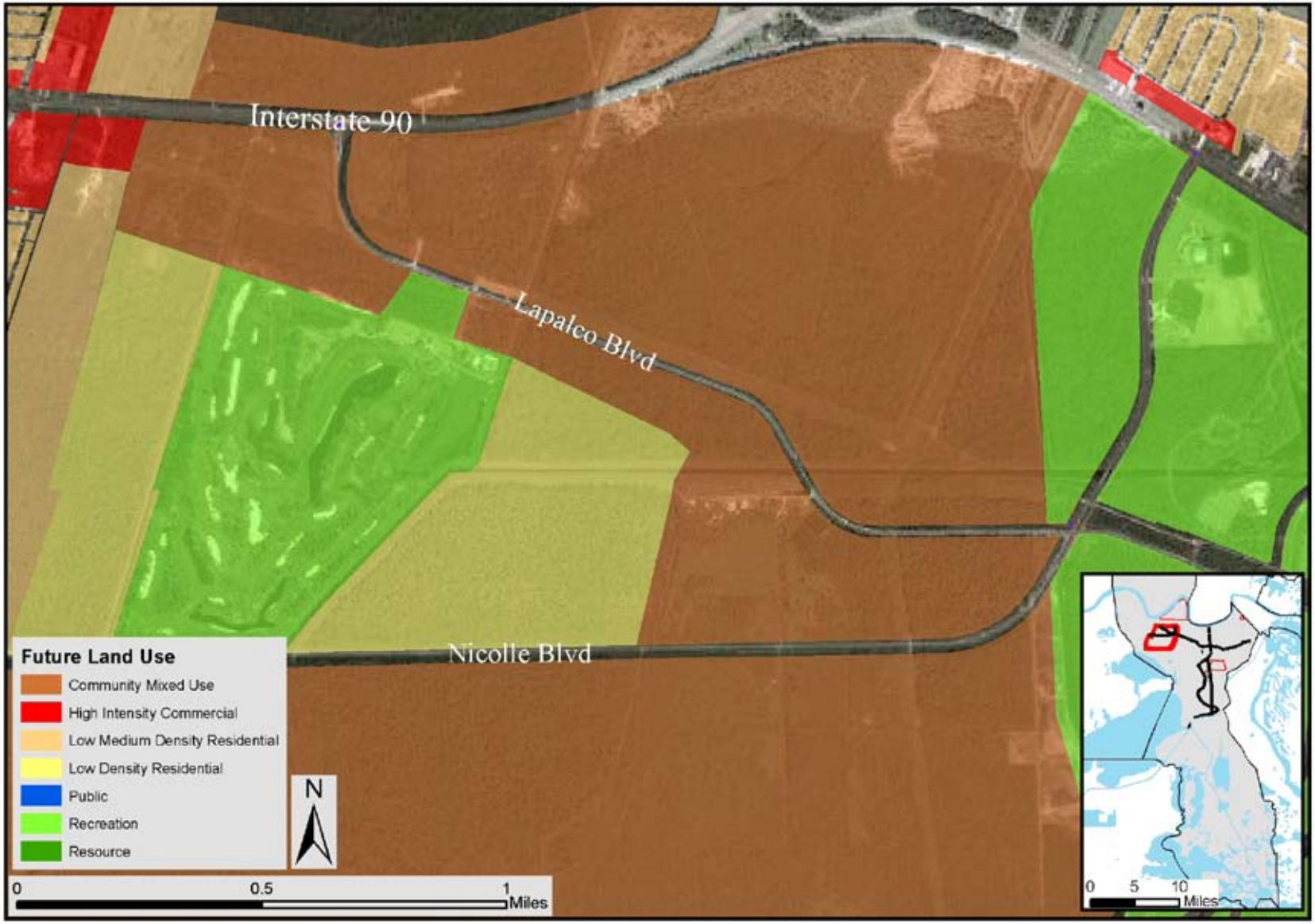


Figure 3.24: Churchill Farms Percent Use

Existing Conditions



Map 3.23: Churchill Farms Future Land Use

- Major thoroughfares include Lapalco Blvd. and Nicole Blvd.
- Elevation is 3-6 feet below sea level
- **insert pie charts of existing zoning and flum
- Existing FLUM consists of community mixed-use
- Sewer lift station near the Lapalco Blvd. and US 90 intersection
- Technology park being constructed south of site
- Significant undeveloped land

Proposed Development: Churchill Farms North

The Churchill Farms North site has few topological constraints that require new development to be organized consistent with other West Bank developments. As such, a more historical and vernacular analysis yielded an alternative to the site layout and planning that has been predominant over the past several decades. The concept design respects the land division system in Louisiana and relates to the rivers and bayous; those water bodies are identified as fundamental measures of land allocation. As such, the site offers a "grand axis" street that parallels the historical dividing lines created by the French and Spanish land division system which uses the river as the beginning point. This land division method is subsequently replicated on-site using the existing and proposed drainage canals as the water bodies. These canals vary from typical canals in the region in that they have a serpentine design that mimics the Mississippi River.

Existing zoning is leveraged in the northwest corner of the site to take advantage of proximity to the proposed I-49 by creating a regional commercial/retail node. Although predominately commercial, multi-family housing will be directly adjacent to this node. East of the site, a new drainage canal will form the backbone of a serpentine medium density corridor that will include townhouse and apartment dwelling units. Where multi-family apartments abut collector streets, first floor retail and office will be permitted and encouraged. A new collector street will originate near the Alario

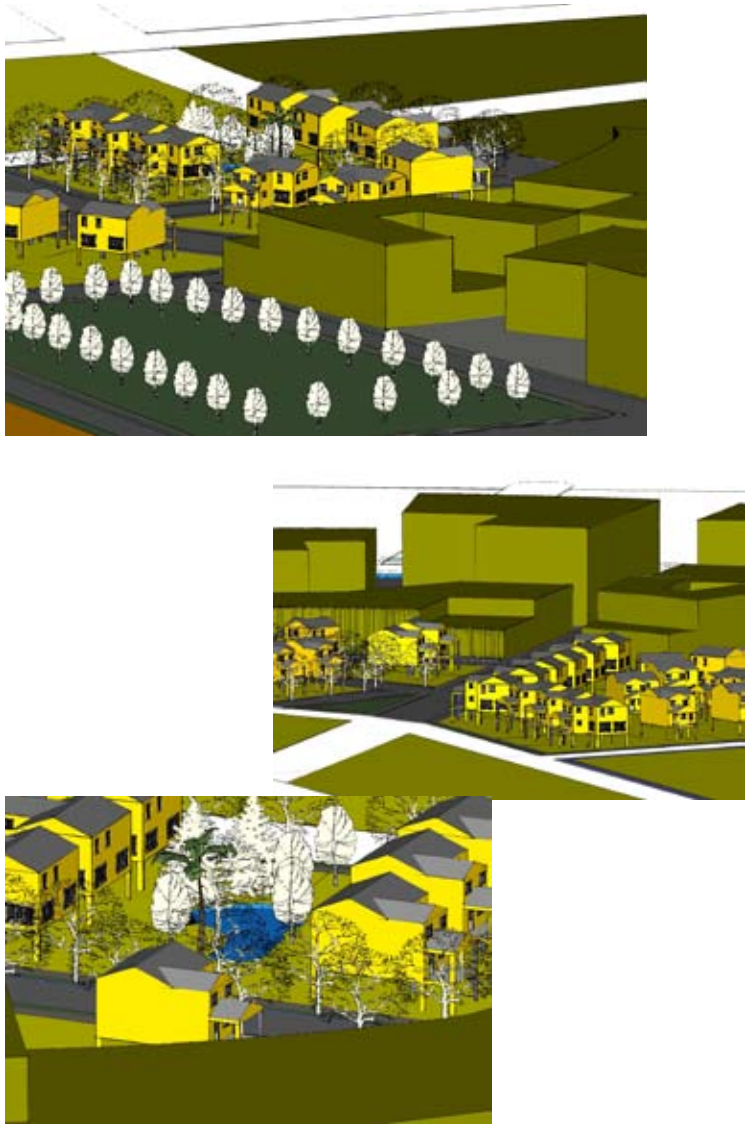
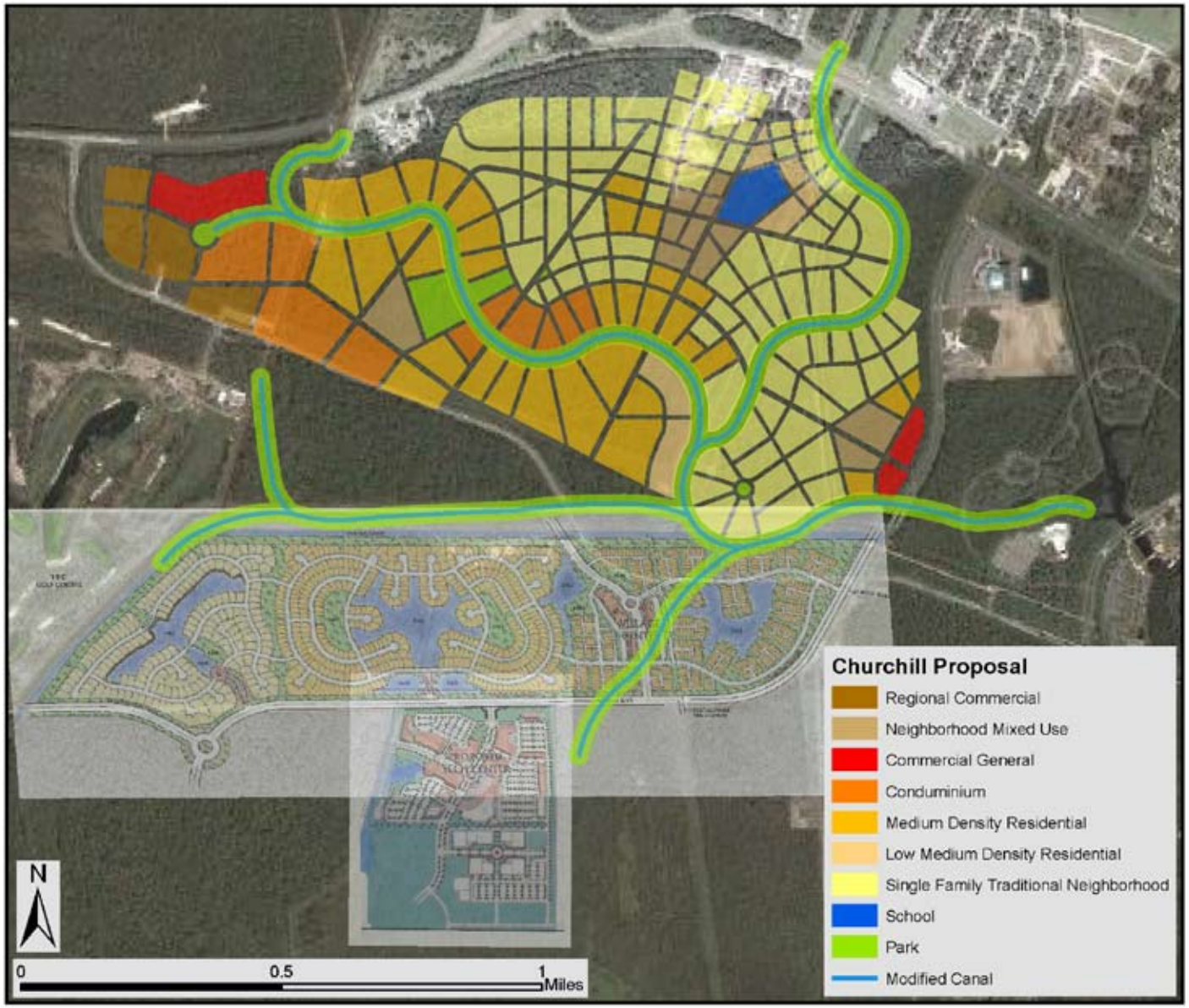


Figure 3.21: Churchill Farms Proposal



Map 3.25: Churchill Farms Proposal

Center at Segnette Boulevard and travel westward. Its intersection with the "grand axis" street will provide a strong location for neighborhood mixed-uses, of generally one or two stories, with low to medium density housing. An elementary school could be planned adjacent to this site.

Drainage Solutions

Since the drainage structure serving Churchill is designed for a largely undeveloped area, new development and the associated increases in impervious surfaces, there will need to be expansions and improvements to the drainage system. The Churchill site is fortunate, however, since it is a largely undeveloped, there is room for flexibility to utilize a number of design options that can minimize the demand for additional drainage capacity in the form of subsurface pipe flow to canals and pumping stations. Examples include retention or detention ponds and bioswales. Bioswales are densely vegetated drainage ways with gentle side slopes that collect and slowly convey the runoff flow downstream. Refer to Appendix * for further information

Caption: Two Bioswales for a new housing development. The foreground one is under construction while the background one is established.

With this alternative, it is important to include plants well-suited for the area. Selecting a landscape of native plants will also contribute to efforts to create a sense of place that reflects the local heritage. These wetland plants will also improve water quality so that the area is an aesthetic resource that can be visited and appreciated by the area residents. Appendix * provides a list of suggested native plants suited for three different environments: modified swamp, modified marsh and Mississippi levee. These were recommended by the Golden Meadows Plant Materials Center through the Natural Resources Conservation Services Plant, which can be further utilized for assistance in achieving on site drainage goals.

Figure 3.26: Drainage Solution

Wastewater Treatment Considerations

There will also need to be planning coordination with the Jefferson Parish Department of Sewerage in order to ensure there is adequate wastewater treatment capacity for the new growth in the region. There are a number of alternatives to the traditional treatment plant that could be considered to serve the new growth. The use of constructed wetlands is becoming more popular. They are designed to take advantage of many of the same processes that occur in natural wetlands, but in a more controlled environment. There are two general categories: subsurface flow systems and free water systems. They also can be utilized for the whole treatment process or just during the final "polishing" treatment. Refer to Appendix * for more information from the West Jackson, MI case study. The availability of undeveloped land surrounding Avondale and Churchill Farms and the need for increased capacity makes the area an excellent candidate for this type of wastewater treatment system.

Additional Considerations

The site is an area between 3 to 6 feet below sea level. Although drainage canals and the levee system will help stabilize residential and economic activities in the area, alternate measures of protection from flooding should be considered. Specifically, elevated structures are highly suggested. The structures will provide places of refuge for populations unable to evacuate during flooding. Additionally, elevated parking lots servicing retail or office can function as satellite emergency command stations for emergency services after a significant event. Moreover, the significant change in land use and resulting population increase requires that essential and emergency services needs be considered; thus reducing the need to stretch and strain the capabilities of existing services.

Key Factors

- Compact building design encourages walkable communities and preserves open space
- Site plan provides multiple housing types and encourages mixed income communities

- Provides sense of place by utilizing native plants and addressing environmental conditions to provide drainage
- Takes advantage of the Mississippi River as a natural amenity and an important component of Louisiana's cultural heritage

Conclusions

These sites provide substantial examples of how mixed-use and Smart Growth concepts can be embodied in Jefferson Parish. Each development scenario is a unique application of these principles that responds to the dynamics of the community and the goals of the parish as well. Some of these concepts, however, are relatively new to Jefferson Parish. Currently, no regulations exist that are robust enough to implement these concepts, much less receive support from businesses and residents. In realizing Envision 2020, the parish will need to continue in their efforts to embrace mixed-use and smart growth through effective land use regulation, proper land division requirements, design guidelines, community participation and education, and economic incentives.

Chapter IV
Implementation

Building on the potential applications of mixed-use in the previous chapter, this section presents implemetation mechanisims, both regulatory and incentive-based, to assist the Parish in promoting mixed-use development on those or other sites, as a means to accomodate future growth. We present tools and strategies to consider when adjusting the physical zoning of an area, as well as the planning process itself. These ideas, strategies, and recommendations are presented with the regional context taken into account, and consistent with sound planning. Jefferson Parish should concentrate policy revisions in four areas: strengthening the planning process, land use design, site design, and building design. Furthermore, specific implementation recommendations are provided relative to and consistent with the four mixe-use sites presented in the previous chapter.

Land Use Design and Zoning

A number of zoning tools can assist in the realization of mixed use development similar to those outlined in Vision 2020 and what was elaborated on in the four site case studies from the Concepts and Designs Chapter of this report. First, in order to realize the regional, community and neighborhood mixed use goals outlined in Vision 2020 the spatial zoning needs to be updated to be compatible with the Future Land Use Map. Additionally new zoning tools need to be adopted, as either an overlay district or new mixed use zones. Then finally some existing codes should be revised to permit mixed use growth, the zoning districts that need revisions are: mixed use corridor, neighborhood and general commercial, condominium and multi-family residential and parking.

There are several portions of the existing zoning codes that effectively prohibit the types of mixed use developments outlined in Vision 2020 and detailed in this document. There are many instances where a parcel has outdated zoning restrictions that differ from and prohibit the updated intended land uses. A critical examination of these zoning districts are provided below.

Mixed Use Corridor Districts

The mixed use corridor district (MUC District) provided for in the Jefferson Parish zoning code enables mixing different types of office and commercial uses in high travel corridors. However, the multi-family provisions of these districts are quite limiting and should be modified to allow for greater housing diversity. Presently, these provisions require that any residential building must be separate from the commercial or retail building with a separate ingress and egress and a landscape buffer separating the two buildings, or they can be in the same building but only if the residential component is no more than 50% of the building space.

The first provision results in two buildings that do not connect and integrate residential and commercial uses. The second is not an affordable option for a developer. For example, a ten story mixed use building would require the first five stories to contain commercial or office. This is not viable in many locations on the zoning map. In addition the ingress and egress need to be separated as well, which could result in the need for separate parking areas, further increasing costs. Based on developer feedback from our visit, these codes effectively prohibit true mixed use buildings.

Neighborhood and General Commercial

The current zoning code for neighborhood and general commercial districts limit residential use to 50% of the building floor space. This severely limits the financial viability of well integrated mixed use developments.

Multi-Family Residential and Condominiums

Multi-family residential zones currently restrict supportive retail services. Because of their greater density, multi-family residential zones also generate added demand to the transportation networks without any design changes which facilitate a transportation mode split. These factors make locating multi-family projects difficult, since the outcomes are generally negative, as people perceive consequences to include greater traffic congestion and crime.

Recommendations

In order to achieve vibrant mixed use communities, the land use code needs to encourage a mix of uses in both building developments and adjacent areas. Changes to the land use code are inadequate without commensurate changes in subdivision regulations and new building design implements.

Revise the zoning code to allow economically feasible mixed-use developments

If feasible, the zoning code and zoning map should to reflect market realities and good mixed-use design. This would include making some revisions to the mixed use corridor restrictions and shifting these zones to coincide with the Vision 2020 Future Land Use Map.

Eliminate use-ratios in mixed-use zones

The exact use of individual mixes should be driven by the market. However, the zoning code could ground floors to be predominatly retail and encourage residential uses to occur above the first floors of structures in commercial areas. This provides financial incentives to developers while enhancing the amenities offered to residents.

Alternatively, create overlay districts for mixed-use centers that resolve zoning shortfalls.

As an alternative to the lengthy process of completely restructuring and revising the zoning code, the creation of new zoning overlay districts might be a bit quicker to create, since the area that would receive these adjusted specifications is much smaller than conducting a rezone for the entire West Bank. This would entail the revision of restrictions and incentives found in each mixed use area such as increasing height restrictions and densities in the commercial and multifamily areas that make up the mixed use core. Additionally allowing or requiring a percentage of ground floor retail in

multi-family and condominium zones and greater amounts of residential above general commercial zones. Examples of this type of mixed use zoning can be found in Alachua County, FL (refer to Appendix **). Also of interest is Alachua County's design guidelines that correspond with each mixed use overlay to create a unique sense of place for each zone. For example, they list a mix of restrictions and incentives to get desired signage and native plant landscaping.

Create overlay districts that facilitate special attributes of mixed-use design

Other goals can be achieved through overlays as well, such as a pedestrian overlay district (POD) or a Traditional Neighborhood Design (TND) overlay. Both are designed at a pedestrian scale, with safe crosswalks, compact design at a walkable scale and amenities such as sidewalk furniture, landscaping or dining patios. Examples of successful PODs are Ketchum, ID and Seattle, WA (see Picture **).

TND is characterized by narrow streets that calm traffic and a small scale that encourages community interaction. This design concept would be a useful tool for the Leo Kerner Parkway and Churchill Farm sites. Since much of these sites consist of large parcels with unrestricted zoning, TND can be used to surround the more active, dense mixed use nodes with a single family community. The use of a TND overlay in this manner would help focus single family residential in areas that compliment mixed use nodes, thus creating residential areas that are well served and connected. Examples of TND zoning code can be found in Belmont, NC and Austin, TX.

Restructure parking requirements to encourage and facilitate a multimodal transportation system.

Parking code can be used to encourage multiple modes of transportation where applicable. Providing incentives or allowing parking reductions in multimodal transit corridors would create more pedestrian-oriented environments and discourage automobile-centric development. Two examples are detailed below: increasing the application of shared parking allowances and decreasing parking requirements when alternate transportation modes exist.

The current parking code allows for shared parking where peak usage times do not overlap. The exclusion of residential uses results in requiring a developer to overbuild

parking for a mixed use development with apartments, and it is highly unlikely that the increased cost could be recouped. In order to make mixed use areas affordable to developers, the list of applicable uses should be expanded to include some residential uses.

The parking code could be used to encourage multimodal transportation by decreasing parking requirements when transit alternatives are in close proximity. For example, the amount of required parking could be reduced when the mixed-use development is near a bus line, bike path or pedestrian oriented environment. In Alachua County, multi-family and condominiums developments located within the mixed use overlay district are required to provide a percentage of covered and protected bicycle parking space, to make up for the reductions in parking requirements.

Site Design and Subdivision Regulations

Site design is governed primarily by the subdivision and zoning codes of Jefferson Parish. Subdivision regulations are especially important for undeveloped sites as they dictate the amount of land that will used for both public and private uses. If JP has not yet considered the following recommendations while updating the subdivision and zoning code ordinances, these suggestions may be a valuable tool in facilitating future mixed use development.

As the Jefferson Parish Subdivision Ordinance is rewritten, the code should encourage new development sites that are: compact in design, walkable, promote multimodal transportation alternatives. The final result will then create an efficient use of space, by adhering to smart growth principles in facilitating mixed-use development design. These revisions could apply to the parish generally, or just to the mixed use areas identified and designated by Vision 2020. As subdivision ordinances are reviewed and updated, JP should focus specifically on making single-family residential areas more compact, especially those adjacent to mixed use areas. The following recommendations can be incorporated into new subdivision regulations to

encourage neighborhood designs that will have a positive synergistic relationship with mixed-use centers.

Facilitate Connectivity

Require developers to have multiple connections outside of the development that include existing residential neighborhoods. This may be in the form of discouraging cul-de-sacs, prohibiting block lengths over 300-400 feet with a variance, and requiring dead-end streets to be converted to a through street once the adjacent property is developed.

Maximize Rights of Way for multimodal transportation

Subdivision codes can encourage pedestrian activity and other forms of transit. Reducing the minimum right-of-way widths for local streets to 46 feet, with a maximum pavement width of 30 feet, and requiring sidewalk widths to be 6 feet slows traffic and creates an aesthetically pleasing environment for walkers. Landscape buffering can also be encouraged reduce peak demands on the drainage conveyance system. Finally, by requiring sidewalks are in place before approval of the final plat will ensure that streets are conducive to driving and walking. Narrow streets with parking will reduce speed limits by design and provide pedestrians a greater sense of safety. Reducing road widths can also help reduce the amount of impervious surfaces and decrease stormwater runoff.

Require inclusion of Bioswales, wetlands or retention ponds in site deisgns

Bioswales and roadside drainage ditches help remove silt and sediment from stormwater and thereby improve stormwater quality. The use of constructed wetlands has grown to be an increasingly popular mechanism to contain and maximize the removal of pollutants from stormwater runoff. They provide an area to hold water from a small surrounding region, which can alleviate demand on the drainage canals by slowly releasing stormwater.

Provide Incentives for Natural Open Space

There are a number of incentives that can be utilized to encourage areas of open space remain when parcels are subdivided and developed. One example is to allow smaller lot sizes if a minimum of at least 10 acres of natural open space is provided on the site.

In a single family-zoned area, this can achieved by allowing for gross site density to be 7 units per acre, with a minimum lot size of 5,000 square feet. If open space dedication is made in excess of 10 acres, the gross density is unchanged, but lot size can be reduced by 25%.

Create Ability to Collect Impact Fees In-Lieu-of Dedications

Many public infrastructure expansions and improvements are developed solely to serve new development. Currently new facilities are financed by the whole parish through conventional revenue generating methods such as property, sales and income taxes. The use of impact fees on new developments would decrease the effective subsidizing of new development by existing development. Parks, wastewater treatment infrastructure and major arterials could receive a portion of capital and/or operating revenues directly from new development, thereby mitigating the impacts from infrastructure expansion and improvements required to support new growth.

Tools to Strengthen the Planning Process

There are two primary mechanisms Jefferson Parish should adopt to enhance the planning process in the parish. First, the parish should strive to galvanize regional planning cooperation among other parishes and cities in the New Orleans metropolitan area. Secondly, the parish should incorporate and facilitate public participation, outreach, and education in all areas of parish planning. Engaging in these two efforts will allow Jefferson Parish to develop long range plans that meet the needs of parish residents and the goals for the growth of the New Orleans region.

Regional Cooperation

Jefferson Parish should seek to develop stronger relationships with nearby parishes and cities and enhance regional planning efforts with the New

Orleans Regional Planning Commission. The current fractioned planning environment in the New Orleans metropolitan area forces adjacent parishes and communities to compete for jobs, growth and revenue. The results of this strategy, which has been in place since the 1950's, have been generally deleterious. Urban decay, suburban sprawl, fiscal inequalities and racial segregation are a few of these negative consequences. On a more fundamental level, competition reduces the resiliency of a region in coping with major economic and natural disasters, not unlike that faced by greater New Orleans.

Urban problems extend beyond municipal or parish boundaries. Similarly, solutions to urban problems must be evaluated and implemented by multiple jurisdicitions in concert. Building alliances that encourage regional cooperation and inter-local agreements enables the New Orleans metropolitan area to compete together on a national scale. If a greater level of regional planning, with consistent overarching policies, semi-unified governance, and tax sharing strategies are introduced and implemented over time, there is a greater chance that "all boats will rise with the tide." Otherwise, short-term economic advantages will be negated by long-term incremental and unavoidable economic decay.

Recommendations

Become a leader in inter-jurisdictional cooperation.
Jefferson Parish should establish itself as a leader in a dialogue that must take place in Metropolitan New Orleans. This dialogue may identify ways in which government services can be structured spatially in order to maximize economies of scale while maximizing citizen input. Efforts should include providing greater support to the Regional Planning Commission and forging new political and technical alliances with adjoining parishes.

Increase awareness and solutions to regional problems.
Jefferson Parish should work to identify regional issues and bring them to the consciousness of the citizen and politician alike. Once people are aware of problems and their implications for their personal lives, they will be more likely to work towards a solution.

Find new ways to address regional and local issues through new municipal structures.
While grappling with solving regional problems, citizens of any jurisdiction demand action for their own neighborhoods and sectors of a city or parish. In addressing this issue, a new forms of urban government could emerge. This may include creating new cities that are limited by regional constraints but allow for local control, thus helping citizens develop a greater sense of responsibility and ownership in the community. This new layer of controlled autonomy could be constrained be a regional oversight by the parish or a larger multi-parish jurisdiction. Where citizens have accessible government, they are more likely to participate. On the other hand, regional government must take charge when local governments wish to make decisions that could be detrimental to the region as a whole.

Citizen Participation, Outreach, and Education

Effective planning must be done *with* the public and not exclusively *for* the public. The most effective public participation processes offer opportunities for community members to be actively involved in how their community grows and develops during all stages of the planning process. When citizens are involved in the process policies and plans are more readily accepted by the community and are more likely to be implemented.

Public participation activities have three general goals 1) to inform the public 2) to acquire information from the public and 3) to build consensus among the public. Successful public participation processes are those which accomplish all three goals. At the minimum, public processes should serve to both inform the public; gather information from them, and ideally a consensus is also reached. Consensus building, the process by which general agreement is reached over a period of time by people with divergent interests, involves the active participation of the community. Attaining these

three goals by adopting a public participation strategy will ensure long term benefits that non-participatory or "top-down" planning will not provide.

There are numerous benefits to citizen participation, some of which include:

- Acquiring legitimacy for public decisions, there by increasing the likelihood that the resulting plans will be successfully implemented
- Identifying unique information from local knowledge
- Allowing for decisions to be made based on public preference
- Advancing fairness and social justice
- Improving social unity and neighborhood cohesion
- Empowering residents by involving them in decision making processes
- Providing an opportunity to educate residents

Recommendations

Create a Design Review Committee to develop mixed use design guidelines and review development proposals for mixed use areas.

A citizen Design Review Committee should be established to review development plans and proposals in mixed use areas prior to permit approval to insure that plans comply with the objectives and design standards for commercial and residential areas. The Design Review Committee should be a separately appointed body that works in tandem with the Planning Advisory Board.

The role of the Design Review Committee is to first engage in a public participation process to develop design standards and guidelines for development. The long term responsibility of the committee is to review development proposals ensuring that they address and incorporate the design guidelines.

The Design Review Committee provides additional opportunities for community members to participate in the planning process. The Committee can be organized in one of two ways. One committee can be developed with representatives from all neighborhoods who review proposals parish wide. Conversely, each neighborhood can develop

its own committee with members representing different neighborhood interests.

Each committee should have members with backgrounds that represent the players in the development process:

- Design professional representative
- Development representative
- Community representative
- Local residential representative
- Local business representative

The local residential and business representatives must live within the specific community they serve; all other representatives may live any area of parish. In addition, the local residential representative must be nominated by a community group or association (e.g. neighborhood association) while the local business representative must be nominated by a business group (e.g. chamber of commerce).

Develop a public participation process for projects prior to permit review.

Plans for projects in mixed use zones that undergo a specified public participation process from the onset should benefit from expedited design review and permit approval. Projects that do not incorporate a public participation element would require expanded administrative review and take longer to permit.

Some examples of public participation activities that could be included as part of a formal public process include:

- Workshops to identify community issues
- Visioning charrettes to influence specific developments and broaden neighborhood goals

- Create neighborhood associations that meet regularly to discuss neighborhood issues
- Provide opportunities for residents to serve on boards and committees such as the Planning Advisory Board or a design review committee
- Develop public opinion surveys to identify community planning priorities.

The goal of public participation strategies is to make the participation effort collaborative and incorporate not only citizens, but also organized interests, profit-making and non-profit organizations, planners and public administrators in a common framework where all have a stake in the decision-making process.

Create a Department of Neighborhoods to coordinate existing and develop new Neighborhood Associations.

There are a number of existing, yet inactive Neighborhood Associations in Jefferson Parish. A list of Neighborhood Associations in the parish is available on the following website: http://www.neighborhoodlink.com/jco/allneighs.html

Neighborhood Associations are an effective way to regularly involve residents in the planning process, identify hidden neighborhood issues, and initiate community improvement projects. As new and old residents trickle back to Jefferson Parish after fleeing from Hurricane Katrina, neighborhood associations can play a dynamic role in creating solidarity and neighborhood pride among residents.

Additionally, neighborhood associations can:

- Enhance civic participation
- Develop neighborhood plans to guide neighborhood development. An example of this in Jefferson Parish is the Old Metairie Neighborhood Conservation District http://www.jeffparish.net/index.cfm?DocID=1214
- Identify unrecognized neighborhood issues
- Initiate neighborhood renewal and improvements

The City of Tacoma, 40 miles south of Seattle, WA has developed an effective neighborhood council program that works with both the Planning Department and the City Council to address neighborhood concerns. http://www.cityoftacoma.org/default.asp?main=/21Neighborhoods/default.asp.

Enhance the Department of Planning's Website

The website for JP's planning department could be much more user-friendly and informative. Suggestions to improve the website and better facilitate community outreach include:

- Encourage public participation
- Provide thorough code and design standard documentation and maps
- Provide educational tools to inform residents about density, affordable housing, meeting procedures, parish wide planning programs; etc

The website for the Jefferson Parish Planning Department is a significantly underutilized public outreach tool. The website can be used to notify, inform, and educate Parish residents.

Website Example

In Snohomish County, Washington the Department of Planning and Development Services has created a site that is both simple to use and information rich. http://www1.co.snohomish.wa.us/Departments/pds/. While the Jefferson Parish site serves to answer questions, Snohomish County's website strives to involve residents and provides them with the resources to inform and complete development projects. Snohomish County provides extensive information on permits, services of the department, easy to read and use codes and design standards, zoning, GIS, and aerial image

maps, and recent news, educational opportunities and upcoming meetings. Snohomish County planners have found the website to save everyone time and money. According to one Snohomish County planner; "people appreciate the fact that they can get it all online- that they don't have to make a special trip to our office."

The JP Planning Department website should also include information on neighborhood associations, educational tools, and news from the Planning Advisory Board.

Online educational tools can include:

- Notices for upcoming hearings
- Rules of procedure and conduct for hearings
- Design standards
- Information on density http://www.designadvisor.org/
- Informational Displays for current projects such as the example at: http://www.seattle.gov/planningcommission/projects.htm

Building Design Guidelines

Jefferson Parish must adopt clear design guidelines for new development, remodeling existing structures, and generating pedestrian oriented commercial areas. Regulated design guidelines create the spaces and environments that will attract people to the region and allow the west bank to compete with established urban centers, like New Orleans and adjacent parishes. Design guidelines should be specified in the parish's comprehensive plan, and guide specific design code at the neighborhood scale. Below is a list of recommended design guidelines for specific uses.

A public Design Committee could be created to standardize design guidelines for mixed-use development sites within the parish. This committee should consist of a diverse mix of knowledgeable citizens and design specialists that may include architects, urban designers, planners, and landscape architects. The committee can be organized either at the regional level, or individual neighborhood committees can serve a specific community. Please see "Tools to Strengthen the Planning Process" in this section for a more detailed discussion of the Design Review Committee.

General Multi-Family, Commercial, and Retail Guidelines

The following elements of multi-family, commercial and retail building design should be included in design guidelines developed by Jefferson Parish.

Reflect Site Characteristics

Buildings should reflect and enhance site characteristics which include: site topography, lot size and shape, neighboring structures, etc.

Buildings should be compatible with streetscape

Site layout should reinforce the desirable spatial characteristics and rights of way. Desirable characteristics that affect how a space is experienced may include the unique character created by set-backs, building orientation, and height. Another example may recommend that the first floor of buildings be located not more than 8′ and no less than 6′ from the front lot line, except where zoning ordinances specify otherwise.

Entrances should be visible from Street

Residential

Entrances to multi-family units should be visible from the street in order to create a sense of community and make the building more inviting.

Commercial and Retail

Entrances to commercial and retail should be oriented to the main street (both streets if on a corner) in order to make the space pedestrian oriented and interactive for shoppers.

Figure 4.1: Street-side entrance

Buildings should show respect for adjacent sites

Multi-Family Residential:

- Address views from upper story units is one consideration, which can utilize several solutions. Orient decks and windows so that they are not directly overlooking the neighbors.
- Step back the upper floors or increase the side or rear setback so that window areas are farther from the property line.
- Stagger window size and and design to allow for visual relief.
- Buildings should be constructed so as to minimize noise and disruption, and maximize privacy of adjacent residential buildings

Commercial and Retail

- Step back the upper floors or increase the side or rear setback so that window areas are farther from the property line.
- Encourage compact building design in commercial areas and promote connectivity between buildings.

Consideration should be given to exterior finishes of buildings

The selection and use of exterior materials is a key ingredient in determining how a building will look. Some materials, by their nature, can give a sense of permanence or can provide texture or scale that helps new buildings fit better in their surroundings. A mix of several exterior building materials can significantly increase the attractiveness of a building. In addition, building materials should be strong, durable, and able to withstand the weather patterns of the region.

Incorporate culturally significant elements in building design

When possible, the use of traditional Louisiana architectural styles should be encouraged, which may include but are not limited to:

- front porches which can be either at ground level or on upper stories
- iron balconies
- arching windows

- other features that represent the early Spanish and French architectural influences

Provide functional open space as part of building development

Multi-Family Residential

Multi-family units should incorporate on-site open space which is usable and attractive for residents (see site use implementation strategies). Suggestions include, but are not limited to, courtyards, a common garden or recreational area, balconies, roof top open or green space, and entry enhancement such as landscaping along a common pathway.

Commercial and Retail

These areas should incorporate on-site open space amenities which make the streetscape more inviting for the pedestrians. Suggestions include, but are not limited to: landscaping, potted plants, flower boxes, benches, and outdoor restaurant seating.

Encourage innovative building landscaping

Green Roofs

Green roofs can help to collect and reduce stormwater runoff, as well as regulate outdoor and indoor temeperatures especially in hot climates.

Natural Vegetation in Landscaping

Using native plants in landscaping helps to enhance the natural landscape and vegetation of the area and maintain native plant and species.

Guidelines for Hazard Mitigation by Design

Although drainage canals and the levee system will help reduce some of the natural hazard risk in the area, building design can significantly mitigate some of the danger to life and property that flooding, hurricane and other natural hazards that can have a high rate of occurance in Jefferson

Parish. The following suggestions should be enhanced by recommendations from the Federal Emergency Managment Agency (FEMA).

Elevate residential uses above the Base Flood Elevation (BFE)
Property damage from flooding can be significantly reduced by placing all residential uses above BFE. Parking can be placed underneath the structure where elevating the first residential floor is significant.

Identify quasi-public/commercial structures for shelter in place
Elevated parking lots servicing retail or office, places of worship or education, and some office and commercial spaces can function as satellite emergency command stations for emergency services after a significant event or for sheter in place. Each mixed use center should have some core buildings that can provide this type of sheltering or stationing.

Hipped Roofs on new buildings are preferred
Hipped roofs provide a significant amount of strength and stability against wind and weather damage from hurricanes. Investing in hipped roofs could save money for repairs and new roofs in long run.

Design Guidelines for Parking Layout

Parking is inevitably critical for the success of any development. However, parking configuration can either detract or enhance the success of the neighborhood as well as local businesses. The following are some guidelines that should be considered in approving parking plans for new development.

Where feasible, locate surface parking at rear or side lots
Parking in the front of buildings requires deep building setbacks and disconnects the building from the street and adjoining uses.

Provide landscaping for visual relief and environmental enhancemnets
Large parking lots should include landscaping buffers strategically located so as to provide some on-site treatment of stormwater as well as relief from the visual impacts of the parking lot.

Share parking, driveways and curb cuts among adjacent buildings
Redundant or excessive parking, driveway and access points can be problematic for pedestrians and motorists.

Guidelines for Pedestrian Overlay Districts

Pedestrian overlay districts (POD) can be used in each mixed use area to preserve and promote pedestrian activity and character. Compact building design, human scale designs, and a mix of uses should be encouraged to promote day and nighttime activity for pedestrians, while discouraging automobile traffic. Jefferson Parish should implement a POD strategy which takes into consideration the recommendations made below. These districts should be overlaid on existing and cotemplated streets where an active pedestrian environment is desired

Provide streetscape elements conducive to pedestrian use
An active pedestrian area requires amenities and elements at the street level that may be less important in other districts. These include the following:

- front 4' of a lot encourages street furniture, landscaping, or other pedestrian amenities.
- sidewalk width: 8'
- landscaping and planters: should make sidewalks and storefronts more inviting.

- visual and pedestrian access into the site from the public sidewalk (including barrier-free access)
- attractive walking surfaces, such as brick pavers
- pedestrian-scaled site lighting
- areas for vendors in commercial areas
- complimentary signage which identifies uses and shops clearly but which is scaled to the pedestrian
- site furniture, artwork or amenities such as fountains, benches, pergolas, kiosks, etc.

Avoid design elements that detract from pedestrian use

Pedestrian activity can be stifled by design elements that are stifling and unfriendly. These may include:

- asphalt or gravel pavement
- adjacent unscreened parking lots
- adjacent chain-link fences
- adjacent blank walls without appropriate screening

(Sources: Minneapolis municipal code and Seattle design guidelines)

Ensure street-level uses are conducive to attracting pedestrian traffic at various times of the day

When one business dominates a street, irrespective of pedestrian amenities and design elements, pedestrian traffic can become stale and utterly dependent on that single use. As such, there may be significant gaps during the day in which there the sidewalks are empty and the amenities underutilized. A well designed POD will have multiple uses in close proximity with varying business hours. The additional guideline suggestions may inculde the following:

Ground floor

Approximately eighty (80) percent of each building facing the main street should be walk-in businesses which facilitate easy pedestrian interaction (e.g. banks, cafes, insurance company, etc.).

Façade Length

Requiring a 40' max for single business, 20' average will increase pedestrian flow on the site.

Window Area

At least forty (40) percent of the first floor facade of any nonresidential use that faces a public street or sidewalk should be windows or doors of clear or lightly tinted glass that allow views into and out of the building at eye level. Windows shall be distributed in a more or less even manner.

Buildings should be designed to reflet human scale

The term "human scale" generally refers to the use of human-proportioned architectural features and site design elements clearly oriented to human activity. A building has a good human scale if its details, elements and materials allow people to feel comfortable using and approaching it. Features that give a building human scale also encourage human activity. These features may include some of the following.

- window thare are sized appropriate for the building and area.
- trim or molding that appears substantial in size when viewed from the sidewalk
- windows grouped together to form larger areas of glazing can have a human scale if individual window units are separated by moldings or jambs
- windows with small multiple panes of glass
- pedestrian shade and weather protection in the form of canopies, awnings, arcades or other elements wide enough to protect at least one person
- bay windows extending out from the building face that reflect an internal space such as a room or alcove
- upper story setbacks
- a porch or covered entry

Figure 4.2: Variable window patterns

- windows grouped together to form larger areas of glazing can have a human scale if individual window units are separated by moldings or jambs
- windows with small multiple panes of glass
- window patterns, building articulation and other treatments that help to identify individual residential units in a multi-family building

Incentives to Building Design Implementation

Incentives to developer for voluntary implentation of design guidelines may be required initially in order to relate the financial feasibility and market desirabilty of neighborhoods and communities that are well designed. The following ideas reflect practices in other parts of the country and may not necessarily be authorized by Lousiana State Statutes at this time.

Design Guidelines Fast Track Permitting Bonus

Developers who demonstrate how they will satisfy a minimum of four elements of the design guidelines will receive their permit proposal within a two-week time frame. This provides developers with a huge incentive to adhere to the design guidelines.

Provide for a five-year property tax exemption

A five-year property tax exemption incentive could be provided to projects which creatively incorporate a majority of the suggested design guidelines in this section.

Artistic and Architectural Elements Tax Credit

Developers who incorporate artistic and architectural elements that reflect traditional cultural style (i.e. balconies, porches, awnings, benches) will receive a tax credit. The tax credit will be based on a sliding scale where the extent and quality of elements incorporated will determine the credited amount.

Site-Specific Implementation Recommendations

Citizens should use the design guidelines above as models for development, and add or amend these guidelines to accommodate specific sites as needed. New developments, in particular, should incorporate the environmental design and infrastructure guidelines outlined in Appendix G. The building design priorities for each site are discussed below.

Terrytown

This site is zoned as a mixed use corridor, however this mixed use designation was not incorporated into the future land use map. Also like the Nine Mile Point site, the close proximity to the Greater New Orleans Bridge provides easy access to downtown New Orleans and East Bank Jefferson Parish. The site has potential to be remodeled as a vibrant regional shopping and business center.

Implementation Suggestions

Increase potential densities by modifying zoning code
Update the mixed use corridor zoning designation to allow for greater residential amounts above the commercial uses and encourage alternative modes of transportation by decreasing parking requirements and adopting a POD.

Ensure Streetscape Compatibility

The Oakwood Shopping Mall area is surrounded by highways and major thoroughfares, making the area congested and unfriendly for pedestrian and car traffic. All remodels of the shopping mall should make every effort to accommodate the pedestrian and facilitate accessible alternative transit options, such as a bus stop and park-and-ride. Transportation accessibility could be significantly improved if right of ways are designed to provide multiple east-west connections between Whitney Avenue, Terrytown Parkway, and clearly defined on/off ramps to the I-90 expressway.

Incorporate good mixed-use design elements

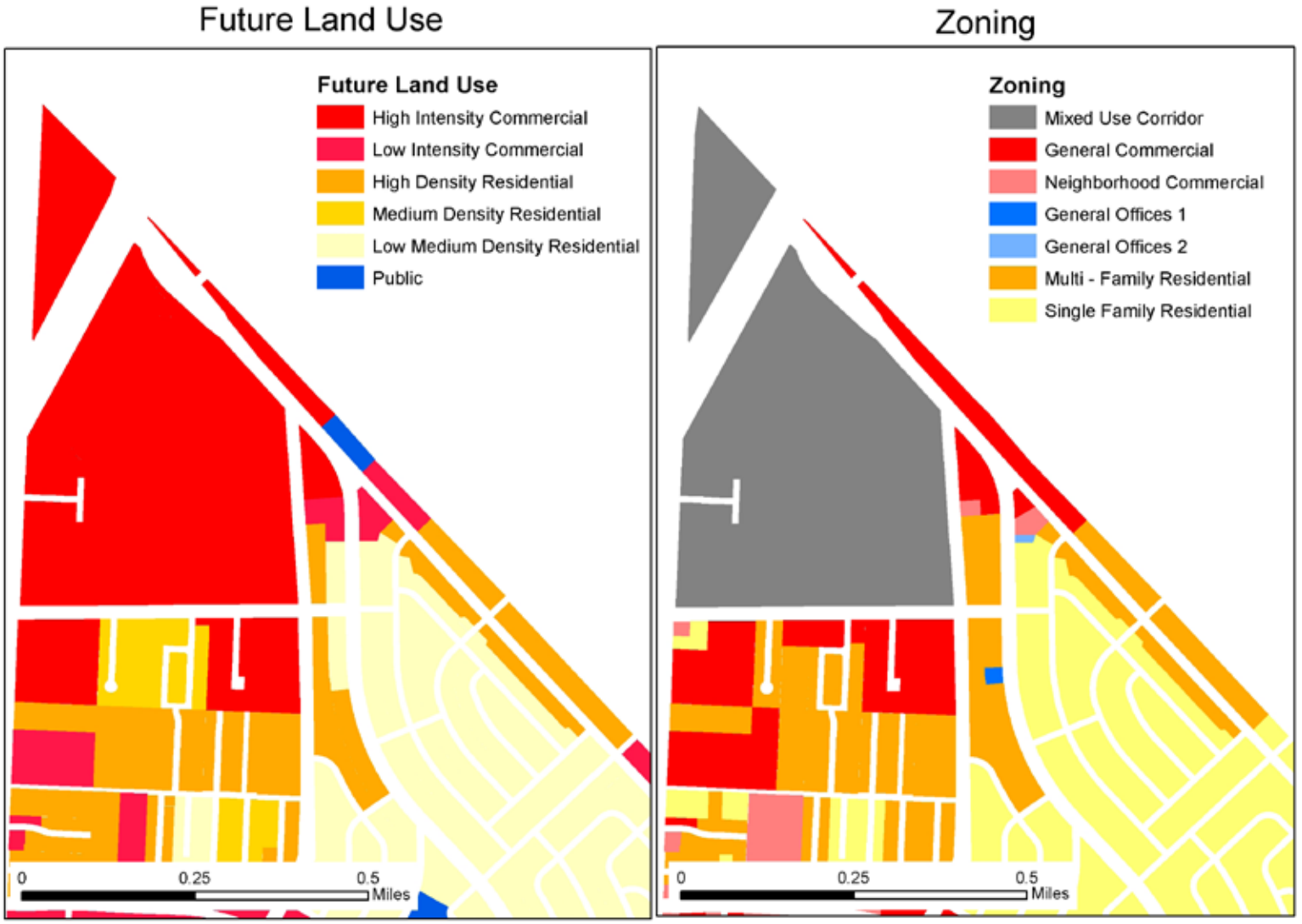
Utilizing the generous zoning height limits for this area, office use above first floor retail should be strongly encouraged. Terrytown's central location and easy access to both downtown New Orleans and west bank's I-90 freeway makes the shopping area an ideal retail, business, and transit hub. Redmond Town Center can be used as a model for new building design and remodels at the Oakwood Shopping Center site.

Consider Existing Site Characteristics

Given that the current area designated for the Oakwood Shopping Area is a relatively small area and bounded by three major thoroughfares, new building design elements should be compact in design and match the scale of buildings on adjacent sites.

Provide for functional open space

Landscaping and small pockets of green space should be integrated throughout the site, including along sidewalks, in parking lots, and bordering the new retail center buildings. Open space should be complimented by benches, outdoor seating areas, attractive street lighting, and other pedestrian amenities.



Map 4.3: Terrytown Future Land Use and Zoning

Nine Mile Point/Bridge City Avenue

This site already has a mix of residential, commercial and light industrial, which are the components that work to create a successful mixed use center. Also, the site's proximity to the Huey P. Long Bridge provides easy access to the East Bank and New Orleans. The site is ideal to create a small, yet vibrant community with the Mississippi River waterfront as a focal point. Retail design guidelines for Neighborhood Mixed-Use should be adopted in this area.

Implementation Suggestions

Adopt zoning map changes to faciliate mixed-use development

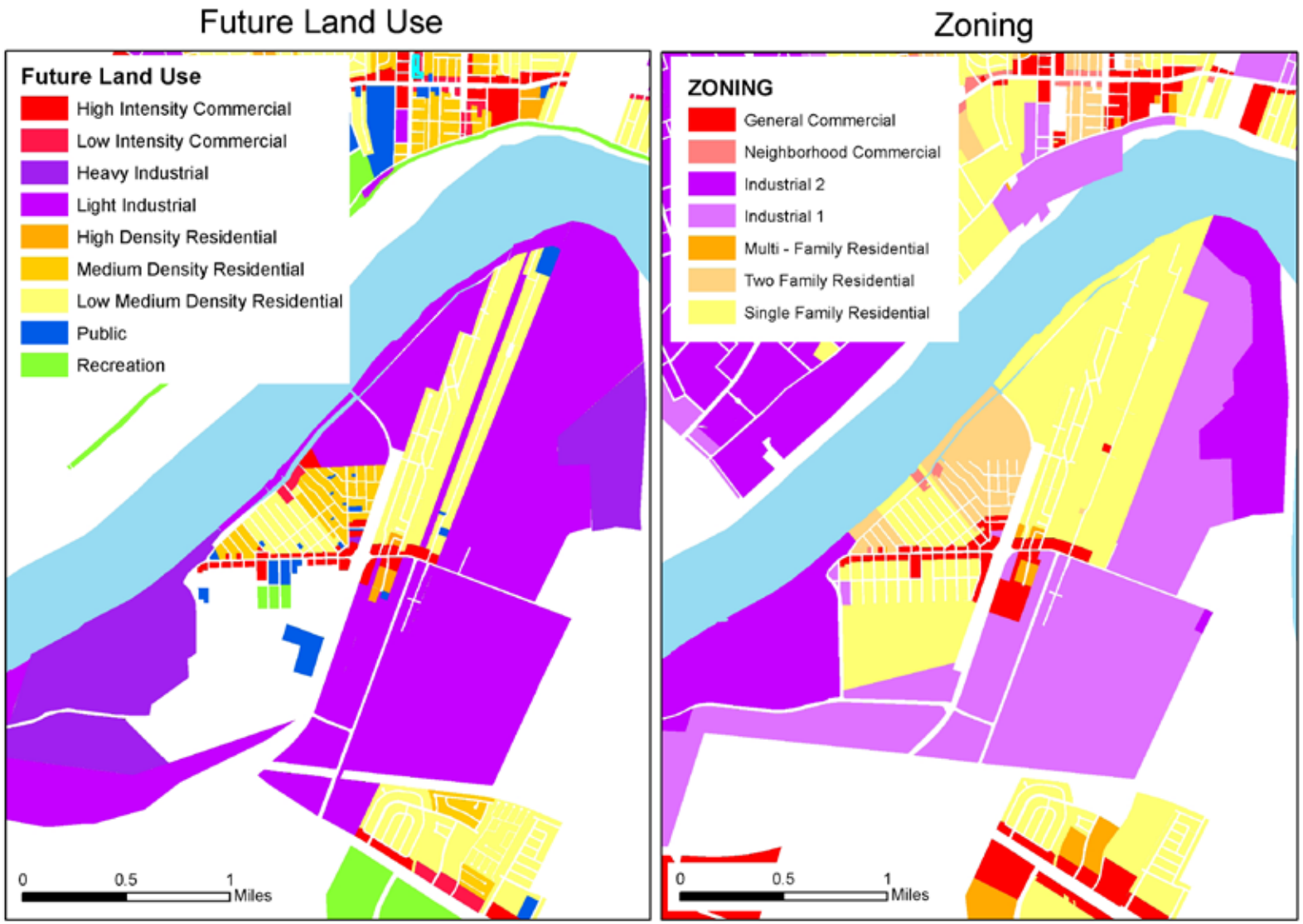
Currently, Nine Mile Point is not designated for mixed use development on the future land use map or zoning map. Therefore the first suggestion is to permit mixed use developments at this site. This can then be implemented through the creation of a mixed use overlay and a pedestrian focused design plan or POD along Bridge City Avenue. Ground floor retail should be allowed in the multifamily housing and increased residential ratios allowed above the general commercial and light industrial zones along the river. Additionally a rezone from light industrial to general commercial or office, both with a mix of residential, may be considered for the adjacent area along the riverfront.

Reflect respect for adjacent sites in building design

Proposed site designs should encourage multi-family residential development in order to take advantage of the sweeping views across the Mississippi. All new mixed-use buildings should pay particular attention to the placement and direction of windows. The zoning of new buildings should encourage an appropriate height and scale, which takes into consideration existing structures.

Open Space

An extension of the existing pedestrian and bike corridor will enhance the waterfront and trail network. Landscaping along both sides of the corridor will buffer noise and



Map 4.4: Nine Mile Future Land Use and Zoning

street traffic while making the area an enjoyable destination spot for residents and tourists alike.

Encourage interesting storefronts and facades
Appropriate window and store frontage is a critical consideration. Small, inviting shops and restaurants will slow down traffic along River Road, encouraging passengers to stop for the services.

Figure 4.5: Appealing storefronts

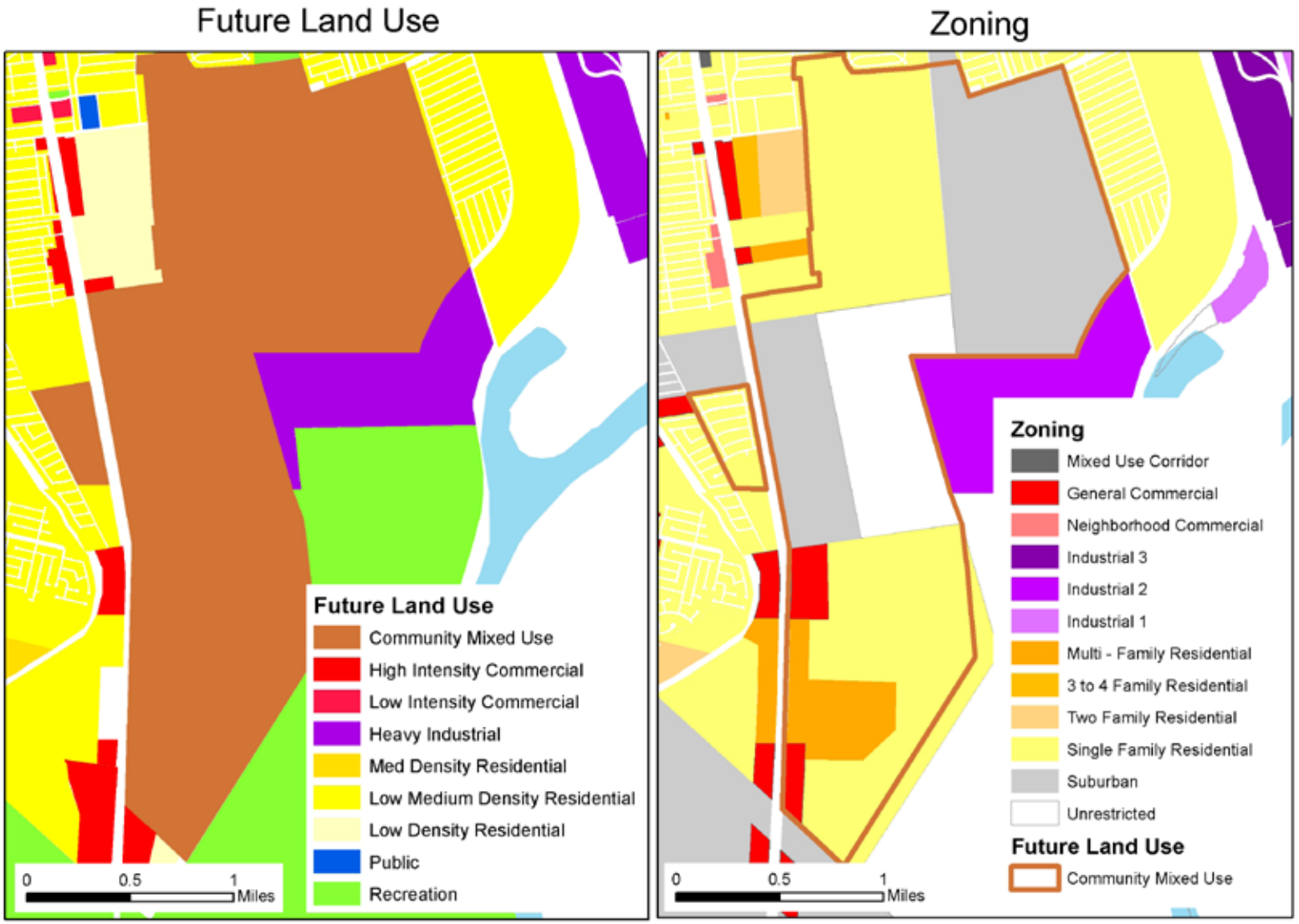
Leo Kerner Parkway

The Future Land Use Map designates this site as a Community Mixed-Use (CMU) area. There is a mix of housing types and some general commercial abutting the transportation corridor. The existing diversity of uses along the Leo Kerner Parkway make this site ideal for a community mixed use overlay district with specifications constructed specifically for the site (refer to the Alachua County, FL example).

Implementation Suggestions

Adopt zoning map changes to faciliate mixed-use development
Much of the site is currently zoned single family, suburban and unrestricted. The portions that are zoned suburban are done so because they lack the full range of urban facilities such as water, sanitary sewers, natural gas or public transit. As such, before significant development can occur, coordination between departments responsible for these critical infrastructure systems is required. It also might be of interest to look into the use of impact fees and dedications to pay for the necessary conveyance mainlines. Zoning modifications would need to allow for some ground floor commercial/retail in the multi-family residential zones and residential uses in the general commercial zone.

Designate portions of mixed-use centers as Pedestrian Overlay Districts
Particularly attention should be given to the scale of the new development. Mixed-use centers, whether regional or neighborhood oriented, should provide a strong sense of



Map 4.6: Leo Kerner Parkway Future Land Use and Zoning

community by making the area walkable, pedestrian friendly, and with buildings that reflect the unique architecture of traditional New Orleans. Porches, awnings, and balconies are just a few examples of the architectural style that makes many of the neighborhoods on New Orleans west bank so attractive.

Figure 4.7: Example of Pocket Park

Provide for ample open space

LKP has the opportunity to integrate open space throughout the site as a mixture of both active and passive open space. Open space within this site should exist as cohesive network, combining park space, landscaped buffers (e.g. along roadways and parking areas), green corridors, and constructed wetlands. Passive open space, such as retention ponds and constructed wetlands, will compliment the existing natural environment while providing cost-effective drainage infrastructure.

The use of small pocket parks will be a low-cost and low-maintenance compliment to the larger scale parks. Open space should be equally accessible and available to both single family residential and multi-family residential zones. A well-designed and landscaped community will attract both the residential and business growth.

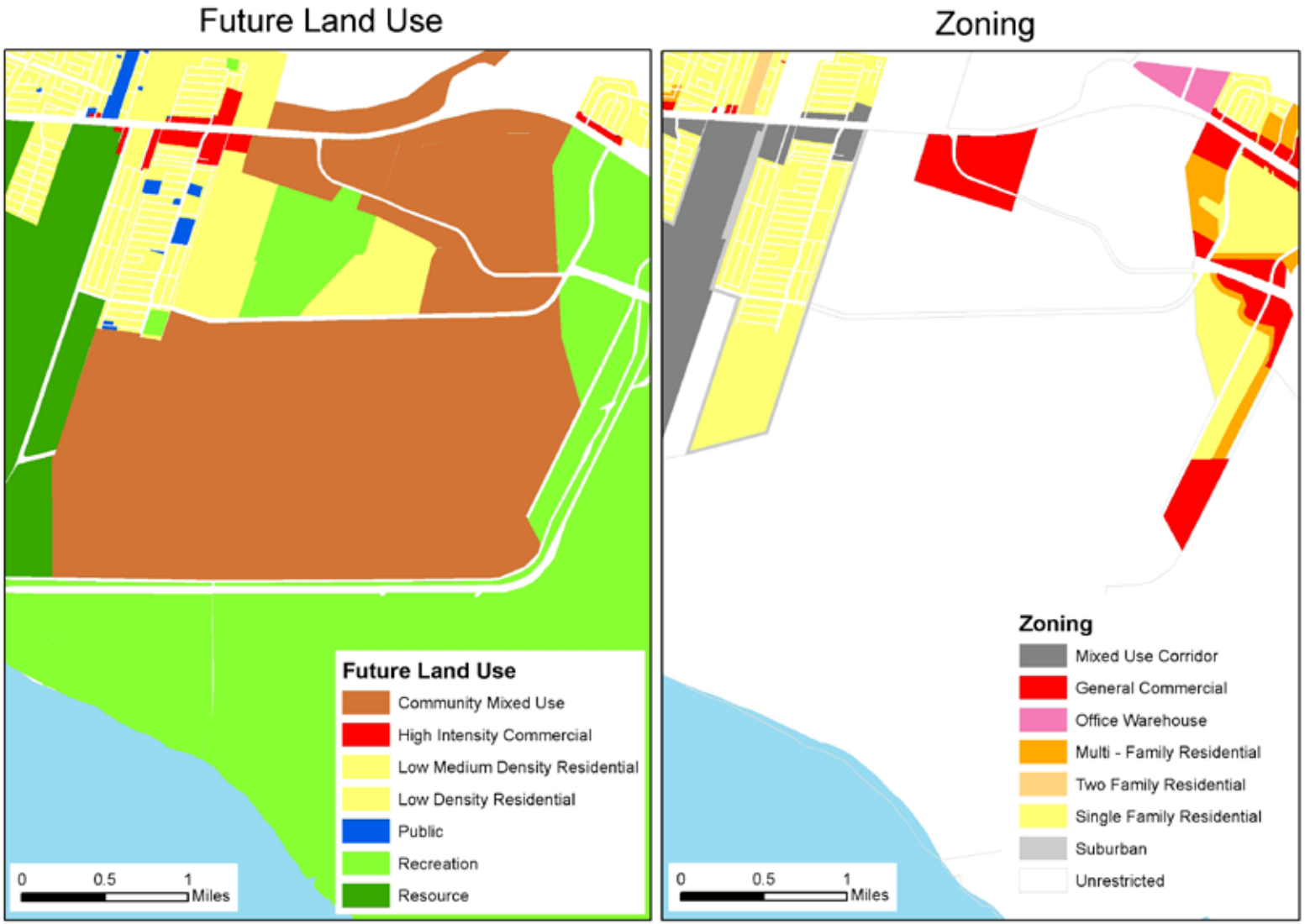
Churchill Farms North

The Future Land Use Map designates nearly the entire site Community Mixed-Use (CMU) area. The northwest corner of the area is zoned General Commercial (C2), reinforcing its natural suitability for regional retail and commercial uses as this corner will abut the proposed Interstate 49 route.

Implementation Suggestions

Adopt zoning map changes to faciliate mixed-use development

Much of the site has unrestricted zoning, indicating a need to rezone the property once specific proposals are developed that comply with the comprehensive plan and existing topographical constraints. There are two re-zoning recommendations for this site:



Map 4.8: Churchill Farms Future Land Use and Zoning

- Ensure that the ensuing rezoning designations encourage a dense node of mixed use that will support the regional needs. Then create residential "rings" around the site, with multifamily closest to the node and transitioning to traditional neighborhood development further from the center.
- Create a second smaller scale neighborhood mixed use node adjacent to the Technology Park to serve the local neighborhood residents and businesses.

Designate portions of mixed-use centers as Pedestrian Overlay Districts

Particularly attention should be given to the scale of the new development. Mixed-use centers, whether regional or neighborhood oriented, should provide a strong sense of community by making the area walkable, pedestrian friendly, and with buildings that reflect the unique architecture of traditional New Orleans. Porches, awnings, and balconies are just a few examples of the architectural style that makes many of the neighborhoods on New Orleans west bank so attractive.

Integrate active and passive open space in site design

Churchill Farms has the opportunity to integrate open space throughout the site as a mixture of both active and passive open space. Open space within this site should exist as cohesive network, combining park space, landscaping (e.g. along roadways and parking areas), green corridors, and constructed wetlands. Passive open space, such as retention ponds and constructed wetlands, will compliment the existing natural environment while providing cost-effective drainage infrastructure. When possible, the environmental design regulations should be utilized.

The use of small publicly or privately owned pocket parks is a low-cost and low-maintenance compliment to the larger scale parks. Open space should be equally accessible and available to both single family and multi-family residential zones. A well-designed and landscaped community will attract both the residential and business growth that Churchill Farms aims to draw-in.

Appendices

Appendix A: Smart Growth Principles

Compact Building Design

Compact building design suggests that communities be built in a way which makes the allocation of municipal services less expensive and more efficient, preserves more open space and creates a density necessary to support wider transportation choices. Compact building design is an opportunity for cost savings to Jefferson Parish. This concept encourages buildings to grow vertically rather than horizontally, making more efficient use of land and resources. This approach also provides and protects more open, undeveloped land that would absorb and filter rain water, reduce flooding and stormwater drainage needs, and lower the amount of pollution washing into Parish streams, rivers and lakes. As part of 'Envision 2020', the parish also seeks to encourage regional transit and transportation system improvements. Compact building can help accomplish this by creating minimum levels of density that are required to make public transit networks viable and encouraging transit use to reduce air pollution and congestion.

Diversity of Housing Types and Opportunities

No single housing type can serve the varied needs of today's diverse households. Integrating single- and multi-family structures in new housing developments can support a more diverse population while providing more equitable housing options. Combining mixed land uses with a diversity of housing types creates the opportunity for all segments of the population to live close to work, community amenities and services. This mix would

be beneficial to the parish, especially given the expected influx of service, temporary and construction jobs related to the post Katrina rebuilding efforts.

The addition of units to existing neighborhoods, through attached housing, accessory units, or conversion to multi-family dwellings, creates opportunities to slowly increase density without dramatically changing the landscape. This approach would allow communities to become more familiar with and see the benefits of denser housing types over time.

New housing construction is also an economic stimulus for existing commercial centers that are currently vibrant during the work day, but suffer from a lack of foot traffic and consumers during evenings or weekends.

Most importantly, providing a range of housing choices allows all households (single professionals, families or retired couples) to find a home that suits their needs. As the parish's demographics change, this will be an important issue to consider in attracting and retaining a population.

Walkable Neighborhoods

Walkable neighborhoods are desirable places to live, work, and play. Additionally, walkable communities are within an easy and safe walk from goods (such as housing, offices, and retail) and services (such as transportation, schools, libraries) that a resident or employee needs regularly. They feature expanded transportation options and streetscapes that better serves a range of users: pedestrians, bicyclists, transit riders, and automobiles. A diversity of land uses and compact mixed-use developments, along with safe and inviting pedestrian corridors create walkable communities. By building places with multiple destinations within close proximity, where the streets and sidewalks balance all forms of transportation, neighborhoods have the basic framework for encouraging pedestrian traffic. These are all design concepts found in mixed-use developments that can improve the quality of life in Jefferson Parish.

Distinctive Communities with a Strong Sense of Place

Creating a sense of place is a design principle that encourages communities to craft a vision and set standards for development and construction, which respond to community values of architectural beauty and distinctiveness. It encourages the construction and preservation of culturally significant buildings, which prove to be assets to a community over time, not only because of the services provided, but because of the contribution they make to the look and feel of a city. By employing this principle, Jefferson Parish has the opportunity to develop interesting, unique communities that reflect the local culture.

Guided by this vision of how and where to grow, the parish can make new or mixed-use development conform to the established standards of distinctiveness and beauty. Consequently, high-quality communities with architectural and natural elements that reflect the interests of all residents are established. Thus, maintaining the value of these areas over time and providing residents with a distinctive and beautiful place to live.

Open Space

Open space defines natural areas that provide important community space, habitat for plants and animals, recreational opportunities, agricultural lands, places of natural beauty and critical environmental areas.

Protection of open space provide fiscal benefits to the parish, including increased local property value and property tax bases, tourism dollars, and reduced infrastructure and utility costs through natural storm water retention and run off. The availability of open space also provides significant environmental quality and health benefits. Open space protects animal and plant habitat, places of natural beauty and agricultural lands by removing the development pressure and redirecting new growth to existing communities. Ad-

ditionally, preservation of open space benefits the environment by combating air pollution, attenuating noise, controlling wind, providing erosion control, and moderating temperatures. Open space also protects surface and ground water resources by filtering trash, debris, and chemical pollutants before they enter a water system.

Redevelopment in Existing Communities

Development in existing neighborhoods allows communities to take advantage of existing infrastructure and services. It also represents an approach to growth that can be more cost-effective, improves the quality of life for its residents and conserves open space. By encouraging development in existing communities, communities benefit from a stronger tax base, closer proximity to jobs and services, increased efficiency of already developed land and infrastructure, reduced development pressure in edge areas, and, in some cases, strengthened rural communities.

Though there are many areas in Jefferson Parish where infill can be accomplished, greenfield development is still an attractive option to developers for its ease of access and construction, lower land costs, and potential for developers to assemble larger parcels. Typical zoning requirements in fringe areas are often easier to comply with, as there are often few existing building types that new construction must complement, and a relative absence of residents who may object to the disruption caused by new construction. Nevertheless, developers and communities increasingly recognize the opportunities presented by infill development, as suggested not only by demographic shifts, but also in response to a growing awareness of the fiscal, environmental, and social costs of development focused disproportionately on the urban fringe. As part of 'Envision 2020' Jefferson Parish sees the opportunity to improve and protect existing residential neighborhoods, strengthen and diversify commercial and retail areas as well as expand economic development opportunities; infill development can help the parish accomplish these goals.

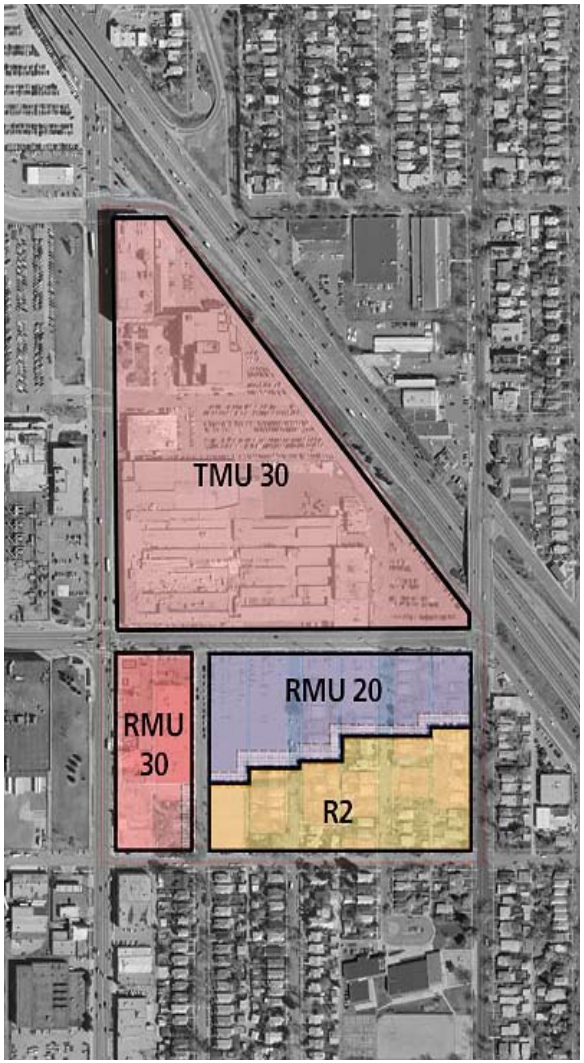
Variety of Transportation Choices

Increased choices in housing, shopping, communities, and transportation are key to successfully accommodating growth. Communities increasingly seek these choices. As traffic congestion worsens across the country, communities are beginning to implement new approaches to transportation planning, such as better coordinating land use and transportation; increasing the availability of high quality transit service; creating redundancy, resiliency and connectivity within road networks; and ensuring connectivity between pedestrian, bike, transit, and road facilities. By embracing some of these concepts, the parish can encourage regional transit and transportation system improvements while providing a transportation system supportive of the future land use plan, meeting the transportation objectives in the 'Envision 2020'.

Predictable, Fair and Cost Effective Planning Practices

The private sector must embrace development because the capital needed to accomplish large scale development generally comes from the private sector. Since the development industry is highly regulated, the value of property and the desirability of a location are largely affected by government investment in infrastructure and government regulation. Municipalities that make appropriate infrastructure and regulatory decisions will create fair, predictable and cost effective mixed-use developments.

Additionally, mixed-use developments require variances to the codes, often a time-consuming, and therefore costly, requirement. Expediting the approval process is important for the success of mixed-use developments. The longer it takes to get approval for development, the longer the developer's capital remains tied up in the land and not earning income. These concepts cannot be more relevant than in a post Katrina environment where the par-



ish will need applicable zoning, expedient permitting as well as the resources required for large scale rebuilding and redevelopment.

Community and Stakeholder Collaboration

The needs of every community and the programs to address them are best defined by the people who live and work there. Citizen participation, however, can be time-consuming, frustrating and expensive. Involving the community early can overcome such obstacles and vastly improve public support for innovative design concepts, leading to strategies that fit the unique needs of each community. Redevelopment plans and policies developed without strong citizen involvement, awareness and education will at best not have staying power; at worst, they will be used to create unhealthy, undesirable communities.

Education and outreach are other important aspects of participation in planning. The community may oppose different design concepts because they are not familiar with them or have seen ineffective examples in the past, causing them to fear further implementation of these concepts. For instance, a community may oppose the building of multi family housing in their neighborhood because the examples they are familiar with have deteriorated and become undesirable places to live. The community may not always see past short term changes to understand the long term benefits. Effective education and outreach programs can effectively inform these segments of the population, paving the way for successful mixed-use development in the parish.

Appendix B: Environment

Existing Conditions of State Wetlands

Louisiana hosts a rich and intricate ecosystem which is comprised of wetlands, marshes, swamps and a diversity of vegetation and wildlife. The state's coastal wetlands are crucial to the health of the local ecosystem and are an integral part of Louisiana culture, history, and livelihood. One of the most important functions of Louisiana's coastal wetlands is flood protection; acting as a buffer between the gulf waters and shoreline areas. The health of coastal wetlands also have a significant impact at the regional level, including the productivity of the commercial fishing industry, acting as navigational corridors for port facilities, safe harbors for off-shore oil production, and providing the natural habitat for fishing, hunting, and other recreational activities which continue to thrive in Louisiana culture.

In the last fifty years, Louisiana's coastal wetlands, swamps, and marshes have been disappearing at an astonishing rate of more than forty square miles per year. During the 1990's, coastal land loss rate is estimated between 25-35 square miles per year (www.lacoast.gov/Programs/2050/MainReport/report1.pdf), and state's coastal land loss represents 80% of the total coastal land loss in the entire continental U.S. (www.lacoast.gov/Programs/2050/MainReport/report1.pdf). Wetland loss has escalated as human development has increased across the state; a rise in dredge and fill activities, run-off from impervious surfaces, and rising sea levels all have a significant impact on wetland stability. The adverse impacts of the diminishing wetlands is particularly evident after the severe flood damage incurred by recent hurricanes Katrina and Rita, which devastated much of the urban infrastructure in Southern New Orleans and neighboring gulf states. Similarly, a decline in numerous wildlife species, shrinking fish stock, and increase in saltwater intrusion along the shoreline are all alarming indicators that current human development patterns must change.

Significance of Wetlands

Fish and Wildlife

A wide range of animals and plant depend on wetland habitat for their survival. In fact, over a one-third of the United States' threatened and endangered species live only in wetlands, and nearly half use wetlands at some point in their lives (**http://www.epa.gov/owow/wetlands/**). Estuarine and marine fish and shellfish, various birds, and certain mammals must have coastal wetlands to survive. Most commercial and game fish breed and raise their young in coastal marshes and estuaries, a significant portion of which comes from Louisiana. Wetlands provide the habitat for some of the commonly consumed fish, including menhaden, flounder, sea trout, spot, croaker, and striped bass. Likewise, shrimp, oysters, clams, and blue and Dungeness crabs utilize wetlands for food, shelter, and breeding. For other animals and plants, such as wood ducks, muskrat, cattails, and swamp rose. Many of the U.S. breeding bird populations and migratory waterfowl feed, nest, and raise their young in wetlands (**http://www.epa.gov/owow/wetlands/**). Louisiana's coastline and inland areas support a significant portion of the wildlife that continues to be an integral piece of state culture.

An Integral Part of the Economy

Economically, the decrease in Louisiana's coastal wetlands could be devastating, as much of the economy, particularly the commercial fishing industry, depends on an abundance of thriving wetlands. Swamps, bogs, and marshes provide critical habitat and spawning areas for fish and waterfowl. Therefore, the rapid rate in wetland deterioration over the last 50 years poses a serious threat to fish stock. In the last twenty years, Louisiana contributed 20% of the nations total fish harvest, and in 1996 marine commercial fishing brought in a total of 2.2 billion dollars. Likewise, commercial fishing helps sustain between 50,000 and 70,000 jobs throughout the state (www.lacoast.gov/Programs/2050/MainReport/report1.pdf). Both the commercial and recreational fishing industries have served as a consistent economic stronghold for the state, and Louisiana cannot afford to lose this source of revenue and employment.

Recreation and Aesthetics

The revenue generated from tourism and recreational activities related to Louisiana's swamps, bogs, and marshes are also a key piece of the regional and local economy. A preliminary survey conducted in 1996 by the Department of the Interior, and the Fish and Wildlife Service estimated that approximately 1.2 million Louisianans enjoy the outdoors, particularly recreational fishing, hunting, and wildlife watching. Between 1989 and 1995, the annualized growth rate in saltwater recreational fishing licenses was 6%, and from 1990-1995 the number of people employed in tourism grew by over 8% (this included over 800 visitors "wildlife watching" or other non-consumptive uses i.e. parks visitors) (www.lacoast.gov/Programs/2050/MainReport/report1.pdf). The natural environment is a critical asset to Louisiana's livelihood and therefore needs to be protected from further deterioration. Because much of coastal erosion is attributed to human development within the state, local parish governments must take the initiative to help manage the situation. Jefferson Parish has taken the initial steps necessary to help minimize the effects that stormwater runoff, sewage system discharge, and dredge and fill activities have on surrounding wetlands.

Storm Surge Buffer

Wetlands have a remarkable ability to buffer the storm surges from hurricanes and tropical storms. Shoreline erosion, therefore, reduces the level of protection from natural hazards, putting humans more at risk. Wetlands at the margins of lakes, rivers, bays, and the ocean protect shorelines and stream banks against erosion. Likewise, the natural wetland vegetation hold soil in place with their roots, absorb the energy of waves, and break up the flow of stream or river currents (http://www.epa.gov/owow/wetlands/).

Water Quality and Hydrology

Many states are restoring wetlands and constructing new wetlands in order to filter surface water runoff. Wetland vegetation helps retain excess nutrients and some pollutants. They also slow down water flow, settling sediment which keeps waterways clear and fish breeding grounds clean http://www.epa.gov/owow/wetlands/).

Managing Wetlands in Louisiana

The Coastal Zone Management Plan

Louisiana's Coastal Zone Management Plan, developed in 1976 was an important step in coordinating a statewide effort to better manage coastal resources. The primary purpose of the state's coastal zone management plan is to:

- to protect, develop, and restore or enhance coastal resources;
- to assure that constitutional and statutory authorities affecting uses of the coastal zone are included in the Louisiana Program and that guidelines and regulations adopted pursuant thereto are not interpreted to expand governmental authority beyond those laws;
- to express certain regulatory and non-regulatory policies for the program;
- to support and encourage multiple use of coastal resources consistent with the maintenance and enhancement of renewable resource management and productivity, the need to provide adequate economic growth and development and the minimization of adverse effects of one resource use upon another without imposing undue restriction on any user;
- to employ procedures and practices that resolve conflicts among coastal uses in accordance with Act 361 and to simplify administration procedures;
- to develop and implement a coastal resources management program based on our resources and the needs of the people of the state and the nation;
- to enhance the recreation values of the coastal zone; and
- to develop and implement an equitable management program with sufficient expertise to determine future development and conservation of the coastal zone and to ensure that

> state and local governments have the primary authority for managing coastal resources.
>
> (Jefferson Parish Coastal Zone Management Plan, 1976).

Local JP Coastal Zone Management Plan

Jefferson Parish lies entirely within the Louisiana Coastal Zone established by the State and Local Coastal Resources Management Act of 1978 (Act 361). In order to stay current and consistent with the state's coastal management program, Jefferson Parish initiated the development of its own coastal zone management program in 1976 with an environmental assessment of twelve areas within the Parish. The study conducted in the ensuing years, clearly identified a number of pressing issues for the parish, which included diminishing water quality and land loss. Decreased water quality in the parish is primarily attributed to urban runoff, agricultural runoff, and domestic sewerage. The population in Lake Pontchartrain's drainage basin has grown substantially in recent years, such that the fresh water in natural streams and drainage canals entering the lake also act as pathways for domestic waste and fertilizer. Similarly, a large portion of the diminishing wetlands within and outside of the parish are associated with human development that alters groundwater and surface water hydrology, primarily an increase in impermeable surfaces and dredge and fill activities. Land loss, as outlined in JP's coastal zone management plan, falls into four categories: saltwater intrusion, subsidence, dredge and fill activities, and coastal retreat.

While much of the land and wetland loss is occurring outside of Jefferson Parish, the drivers of land loss are largely a result of development activities within JP and neighboring parishes. In addressing this issue, it is necessary for policy changes and innovative management strategies surrounding smart growth. The establishment of the Jefferson Parish Citizens Coastal Zone Management Advisory Committee has the ability to help regulate development and mitigate coastal land loss issues. The committee represents multiple interests of the Jefferson Parish Coastal Zone in the development of a local coastal management plan. The committee consists of 22 members who serve as a liaison between the community and the parish administration. The goals for the local coastal management program are as follows:

- to improve the quality of the water discharged from the parish's sanitary sewer system and drainage system
- to review and monitor permits for dredging, filling or draining activities in parish wetlands
- to encourage compatible multiple use of the parish's coastal resources.

The CZM identifies the issues facing the parish and strategies to address those issues. Aside from improving drainage infrastructure, the CZM lacks specific strategies that current residents and new developers can use to minimize land subsidence, run-off, and erosion. The CZM would benefit from providing residents, business, and developers with guidelines for low-impact development, implementation strategies, and incentives to put policy into action. Recommendations for low-impact development can be found in Appendix G.

Local Management Efforts

Coastal zone management efforts by the JP Department of Environmental Affairs and local organizations place significant emphasis on improving water quality through improved storm-water runoff and sewerage discharge programs.

Department of Environmental Affairs (DEA)

Several federally-mandated programs are implemented by the Department of Environmental Affairs. These programs include:

- *Industrial Pretreatment Program* which regulates industrial discharges to the Parish sewerage treatment system
- *Stormwater Management Program* which through public education and regulations strives to reduce pollutants en-

tering Lake Pontchartrain and the Barataria Basin via the storm drainage system
- *Underground Storage Tank Compliance Program* which will result in all Parish-owned USTs being in compliance with federal and state regulations by the December 1998 deadline;
- *Coastal Zone Management Program* regulates uses within the coastal zone and seeks funding for and implements coastal protection.

The DEA is also putting additional effort in the following environmental projects: Alternatives for Controlling Nutria Damage, Weather and Water Data from the Davis Pond Diversion Area, and the Household Waste Reuse Recycle & Disposal Guide" (http://www.jeffparish.net/index.cfm?DocID=1167).

The Department of Environmental Affairs, like the CZM Committee, has the opportunity to lead the charge towards smart growth. By adopting new environmental standards and development strategies the DEA, in conjunction with the planning department and city officials, can support innovative design strategies within JP to reduce coastal land loss. Policies similar to the Growth Management Act (GMA) and Critical Areas Ordinance (CAO) of Washington State may serve as guidelines in the initial phases of policy change.

GMA Link: http://apps.leg.wa.gov/RCW/default.aspx?cite=36.70A

CAO Link: http://www.seattle.gov/dpd/stellent/groups/pan/@pan/@plan/@proj/documents/Web_Informational/cos_005280.pdf

Parks and Recreation

Jefferson Parish has several large park areas ranging between 140 acres to 12,000 acres, as well as several smaller parks and a network of pedestrian paths and bike trails (Jefferson Parish Coastal Zone Management Plan, 1976). The west bank of JP has approximately eighteen playgrounds. In an urban environment, parks and open space provide a place for neighborhoods and communities to gather, a quiet place to slow-down and reflect,

and a place to recreate. The integration of open space across an urban area also provides environmental benefits by increasing the area of permeable surfaces, natural ground cover, and continuity of wildlife habitat.

Existing parks and recreation areas, as described in the Coastal Zone Management Plan for Jefferson Parish, include:

Jean Lafitte National Historical Park

The 8,600 acre Jean Lafitte National Historical Park is wholly located in the southern half of the Bayou Segnette Management Unit. A 12,000 acre "park protection zone", immediately north of the park, encompasses most of the remainder of the management unit. Although the national park will obviously overshadow all future development in the unit, it does not automatically assure the future environmental integrity of this area. The facilities for the park are currently being built.

Bayou Segnette Park and Marina

This park is located at the headwaters of Bayou Segnette at Lapalco Boulevard. Facilities are expected to include a golf course, riding stables, picnic areas, a pavilion, a skeet range, nature areas, tennis courts, a football field, a baseball diamond, a cultural center, and a marina.

Jefferson Linear Park

Jefferson Parish has developed a linear park along the Lake Pontchartrain levee. The park includes bicycle, pedestrian and bridal pathways; picnic areas; fishing piers and boat launches.

Bucktown Marina

This marina will be located on Lake Pontchartrain at the Metairie Relief Outfall (17th Street) Canal. Plans include a breakwater, dock and piers to moor recreational and fishing vessels, dry boat storage areas, and a fishing pier/observation area.

Lafreniere Park

This park consists of 155 acres located near the intersection of David Drive and West Napoleon Avenue, at the site of the Old Jefferson Downs Race Track. The park provides facilities for boating, cycling, tennis, football, baseball, picnicking and other recreational activities.

Grand Isle State Park

The state park consists of 140 acres on the east end of Grand Isle and additional acreage on the west end. Facilities are included for seashore recreational opportunities such as swimming, boating, fishing, picnicking, and camping.

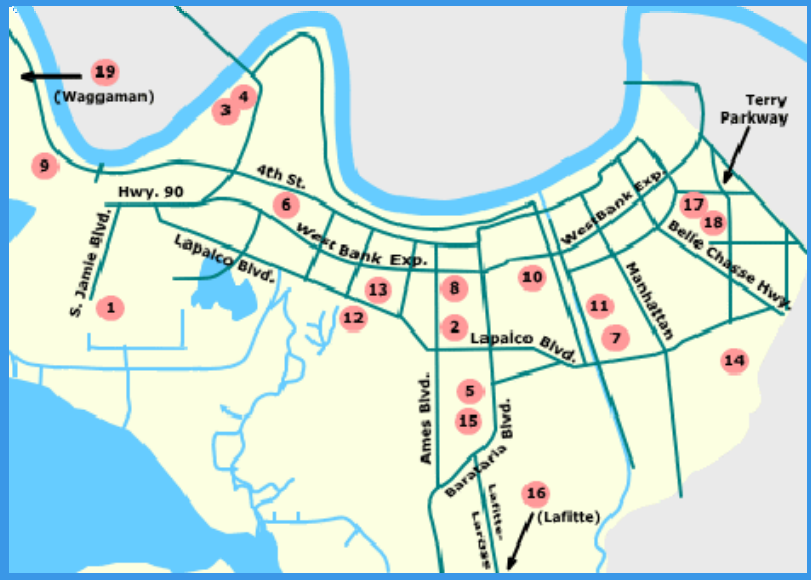
(Source: Jefferson Parish Coastal Zone Management Plan, 1976).

Opportunities with Parks and Open Space

As Jefferson Parish continues to rebuild and develop, the addition of small pocket parks may serve as an added asset to local residents, families, and visitors. Close examination of the west bank demonstrates that the area could be better served by public open space, particularly by the addition of smaller parks within walking distance of local neighborhoods (Jefferson Parish Comprehensive Plan). Smaller "pocket" parks are less expensive to build, and are easier and less costly to maintain than large scale open space. The network of canals and natural waterways also affords the opportunity to use these water features as amenities, and expand on the existing pedestrian and bike trails. The preservation of existing waterways and construction of new wetland areas is yet another opportunity for Jefferson Parish to both enhance the existing natural landscape

with passive open space, while at the same time utilizing these water features for functional drainage purposes (i.e. retention ponds).

Recreation and utilization of wildlife areas is an integral piece of Louisiana's economy and culture. In order to better manage, maintain, and develop parks and recreation space, JP would benefit from the addition of community visions, goals, and objectives in the Comprehensive Plan. Clear goals and visions facilitate the development and maintenance of these unique communal assets in the future.



1. Avondale Playground
2. Belle Terre Playground
3. Bridge City Playground
4. Bridge City G/A Center
5. Estelle Community Center
6. Harold McDonald Sr. Park
7. Harvey Playground
8. Jacobs Playground
9. Kennedy Hgts. Playground
11. M.L. King Playground
12. Main Office - WestBank
13. Nicholson Playground
14. Oakdale Playground
15. PARD Playground
16. Rose Thorne Playground
17. Terrytown G/A Center
18. Terrytown Playground
19. Waggaman Playground

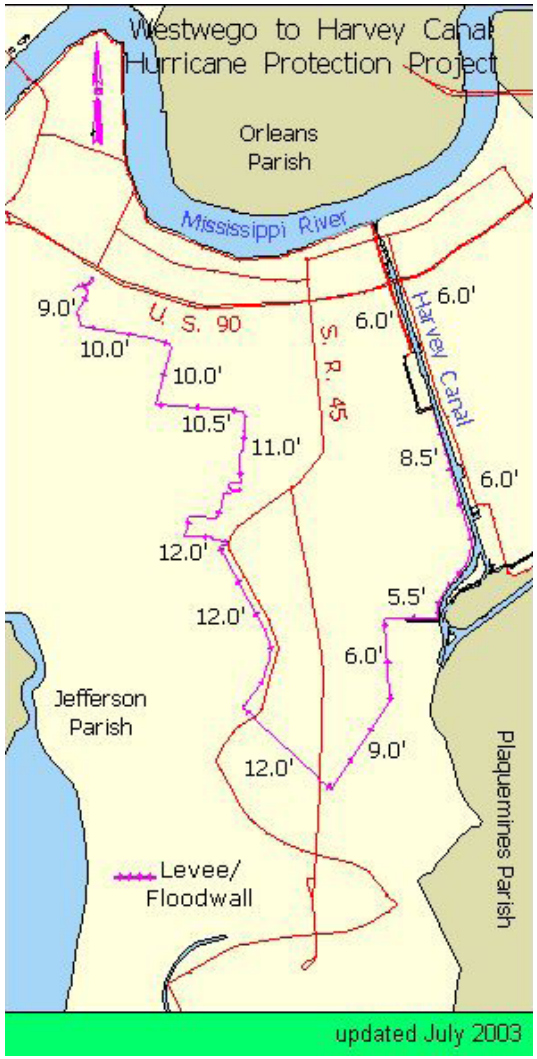
Appendix C: Hazards

There is a multitude of natural hazards facing Jefferson Parish, each of varying frequency with varying impacts. Many of the hazards that impact Jefferson Parish are weather related; hurricanes, flooding, thunderstorms, lightning, high winds, tornadoes, hailstorms, storm surge, and winter storms are all caused by extreme weather systems. Jefferson Parish also faces terrestrial and environmental hazards, such as subsidence and wildfire. Hurricanes and flooding are the most frequent hazards, resulting in the greatest impacts; each of these hazards is described in detail below.

Though hurricanes and flooding are two major hazards facing all of Jefferson Parish, other hazards facing the area may have limited impact on the West Bank. Storm surges, caused by hurricanes and other coastal storms, are of large concern to Jefferson Parish in general, but primarily to the southern coastal areas, which face significant erosion. Erosion affects the barrier islands, coastal marshes and wetlands and as these deteriorate, the impacts of hurricanes and flooding will increase in upper Jefferson Parish. Also, as the natural barriers to storm surge along the coast weaken, storm surges will travel further inland. Storm surge traveling up navigation channels or the Mississippi River and causing levee breeches or overtopping is the main danger to the West Bank from storm surge.

Thunderstorms, tornados, hailstorms, and winter storms all pose similar threats to Jefferson Parish, including the West Bank. Wind and precipitation are the primary hazards caused by these weather systems. High winds associated with these hazards can cause damage throughout the parish. Flooding, discussed below, is a significant secondary hazard caused by high levels of precipitation associated with storms.

In addition to weather related hazards, Jefferson Parish is threatened by other significant hazards, such as land subsidence, expansive soils, wildfire and drought. Land subsidence, the loss of surface elevation due to the removal of subsurface support, ranges from broad, regional lowering



of the land surface to localized collapse. Subsidence is a significant hazard in Jefferson Parish, as is the relationship between subsidence and increased flooding risk, which is discussed in detail below. Additionally, expansive soils, soils and soft rock that tend to swell or shrink due to changes in moisture content change in volume, presenting a hazard to structures built upon them; the most extensive damage occurs to highways and streets.

Similar to many regions in the nation, Jefferson Parish faces the hazards of drought and wildfire, though these hazards are less likely than the others to reoccur each year. Marshes, wetlands, agricultural, and forested lands are most susceptible to wildfires; weather and vegetation density are critical indicators of fire potential and severity. Drought is caused by a deficiency of precipitation over an extended period of time; its impacts include potential for forest fires, destruction of agricultural crops, and reduction of surface and subsurface water supplies.

Regional Hazards

Hurricane Risk

The various hazard components and risks associated with hurricanes come from storm surge, rainfall, and wind. High winds impact utilities and transportation, as well as buildings (residential, commercial, and industrial). Moreover, essential services and emergency services (police, fire, medical) are rendered ineffective due to tremendous amounts of disruptions to transportation and communication channels.

Areas outside the levee system are the most vulnerable to hurricanes. See Map 1 for West Bank levees system. If a hurricane's path is over the West Bank, its 19 pump stations will likely be overwhelmed and the area will be flooded. Silt, trash and other obstructions in the drainage system can further lengthen the inundation period.

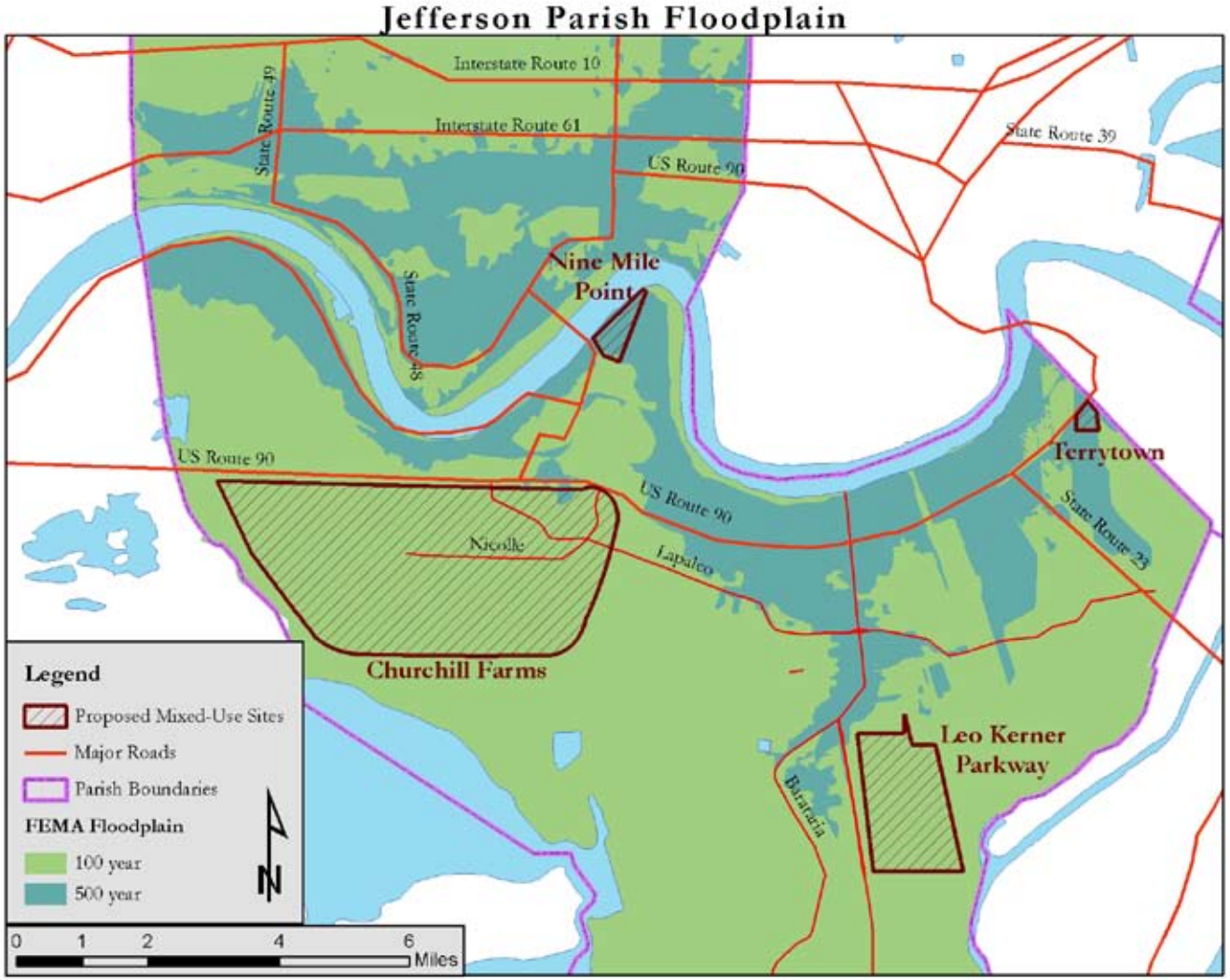
The likelihood of a hurricane or tropical storm impacting Jefferson Parish in a given year is between 75-100 percent, according to Jefferson Parish's Hazard Mitigation Plan. The Plan indicates 8 hurricane and/or tropical storms have impacted the Parish in the

last 7 years, (see Appendix). The latest update to the plan was prior to the Hurricane Katrina (August 2005) event. Including Hurricane Katrina, Jefferson has a recurrence rate well over 100% in a given year.1

A hurricane's frequency of occurrence in the West Bank of Jefferson Parish is more difficult to predict given the available data. However, any frequency estimate specific to the West Bank is unlikely to deviate from the Parish-wide recurrence rate. Map 2 shows the unpredictability of hurricane paths affecting Louisiana; the Category 3 Hurricane Katrina is not displayed.

Loss of life, property damage, and negative economic impacts are all risks from hurricanes. The current population of the West Bank, approximately 198,000, is likely to increase as development in the West Bank gains momentum. The southern portions of Jefferson Parish (i.e. West Bank, Grand Isle and Lafitte) are the most exposed areas of the parish, a situation further exacerbated by diminishing buffers (e.g. wetlands).

1 Jefferson Parish Hazard Mitigation Plan, July 2005 Update


Jefferson Parish Floodplain
Interstate Route 10
Interstate Route 61
State Route 39
US Route 90
State Route 48
Nine Mile Point
Terrytown
State Route 23
Nicolle
Lapaleo
Churchill Farms
Leo Kerner Parkway
Barataria
Legend
Proposed Mixed-Use Sites
Major Roads
Parish Boundaries
FEMA Floodplain
100 year
500 year
N
0 1 2 4 6
Miles

Flooding Risk

Along with hurricanes, flooding is a major hazard facing Jefferson Parish. Unlike hurricanes, which have a distinct season, flooding risk exists year round. Flooding is generally the result of weather events, such as hurricanes, thunderstorms, and winter storms, depending on the season. Flooding occurs because of high levels of precipitation that cannot be pumped out of the low lands within the levees system quickly enough. Flooding also occurs as a result of levee breach or over topping, as happened in New Orleans and Metairie because of Hurricane Katrina. The principle sources of flooding are rainfall ponding, levee overtopping, and hurricane or tropical storm surges originating in the Gulf of Mexico.

Jefferson Parish, in its entirety, is within the 500 year floodplain, as defined by the National Flood Insurance Program, and the West Bank, with the exception of areas near the river, is at or below sea level and within the 100 year floodplain. (See Map 3) There are two types of flood hazard zones designated in the West Bank by the Flood Insurance Rate Map (FIRM), AE and AO; though only a small area is designated AO. AO indicates an area susceptible to shallow flooding of one to three feet in depth, while AE indicates general areas of flooding risk. The West Bank has varying base flood elevations from 1 to 7 feet. Flood depths of 5-15 feet above ground level are possible in the West Bank; extreme depths have the potential to occur as a result of levee breaches and heavy rainfall.

The probability of floods reoccurring yearly in Jefferson Parish is highly likely – at least a 75% chance each year. The National Climatic Data Center indicates that there have been 14 flood events in Jefferson Parish since 1994. Of the fifteen federally declared disasters in Jefferson Parish, seven were due to flooding.

Both the east and west banks of Jefferson Parish are protected from flooding by levees, drainage canals, and storm water pumps. Levees (Mississippi and tributary) protect Jefferson Parish from flooding due to high stages in the Mississippi River. Parish-built levees in the West Bank provide a degree of protection from hurricane surge originating in the Gulf of Mexico,

although, these levees may not offer protection from large events.[2] If high water levels exist in and around levees, this can often result in levee failure, due to erosion and extreme pressure on levees. If nutria have weakened the integrity of the levees, levee failure may also occur which would result in flash flooding.

A system of canals and pumping stations drain floodwaters from Jefferson Parish. The pumping systems have inadequate capacity to handle high volumes of floodwaters. Additionally, man-made barriers, such as highway and railroad embankments, trap water in areas where existing drainage structures are inadequate.

Lines of Defense

Hurricanes pose a significant threat to the West Bank, but there are a series of natural and human-made lines of defense protecting areas of development in the parish from storm surges and waves.

Storm surge begins at the continental shelf in the Gulf of Mexico. As it moves inland barrier islands dampen the surge. Just landward of the barrier islands are shallow sounds and bays which allow waves to regenerate if a hurricane passes over them. Land bridges of wetlands, marshes, and swamps dampen the storm surge and waves as they head inland. Natural ridges created by Mississippi River distributaries also dampen storm surges. Human-made soil foundations further inland, such as roads and railroads, act similarly to natural ridges to further dampen storm surge or act as small levees for smaller surges. Additionally, flood gates block surge from traveling up and damaging navigation channels. The final lines of defense – levees, pump stations, elevated structures, and evacuation – are adjacent to or within developed areas and directly impact development in the West Bank; these lines of defense are discussed below.

The protection that the natural systems provide is critical to the West Bank. Unfortunately, the processes protecting inland areas from hurricane surges also deteriorate the natural protections. Barrier islands and protective land bridges are eroded by storm

2 Flood Insurance Study, Jefferson Parish, Louisiana, Incorporated and Unincorporated Areas, March 26, 1995

surge and wave action. Additionally, changes in sediment deposition and water flows in the Mississippi River have reduced the regeneration of land. Decreases in vegetation have also left the protective land bridges susceptible to erosion.

Levees

Jefferson Parish's urban areas are largely surrounded by levees and floodwalls. The entire protective system is managed and maintained by the associated Levee District. The West Bank's system is administered by the West Jefferson Levee District. It should be noted, though, that the levee district system is currently under review with expected administrative changes.

Levees are structures made of clay in a cross section. Commonly, the base is ten times as wide as the height, providing resistance to surge and cuts from breaches. Floodwalls are walls made from concrete and steel on the top or instead of levees. The East Bank of Jefferson Parish has floodwalls along the canals that drain storm water into Lake Pontchartrain. However, the West Bank is largely protected by levees. Jefferson and St. Charles Parishes are separated by floodwalls. The Harvey Canal south to the V-levee near Jean Lafitte National Historical Park and back toward the town of Westwego is enclosed by approximately 22 miles of earthen levee and 12 miles of floodwalls. The East of Harvey Canal area includes a sector floodgate in the Harvey Canal just below Lapalco Boulevard and about 25 miles of levee and five miles of floodwall, including enlargement of the Federal levee along the Algiers Canal.[3]

Soil failures within embankment or foundation soils threaten the stability of the levee or floodwall that sit atop. Displaced soil mass also can occur at the foot of the levee embankment. This process can undermine the structure's ability to resist water force. Additionally, overtopping of the structure causes scouring on the landside which reduces the levee or floodwall's ability to withstand force. Scouring at canal bottoms also aggravates

3 U.S. Army Corps of Engineers, www.mvn.usace.army.mil/pao/visitor/index.htm

levee or floodwall failure. Finally, the subsidence generated by the drainage system increases the likelihood of soil failures.

Storm surge up the Mississippi Delta can impact the levee system by overtopping. Additionally, canals are vulnerable to large volumes of water. In the West Bank, the Harvey Canal is expected to have a sector gate completed by 2006 to minimize the storm surge risk in the canal.[4] Non-native nutria can exacerbate erosion of the levee system. Meanwhile, wind blown debris (i.e. trees) can compromise a levee's integrity.

Levee systems enclose the West Bank keeping the water inside from naturally receding. Furthermore, un-manned pumping stations can elongate the period of time that water stands. Standing water can generate and spread disease and create mold. The mix of sewage, chemicals, and other waste in standing floodwaters generates a significant health risk.

Existing levees and floodwalls prevent the Mississippi River from natural deposition. Currently, the river is dumping sediments into the deep waters off the Louisiana coast. Sediment is not being deposited in wetlands resulting in a lack of accretion; thus, a loss of wetlands. Wetlands are necessary to act as buffers to the flood and hurricane threats. Additionally, channels are exposing freshwater marshes to salt water at an unnatural rate; threatening their stability.

Pumps

The West Bank, exclusive of Crown Point, Lafitte and Barataria, has 19 pump stations: 16 existing plus 3 new facilities presently being brought on line. The stations serve an area of 48,483 acres with a population of 192,919.[5] Presently, Jefferson Parish's drainage system provides protection against a 10 year flooding event, but does not have the capacity to pump out larger amounts of flood water efficiently. Mitigation techniques practiced by the Department of Drainage include: cleaning drainage channels of silt, trash and hazardous obstructions in addition to removing blockages from roadside gutters, catch basins, drain inlets and culverts. The Department also sprays aquatic growth and weeds in drainage channels.

4 Ibid

5 Jefferson Parish Department of Drainage Public Works, www.jeffparish.net/index.cfm?DocID=1162

At a local scale, the effect of fluid withdrawal can affect subsidence. It is well documented that forced drainage areas experience enhanced subsidence; compounded by the drainage of wetlands for agricultural, residential, or industrial development. Drainage causes additional subsidence of soils and reduces elevations to below current sea level in many areas. These processes make the area more dependent on levees to protect the developed areas from flooding. As witnessed in Hurricane Katrina, a station left unmanned, thus inoperable, results in standing floodwaters. This standing water can create disease and mold problems. Additionally, rescue and recovery operations may be severely delayed.

Elevated structures

Flood waters and storm surge can threaten the ability to occupy most ground-level structures. Hence, elevated structures minimize the risk from flooding, storm surge, and their accompanying secondary hazards (i.e. mold). Structures are required to be built above National Flood Insurance Program (NFIP) levels. However, the NFIP has not yet taken into account relative sea-level rise; thus, underestimated flood levels should encourage structural elevation beyond regulations. During an event the structures provide areas of refuge from flooding and surge. Additionally, an open plan on the ground floor minimizes surge effects on the structures stability and functionality. Finally, post-event benefits of elevated structures include occupancy and minimal reconstruction.

Evacuation

Existing evacuations routes service the West Bank of Jefferson Parish. The designated routes are highways and arterials with capacities large enough to serve the West Bank population. Although a regional evacuation could cause delays and blockages on the primary evacuation routes. Also, much of the local road network is susceptible to flooding rendering evacuation procedures inadequate. Moreover, current climate changes have produced a higher frequency of hurricanes in a season. Increasing hurricane fre-

quency, coupled with inadequate horizontal evacuation opportunities, has resulted in a deteriorating probability that citizens will evacuate the region due to an arriving hurricane. Moreover, low-income populations are less likely and capable of escaping the region. Alternative evacuation measures must be considered for vulnerable populations. Structural evacuation options should be pursued in the West Bank of Jefferson Parish.

The availability of "natural" vertical evacuation is non-existent in Jefferson Parish, which is largely at or below sea-level. However, structural evacuation presents a viable option in new development. Multi-story structures lower the vulnerability of populations unable to leave the region. Existing and continuing trends in low-density developments in the parish would require exploration into the opportunities of various safe-havens in town centers via multi-story structures. Structural evacuation opportunities should be considered among a variety of structures, rather than a limited number of high-rise structures. High-rise structures can often be more vulnerable to higher wind velocities and are often limited in access due to current development trends. The development of three to five story structures should be encouraged for vertical evacuation options. Structural evacuation facilities can also provide operational sites for emergency services during a hurricane or flooding event. Specifically, relevant government, police, fire, and rescue operations can rely on these structures for administrative and physical storage functions.

Opportunities in Mixed-use

Mixed-use developments and communities provide opportunities for vertical evacuation among the both the residential and surrounding communities. The multi-story characteristic of many mixed-use structures allows for safety on the upper levels. Meanwhile, the lower levels of retail or office use are likely to be impacted by flooding or storm surge. The three to five story mixed-use structures are minimally af-

fected by an increased wind velocity; however, high-rises are more vulnerable to increased wind forces.

Regional, or larger, retail mixed-use structures should consider parking facilities at higher levels, including rooftops. These available areas provide storage facilities for emergency service vehicles and other equipment during an event. Additionally, retail and office space at higher levels of the structures could provide a place of refuge for populations not residing in the mixed-use structure. Of course, prior agreements with local businesses should be established to ensure these areas are available to the public during an event. Plainly, mixed-use structures reduce the vulnerabilities of residents and communities from storm surge and flooding that affect the majority of single story structures in the West Bank of the Jefferson Parish. Single-family homes can also be designed to reduce vulnerabilities to storm surge and flooding. Elevated homes can provide refuge from high waters. Alternatively, parking beneath the home allows for the living spaces to be less vulnerable.

Future Scenarios

Over time the character of the risks in Jefferson Parish will change because of climate change induced sea level rise, increases in hurricane force and frequency, and land subsidence.

Sea Level Rise

Sea level rise is largely affected by erosion, flooding, global warming, and storm damage. Recent estimates indicate global sea level rise will be between 15 and 95cm by 2100.[6] Human manipulation of the coastal environment in the form of seawalls/levees and infrastructure have altered the geological processes that preserve and enhance land formation. The coastal slope along the Louisiana coast is also considered to be at highest

6 USGS Open-File Report 00-179, pubs.usgs.gov/of/2000/of00-179/

risk in the Gulf of Mexico; this variable increases the vulnerability to land loss. In the Gulf, changes in sea level rise are greatest around the New Orleans metro area where rates can be up to 10mm/yr.[7] The high rates of sea level rise surrounding Louisiana are primarily due to the natural compaction of deltaic sediments in the Gulf. The encroaching sea threatens the survivability of existing fresh water wetlands, which act as natural buffers from hurricanes and flooding. Currently, Louisiana's wetlands are critical protective features for populations in the West Bank. Also, sea level rise's erosive process will undermine any man-made protective systems.

Hurricane Frequency/Force

Multiple factors contributed to the size of Hurricane Katrina, a Category 5 hurricane which weakened to a Category 3 just before landfall. First, sea surface temperatures in the Gulf of Mexico were one to two degrees Celsius above normal, and the warm temperatures extended to a considerable depth through the upper ocean layer. Also, Katrina crossed the "loop current" (belt of even warmer water), during which time explosive intensification occurred. Additionally, vertical wind shear was less than normal, which allowed for the storm to develop quickly.

The temperature of the ocean surface is a critical element in the formation and strength of hurricanes. There has been an overall increasing trend in July-September Atlantic and Gulf of Mexico sea surface temperatures during the past 100 years marked by two distinct periods of increasing temperatures (1910-1945; 1976-present). This pattern is similar to that observed across global land and ocean surfaces. These increases in sea surface temperature and depths of warm surface water columns could lead to hurricanes of greater force each season, increasing the risks of hurricane damage and related storm surge and flooding.

Subsidence

Land subsidence, the loss of surface elevation due to the removal of subsurface support, ranges from broad, regional lowering of the land surface to localized collapse. Sediment compaction typically causes broad regional subsidence. Rates of subsidence are usually low, ranging from a few millimeters to centimeters per year, but total subsidence may

7 Ibid

reach several meters over decades. Underground fluid withdrawal is one of the major causes of sediment compaction in the United States. Another type of sediment compaction occurs naturally as older sediment is buried by younger sediment. Natural subsidence is occurring most rapidly in the Mississippi River Delta area of southern Louisiana where average rates of subsidence range from 0.3 to 0.4 inches per century. Drainage of organic soils, particularly peat and muck, induces a series of processes that reduces the volume of soil. These processes include biological oxidation, compaction, and desiccation. Tides and heavy storms in the Gulf are eroding Louisiana's marshy coastline at an alarming rate. Coastlines in southern Jefferson Parish are sinking or eroding away with incoming water eating at the marshes and wetlands that buffer and drain the higher drier land. Map 6 shows actual and predicted land changes in southeastern Louisiana.

The rates of natural subsidence and sea-level rise along the Louisiana coast have been exacerbated by human modifications, primarily levees, which have isolated the Mississippi River from a delta complex that depends on an annual flooding cycle. These modifications cut off the delta-building process of the river.

Louisiana's coastal system, specifically Jefferson Parish, has also been heavily impacted by channels dug for navigation and mineral extraction, which have allowed high-salinity Gulf waters to migrate inland. Over a million acres of coastal land have been lost since the 1930s, and between 25 and 35 square miles continue to be lost each year. Louisiana's coastal ecosystems are threatened with systemic collapse.

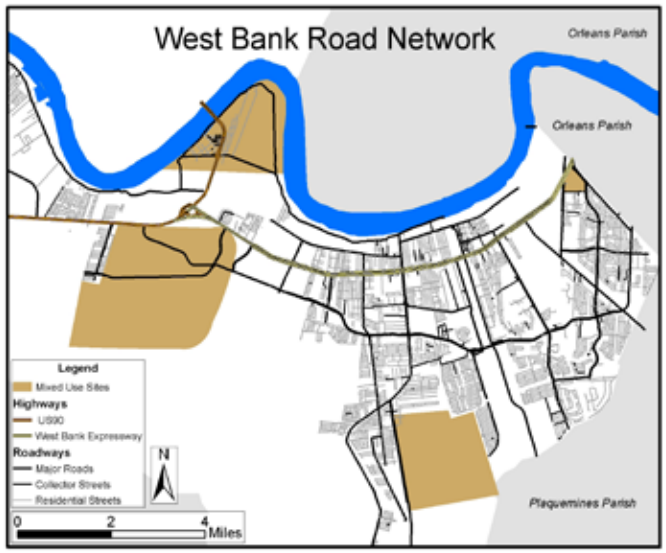
Recommendations

Based on the impacts of hurricane and flood risk in Jefferson Parish's West Bank, the following recommendations should be considered for mixed-use development in the West Bank:

- Explore incentives for elevated structures above the NFIP requirements
- Encourage mixed-use developments/communities as areas of refuge, including opportunities for vertical evacuation
- Promote elevated parking facilities, serving as emergency service functions
- Assess the impact of increased population on evacuation routes in the West Bank

Appendix D: Transportation

The transportation network responsible for meeting the basic daily travel needs of Jefferson Parish residents is composed of roadways, transit, sidewalks, crosswalks, and bicycle paths. There are over 3,500 lane miles of streets in the parish. The street pattern on the West Bank is a combination of traditional block plans interspersed with less predicable roadway systems. These less predictable road designs generally service the numerous independent residential subdivision developments that are dispersed randomly throughout the West Bank. Additionally, drainage canals meander across the West Bank creating barriers within the street network. The resulting network is often disconnected and a challenge to navigate.



Despite Jefferson Parish's incongruous road network, a number of opportunities exist to improve linkages and the navigability of the West Bank. The Transportation Element of the Comprehensive Plan, in conjunction with the initial research compiled for the Thoroughfare Plan, provides many insightful solutions to some of the Parish's most pressing road related needs. However, roadway modifications are not the only solution to traffic congestion. The purpose of this section is to offer a vision of how mixed use areas and neighborhoods can be effectively linked with an integrated, multimodal transportation network of highways, collector streets, sidewalks, bikeways and transit to help reduce traffic congestion and improve mobility on the West Bank.

This section first provides an overview of some of the planned transportation system improvements for the West Bank namely, the Huey P. Long Bridge expansion and the addition of Interstate 49. Subsequently, opportunities are identified where the Parish can enhance and better link three key components of the area's multimodal transportation network to areas designated for mixed use development on the Future Land Use Map: public transit, pedestrian access, and bicycle routes. These opportunities were identified based on budgetary constraints after Hurricane Katrina, existing road congestion, and the recent rapid rate of subdivision development on the West Bank.

Planned Major System Improvements

(Existing road network map)

The primary transportation issues from the Envision Jefferson 2020 public participation process evaluated the connectivity of the road network and concluded that a significant problem with road congestion exists in the Parish. Two major road projects, the West Bank Expressway and the Huey P. Long Bridge, on the West Bank attempt to mitiga some of the most notable congestion problems.

Huey P. Long Bridge Expansion

The expansion of the notoriously narrow Huey P. Long Bridge will improve access to the West Bank, subsequently increasing residential density and encouraging economic development. The primary purpose of this project is to widen the bridge, which currently services more that 50,000 vehicles a day, from four to six lanes; resulting in increased traffic capacity, flow, and safety. The expansion, due to be completed by 2012, is divided into three phases: (1) widening and strengthening the bridge substructure; (2) widening each side of the bridge from two 9-foot wide lanes to three 11-foot wide lanes with a 2-foot wide offset on the left and an 8-foot shoulder on the right (a total of 18 feet to 43 feet on each side); and (3) widening the main river trusses.

The project is estimated to cost $413 million, although recent bids for the project have been higher than projected. The costs of Hurricane Katrina clean up, the scarcity of labor and the substantial fleet of floating equipment, which became almost nonexistent after Katrina, threatens to force the project over budget.

Interstate 49

The completion of I-49 in southern Louisiana accomplishes three goals. First, I-49 will connect Kansas City with New Orleans providing a continuous interstate highway corridor between Louisiana, the central United States and central Canada. In southern Louisiana, I-49 will extend the existing portion currently ending at the interchange of

I-10 in Lafayette. The new extension will loop down into the West Bank of Jefferson Parish and reconnect with I-10 in New Orleans. Secondly, I-49 as a 12 lane highway will provide much needed traffic relief to US-90. Lastly, the project provides an alternative evacuation route to the lower capacity US-90.

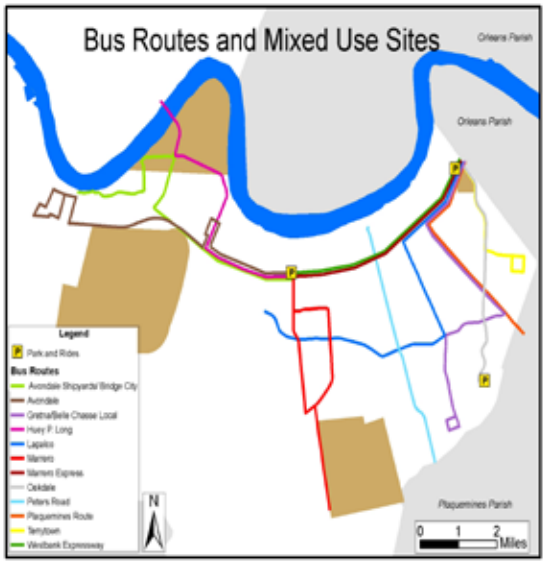
The section of I-49 passing through Jefferson Parish and the proposed Churchill Farms development is identified in NEPA documents as Section of Independent Utility 2 (SIU 2), alternatives 5a and 5b. Alternative 5a proposes to maintain the existing route of US-90 while upgrading the roadway to interstate standards. As this alternative remains on the US-90 right-of-way it requires relatively little land acquisition. However, there are numerous problems with this alternative. Since US-90 was built, the roadway has subsided to three feet above sea level and is currently below the allowable level for the 100-year floodplain. Thus, the expansion must include raising the roadway. Also, US-90 runs directly through Waggaman, Avondale, and the City of Westwego. Consequently, expansion of the roadway would significantly impact the quality of life for residents in these communities, as well as threaten the businesses along the existing route.

Alternative 5b was proposed by the City of Westwego and the study was supported by Jefferson Parish. This alternative runs south from US-90 at the US-90-Lapalco Boulevard intersection. The proposed route continues southwest between the Tournament Players Club of Louisiana golf course and the Avondale Homes subdivision, curves west just south of Avondale, and then continues northwest at the confluence of Bayou Gaudin and Main Canal and rejoins US-90 just west of the St. Charles/Jefferson Parish line. Negative community reaction to the construction will be minimal due to the site residing on currently undeveloped land. However, a problem with this alternative exists. Specifically, the right-of-way acquisitions and potential of significant impacts on the environment will be barriers to the process. Also, in the public meetings there was concern about alternative 5b encouraging development in a sensitive area that is significantly below sea level.

Opportunities for Improved Linkages

Public Transit

Overview of fixed bus route system on West Bank, (Map of Existing Bus routes with P&Rs)



Jefferson Transit is the primary agency responsible for coordinating public transit on the West Bank. Prior to Hurricane Katrina there were thirteen fixed bus routes that serviced the West Bank. The routes connected primary urban centers of the West Bank along major thoroughfares, stopping approximately every two blocks. The existing routes, prior to Hurricane Katrina, are disbursed evenly throughout the West Bank and service the Multi Use Corridors (MUCD) illustrated on the current zoning map.

The transit system has not yet developed to a level which it is able to service neighborhoods on a local scale. Nor does the transit system provide thorough service to the mixed use areas discussed in this report. The Nine Mile Point site is the only mixed use area that has transit routes running through it. The boarders of the Terrytown site are served by transit on the northwest and northeast ends, however no routes run through the site. The Churchill Farms and Leo Kener Parkway sites are devoid of transit routes, namely because residential and commercial uses have yet to be established in those areas. If density on the West Bank increases, an effort should be made to promote bus ridership and routes should then be extended into the mixed use sites and other residential neighborhoods.

Increased Express Bus Service

Jefferson Parish is a suburban bedroom community of New Orleans. Consequently, the Parish's transit services should strive to serve both commuters and infrequent users. Prior to Hurricane Katrina only one express bus shuttled commuters directly to the New Orleans Central Business District. Increasing the number and frequency of express buses between the West Bank and nodes on the East Bank (including New Orleans) would benefit existing residents and aid in attracting potential residents to the West

Bank. Also, bus pullout bays at transfer points along arterials which reduce vehicular conflicts with the transit system and help to preserve traffic flow should be encouraged.

Park and Rides

The convenience of park and ride lots is one of the key elements of attracting commuter ridership. Currently three designated Park and Ride lots on the West Bank exist. The Gretna/Wilty terminal and Walkertown terminal are located along the West Bank Expressway. The Oakdale Park and Ride is near the southeast edge of the parish boundary to the east of Wall Boulevard and is the only lot located south of the Expressway. West Bank residents would benefit from additional park and ride lots strategically located to serve population centers in proximity to mixed use areas of the West Bank. Mixed use retail areas provide services compatible with commuters and other transit users. These lots combined with added express bus routes have the potential to significantly increase commuter service while simultaneously reducing congestion during peak periods. In some cities, transit agencies have significantly increased demand for additional park and ride locations and capacity but initiating a marketing campaign to educate the public and by increasing lot capacity across county.

Park and ride structures, if designed appropriately can serve a duel purpose in Southern Louisiana. Reinforced concrete structures can provide a safe and dry area for aid workers, police, and evacuees during a hurricane or tornado. These structures are ideal because they can hold many people, be designed to include protected areas away from wind and water, and are elevated so as to provide access for vertical evacuations.

Employee Incentive Programs

Trip reduction programs strive to encourage employers and their employees to reduce single occupancy vehicle trips that are the root of congested roadways. These programs provide incentive tactics for employers to encourage workers to ride public transit and use other forms of transportation to get to work instead of driving alone. This method of encouragement has proven to boost transit ridership and reduce road congestion during peak commute hours. Some of the incentives that programs such as these include are:

- employer subsidized bus passes
- parking subsidies for carpools
- guaranteed ride home services that entitles employees to a free ride home (up to several times per year) if they find themselves stranded at work

Pedestrian Access

Sidewalks

In general, West Bank pedestrians are limited by a dilapidated, ineffective, and in many areas non-existent sidewalk system. Comments from public meetings indicate that inconsistent sidewalks are one of residents' primary concerns. Property owners are mandated by the parish zoning code, Article V, Section 29-143, "to maintain the sidewalk space adjacent to or upon their property" including, "pave, construct and install, or otherwise provide sidewalks". Additionally, Section 25-344 of the Comprehensive Plan, states that "property developers are responsible for constructing sidewalks in the parish…and maintenance of the sidewalk is the responsibility of the adjacent property owner." A plain cursory survey of West Bank sidewalks reveals that better enforcement of the code is necessary.

Pedestrian pathways are a critical link in the connectivity of an effective multimodal transportation network. In mixed use and residential areas it is critical to enforce sidewalk requirements to create and maintain pedestrian friendly communities. One way

to ensure sidewalk connections is to offer building incentives to landowners for building and maintaining crosswalks to code.

Crosswalks

There is a significant lack of crosswalks at intersections that connect primary retail and residential areas on the West Bank. Insufficient and poorly placed crosswalks across arterials create hazards for both pedestrians and drivers. Sidewalk priorities should be in and around mixed use areas and between residential and commercial centers to reinforce the walkability and safety of neighborhoods. Figure 4 of the Envision Jefferson 2020 plan identifies opportunities for enhanced pedestrian crossings. Unfortunately, these planned pedestrian nodes only partially address zoned Mixed Use Community Districts and areas identified as Community Mixed Use on the FLUM. Maintaining traffic flow along busy arterials is an essential means of limiting traffic congestion. A policy initiative eliminating the need for pedestrians to cross busy arterials is critical. Directing pedestrian traffic to designated intersections and encouraging development to occur in nodes around those intersections is an example effective pedestrian oriented policy.

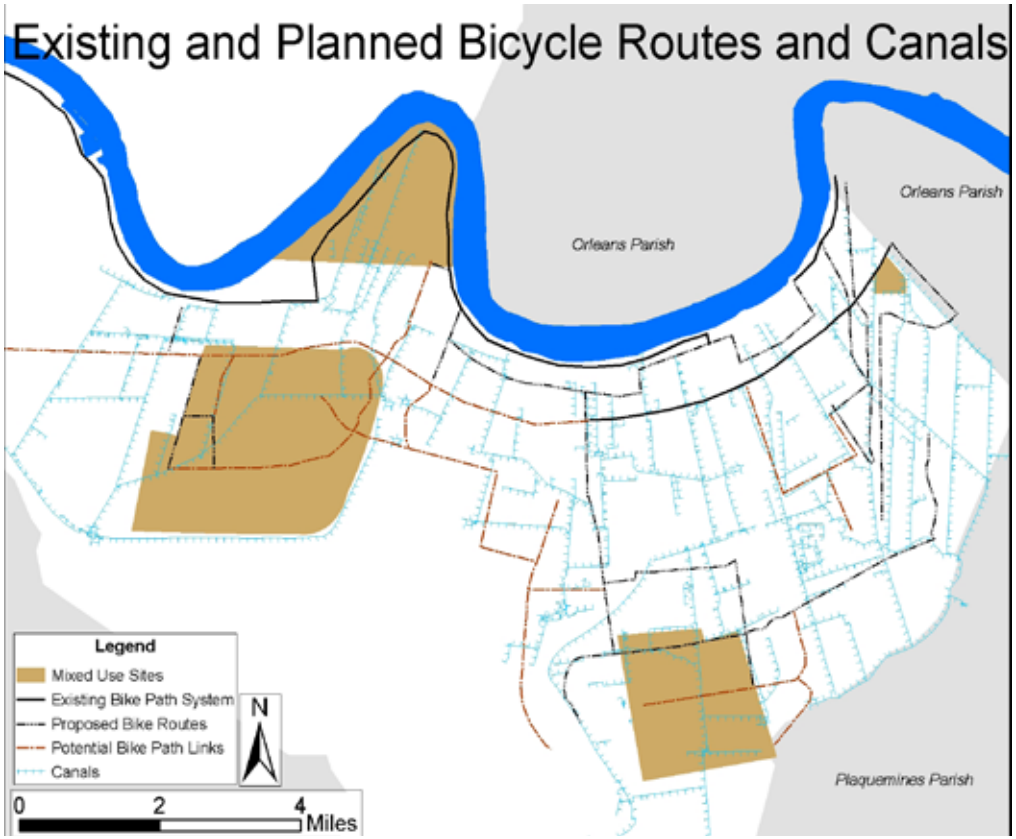
Bike Routes

The existing bike routes atop the levees and under the Westbank Expressway are a good example of how routes and trails can take advantage of the built environment and the West Bank's water amenities. There is ample opportunity on the West Bank to extend the existing paths to connect with other levees and canals. With investment in a network of paths (paved and dirt) that incorporate well designed and maintained landscaping these unique water features can be transformed into desirable amenities.

The Envision Jefferson 2020 Plan, figure 5, represents existing, proposed, and potential bike routes. However, the suggested routes do not take full advantage of the levees and canals. The planned and potential bike routes

can be developed in conjunction with paths along the canals and levees to create a network that is both scenic and efficient; connecting neighborhoods, mixed use areas and transit centers.

The routes identified in figure 5 of the Jefferson 2020 Plan do a good job of servicing the mixed use sites addressed in this report. All sites are connected by either existing or potential bicycle routes. However, successful planning requires implementation. The existing bicycle path network on the West Bank is poor, consisting only of a route along the Mississippi River and a small section under the Westbank Expressway.



Appendix E: Native Plants

Below is a list of native plant species recommended for landscaping. There are a number of reasons why using plants native to the area are beneficial. Native plants have adapted to the climate and soils specific to the area and therefore require less maintenance. They also provide a sense of place by reflecting the historic character and heritage of the area.

There are three lists of native plants below, categorized according to soil type and moisture content of the area. The categories are grouped into plants that are adapted to grow in:

1. Natural Mississippi River Levee
2. Modified swamp, drained
3. Modified marsh, drained

Natural Mississippi River Levee

Potential native species

Live oak, *Quercus virginiana*

Water oak, *Quercus nigra*

Nuttall oak, *Quercus nuttallii*

Native pecan, *Carya illinoensis*

Sycamore, *Platanus occidentalis*

American elm, *Ulmus americanus*

Southern magnolia, *Magnolia grandiflora*

Sweetgum, *Liquidambar styraciflua*

Green ash, *Fraxinus pennsylvanica*

Wax myrtle, *Morella cerifera*

Modified Swamp

This list of plants is ideal for plantings around detention ponds or other moist sites.

Bald cypress, *Taxodium distichum* (swamp and moist sites)

Blackgum, *Nyssa sylcatica* (moist rich soils)

Tupelogum, *Nyssa aquatica* (deep swamps and often standing water)

Green ash, *Fraxinus pennsylvanica*

Red maple, *Morus rubra*

Hackberry, *Celtis laevigata*

Deciduous holly, *Ilex deciduas*

Yaupon holly, *Ilex vomitoria*

Sweetbay magnolia, *Magnolia virginiana*

Modified Marsh

A combination of fresh water emergent and submerged aquatic vegetation is recommended for wetland landscaping components. This will increase associated wildlife diversity, such as bird diversity, and increase the ecological health of the area. These sites usually need specific site and soils evaluation for determination of suitable species of woody plants, grasses, and forbs.

For more information on plant selection or nurseries that supply natives, please contact your local District Conservationist or the Golden Meadows Plant Materials Center:

Allen Bolotte
District Conservationist
Natural Resources Conservation Service
Boutte Field Office
(985) 758-2162 Ext. 3
E-mail allen.bolotte@la.usda.gov.

Golden Meadow Plant Materials Center
Natural Resources Conservation Service
438 Airport Road
Galliano, LA 70354
(985) 475-5280

I would like to acknowledge the Golden Meadows Plant Materials Center for their assistance in supplying local native plant information and recommendations, and a special thanks to Allen Bolotte and Scott Edwards for all their work!

Appendix F: Mixed Use Case Studies and Example Code

A number of mixed use projects have been successfully implemented, below we highlight a number that share similar site characteristics to sites located in the West Bank. Also listed below is detailed information for a number of implementation tools that can be utilized to achieve the desired mixed use projects, such as sample code and on site drainage solutions.

West River Commons - Minneapolis Minnesota 2004

West River Commons is a new mixed-use development in the Longfellow neighborhood near the Mississippi River in Minneapolis. The project includes 53 rental apartments, three owner-occupied town homes, and approximately 8,000 square feet of retail/service commercial space.

West River Commons occupies a magnificent site where Lake Street crosses West River Parkway and the popular Minneapolis "Grand Round" trail system. The retail part of the project fronts Lake Street and encloses a significant public plaza positioned at the foot of the bridge spanning the Mississippi River gorge between Minneapolis and Saint Paul.

West River Commons offers:

- Views of the Mississippi River and the downtown Minneapolis skyline
- Expansive outdoor plaza with commissioned artwork
- Proximity to freeways, bus routes, and bike trails
- Within walking distance of great restaurants and many services, including a co-op grocery store, movie theater, and bowling alley

West River Commons Application to Jefferson Parish

- The West River Commons' location along the Mississippi River, similar to the Huey P. Long Site, make this case study a good example of creating an amenity out of river front.
- The West River Commons' location adjacent to a major river crossing, similar to the Jefferson Parish site's access to Huey P. Long, make this case study a good example of how important access can be and how a major thoroughfare can affect a development.

West River Commons Statistics

- Retail Space 7,925 sq ft
- 53 Apartments
- 3 Town homes
- 17,500 vehicles/day along E. Lake Street. 6,400 vehicles/day along W. River Parkway. The project is highly visible and easily accessible from East Lake Street.
- The population within a one-mile area is 15,541; there are 181,984 people within a three-mile radius. There are 6,138 households within a one-mile area and 74,371 households wihin a three-mile area.
- **Neighborhood Data**

	Within 1 mile	Within 3 miles
Residents	15,541	181,039
Employers	5,783	166,960
Average Household Income	$64,856	$56,335

Income

The average income levels within a one-mile area has grown by 65.2% since 1990 to $64,856 and is expected to grow by another 20.8% over the next five years to $78,329. Over 70% of the workers within a one-mile area have white collar occupations and 71% of the dwellings are owner occupied.

Employment

48.7% of the people within a one-mile radius are employed with no children while 8.4% of the people are employed with children between the ages of 6-17. 42.5% of the households are married couples with 52.3% having two workers. 83.1% of the workers travel less than 29 minutes to their place of employment.

Haile Plantation (Gainesville, Florida)

The Haile Plantation, outside of Gainesville, Florida is a successful mixed-use, planned community with a town center similar in scale and scope to the potential for the Leo Kerner Parkway site.

Description of Haile Plantation Case (excerpted from Higher Density Development: Myth and Fact)

Haile Plantation is a Gainesville, Florida, icon. Although it is denser than surrounding communities, the values of homes in Haile Plantation are often higher than the values of houses in neighboring lower-density communities, because the traditional neighborhood design employed there makes Haile Plantation more desirable and valuable. Beginning with the master plan in 1979, Haile Plantation has been called one of the first new urbanist communities in the country.

Developers Bob Rowe and Bob Kramer in conjunction with the Haile Plantation Corporation developed the 1,700-acre site to include more than 2,700 units, ranging from single-family homes to townhouses and garden apartments. The sense of community has only grown with the expansion of the development to include a town center, a village green, trails, civic uses, and offices. Indeed, it is density and diversity that together add value to this popular Florida community.

Relation to Jefferson Parish

Several characteristics of Haile Plantation development make it a relevant case study for Jefferson Parish:

- Large development which has seen positive results over time
- Includes a town center and complementary mix of uses
- Location within 2 miles of an interstate highway (I-75)
- Includes golf course and club
- Developed in unincorporated Alachua County

Sources

- http://www.co.alachua.fl.us/ (Alachua County, Florida website)
- http://www.uli.org/Content/ContentGroups/PolicyPapers/MF-Higher010.pdf (Higher Density Development: Myth and Fact report)
- http://www.webenet.com/newurbanism.htm (Transcript of Robert Kramer speech)
- http://www.cnuflorida.org/projects/project_details.asp?ProjectID=20 (Congress for New Ur banism Florida Haile Plantation Case Study)

Prairie Crossing (Grayslake, Illinois)

Prairie Crossing is an award-winning development in Illinois often cited as showing the effectiveness of conservation design; the Prairie Crossing area and the Churchill Farms site share many similar characteristics.

Description of Prairie Crossing Case (excerpted from Smart Growth: Myth and Fact)

Prairie Crossing, located 40 miles north of Chicago in Grayslake, Illinois, demonstrates the effectiveness of conservation design. Once completed, the 667-acre project will contain 317 single-family homes on lots ranging in size from 6,000 to 20,000 square feet.

The project preserves more than 450 acres, or 70 percent of the land, as open space. This open-space system is intended to enhance the living experience for residents, create a sense of community, and lend value to a larger open-space network. For instance, more than 10 miles of trails connect to a new commuter rail station and encourage residents to bike and walk throughout the development.

The majority of Prairie Crossing's open space abuts a 2,500-acre natural area, Liberty Prairie Reserve, making it part of a larger protected and functioning ecosystem. The community's design ensures that it will blend into the fabric of the surrounding landscape while protecting environmental resources and providing valuable amenities for homebuyers. (Each home will overlook various parts of its preserved open space).

Home sales and premiums indicate that Prairie Crossing's innovative design and amenities are creating value in the marketplace. According to a 1999 Prairie Crossing marketing overview, homes are selling for $139 per square foot, which is 33 percent higher than comparable homes in the competitive market area (CMA). Furthermore, 35 homes are being sold each year (at the high end of the entry-level sales pace in the CMA), at an aver-

age price of $335,000. Prairie Crossing has an estimated 14 percent value ratio premium over the competition. That premium can be attributed, in part, to the project's high level of amenities, conservation ethic, and open space.

Relation to Jefferson Parish

Prairie Crossing has several applications specifically related to the LKP site:

- Conservation design with environmental and open-space
- Pedestrian-oriented design
- Overcame regulatory barriers and an untested market

Sources

- http://www.prairiecrossing.com/pc/site/about-us.html (Prairie Crossing website)
- http://www.uli.org/AM/Template.cfm?Section=Home&CONTENTID=41900&TEMPLATE=/CM/ContentDisplay.cfm (Smart Growth: Myth and Fact report)
- http://www.terrain.org/unsprawl/9/ (Terrain.org case study)

Example Code

Mixed Use

Living Units in Non-Residential Zones

Dwellings shall not be permitted in any business or industrial zones as a principal use. However, living units may be established in a business or industrial district as accessory to any business or industrial use, provided that such living units are above the ground floor or behind the principal building.

From Alachua County, FL

Neighborhood Mixed Use Building in ZoningDistricts

A neighborhood mixed use building special use is permitted in the following zoning base districts:

- limited office district;
- general office district;
- neighborhood commercial district;
- community commercial district;
- general commercial services district;
- commercial-liquor sales district;
- commercial highway services district; and
- limited industrial services district.

Neighborhood mixed use building special use may contain dwelling units:

- above the ground floor; and
- in not more than 50 percent of the gross floor area of the ground floor.

From Austin, TX

Residential Uses in Commercial Buildings

Residential use may be located above the ground floor of a commercial building.
From Austin, TX

Land Use Standards

- Open spaces (public, conservation, community) shall be a focal element around which other land uses are organized.
- Provisions for alternative transportation shall be included in the overall design. Accommodation for mass transit facilities shall be provided and integrated into the overall design plan.
- Development shall form an interconnected grid systems.

From Alachua County, FL

Affordable Housing

Bonus for affordable housing. The maximum number of dwelling units and the maximum floor area ratio of new cluster developments and new multiple-family dwellings of five (5) units or more may be increased by twenty (20) percent if at least twenty (20) percent of the dwelling units meet the definition of affordable housing.
From Minneapolis, MN

Design Guidelines

Facing of Business

When applicable, business uses shall face other business or commercial districts across a street if within a business or industrial zone, and shall not face residential zones which may front on an intersecting or rear street adjacent to such business or commercial zone.

Business Access

Where business district property abuts two streets, and where that portion of such street abutting business district property also abuts any residential district, access to such business district property shall be provided only from the street not abutting a residential district.
From Alachua County, FL

Parking

Residential Bonuses - Density

Bonus for enclosed parking. In the R3 (medium density multiple family districts) through R6 (high density multiple family districts) Districts, the maximum number of dwelling units and the maximum floor area ratio of multiple-family dwellings may be increased by twenty (20) percent if all required parking is provided within the building, entirely below grade, or in a parking garage of at least two (2) levels.
From Minneapolis, MN

Mixed Use – Design Guidelines

Parking lots shall be located at the rear or side of street-front uses and shall be screened from the streets, sidewalk, and open spaces by low walls, fences, vegetation, low berms, or any combination providing at least a three foot high screen. Walls or fences may be softened through use of vegetation. On-street parking shall be allowed and encouraged to fulfill parking requirements.

- Parking lots and parking garages shall not abut street intersections, be adjacent to squares or parks, or occupy lots that terminate a vista, except when specifically designed to incorporate massing, scale, and detail that contributes to the adjoining public space.
- Adjacent parking lots shall have vehicular connections and shared street access wherever possible.
- All shopfront and workplace streets shall have parallel or diagonal parking on the street, as well as parking behind or to the side.

From Alachua County, FL

Commercial Bonuses- Maximum Gross Floor Area

Bonuses when no parking is located between the principal structure and the street. If parking is not located between the principal structure and the street, the maximum gross floor area of a commercial use shall be increased to six thousand (6,000) square feet.

From Minneapolis, MN

Commercial Bonus - Additional Stories

If parking is not located between the principal structure and the street, and the structure in which the commercial use is located is at least two (2) stories (not including the basement), the maximum gross floor area of a commercial use shall be increased to eight thousand (8,000) square feet.

From Minneapolis, MN

Environmental

Impervious Surface Restrictions for Residential Zones

Impervious surfaces shall not cover more than seventy-five (75) percent of any zoning lot located in the R1--R3 Districts. Impervious surfaces shall not cover more than eighty-five (85) percent of any zoning lot located in the R4--R6 Districts. The remainder of the zoning lot shall be covered with turf grass, native grasses, perennial flowering plants, shrubs, trees or similar landscape material sufficient to prevent soil erosion.
From Minneapolis, MN

This section applies to a single-family residential use, a duplex residential use, or a two-family residential use. Except as provided in Subsection (C), impervious cover in a front yard may not exceed 40 percent. The director may waive Subsection (B) if the director determines backing a motor vehicle onto the adjacent roadway is unsafe and that a circular driveway or turnaround in the front yard is required. Not more than four parking spaces may be located in the front street yard, or for a corner lot, not more than four parking spaces may be located in the front street yard and side street yard combined.
From Austin, TX.

Alternative Transportation

Bicycle parking

Bicycle parking shall be provided by all school, multiple-family, commercial, recreation and industrial uses.

- Spaces: Bicycle parking spaces are comprised of class I, class II, or class III facilities.
  - Class I. Bicycle lockers are generally rectangular enclosures, each holding one or two bicycles.
  - Class II. Bicycle parking racks which allow all three major components of the bicycle, back wheel, frame, and front wheel, to be locked, without removal of the front wheel.

- Class III. Stands and racks such as hitching posts, rails, and inverted "U" racks. Common properties in a class III facility include its support of the bicycle with or without the front wheel removed, its attractiveness, and post or pipe dimensions which allow the use of the popular U-locks. Class III facilities are recommended for short-term parking, although, in combination with shelter, they may be adequate for long-term storage.

- Number of spaces: A minimum of one bicycle parking space shall be provided for every ten required vehicular spaces. The development review committee may require additional spaces for schools, libraries and recreational facilities. At least two spaces shall be provided for each public and employee entrance by all individual uses in the rural area and in the urban cluster, unless no bicycle parking is required.
- For multiple-family dwellings: At least 25 percent of the required spaces shall be Class I bicycle lockers or sheltered Class III facilities to provide for long term storage.
- Location of facilities: The dispersion and proximity of all bicycle parking facilities required by this section shall be determined by the development review committee to provide for convenient bicycle parking which shall be separated from automobile parking by a physical barrier or by at least five feet where automobile parking is prohibited to protect parked bicycles from damage by vehicles. Bicycle parking facilities shall be located on the same lot or parcel of land as the use for which such facilities are required and as close to the public and employee entrances as possible without interfering with the flow of pedestrian and vehicular traffic to provide for bicycle security.
- Access to facilities: Convenient access to bicycle parking facilities shall be provided and shall minimize travel distances from adjoining sidewalks and pathways to the bicycle parking facilities. Where access is via a sidewalk or pathway, curb ramps shall be installed as appropriate.

- Signage: Where not clearly visible from the public right-of-way, directional signage shall be provided to direct bicyclists from the right-of-way to the bicycle parking facility.

From Alachua County, FL

Street Design

- Streets and roads shall be fronted by land uses which define and contribute to the street character (buildings, buffers, setbacks), not by uses which ignore or negate the street character (high walls, building service areas, etc.).
- All major interior streets shall have termination with either a specifically designed building facade or a transition to an ensuing space.
- All major streets shall have clearly defined edges created by the use of building facades or landscaped buffers.
- Streets shall terminate at other streets within the development or connect to existing and projected through streets outside the development.
- Steady and even build-to lines, within minimum and maximum variation limits, shall be established along all streets and public space frontages to determine the desired width for each street or public space.
- All pedestrian/bicycle access shall connect to existing pedestrian/bicycle access or be appropriately located so as to encourage a continuous system of pedestrian/bicycle access.

From Alachua County, FL

Hazard Mitigation Design Guidelines

Although drainage canals and the levee system will help reduce some of the natural hazard risk in the area, alternate measures of protection from flooding should be considered. These safety measures include:

- Elevated structures are highly suggested whenever possible. These structures will provide places of refuge for populations unable to evacuate during flooding.
- Elevated parking lots servicing retail or office can function as satellite emergency command stations for emergency services after a significant event. Moreover, the significant change in land use and resulting population increase requires that essential and emergency services needs be considered; thus reducing the need to stretch and strain the capabilities of existing services.
- Ground floor parking in residential and commercial structures whenever it is feasible.
- Hipped Roofs are highly recommended as they provide a significant amount of strength and stability against wind and weather damage from hurricanes. Investing in hipped roofs could save money for repairs and new roofs in long run.

Appendix G: Environmental and Infrastructure Implementation Recommendations

Environmental Design Components

Much of the dredging and filling upland of the coastal area (i.e. the west bank of Jefferson Parish) is intimately connected to the hydrology of wetlands downstream. The infill of sediment and construction of canals and levees in the parish has altered the local hydrology for both fresh and salt water, resulting in a gradual saline water encroachment upstream each year. Likewise, human development has increased the amount of impervious surfaces, which also impacts the hydrology from the West Bank to the coastal wetlands. Outlined below are numerous design concepts and alternatives that will help mitigate altered hydrology issues associated with new developments. These strategies aim to reduce impermeable surfaces and reduce peak storm-water runoff loads entering canals through the use of preserving green spaces and creation of constructed wetlands. Constructed wetlands can also be utilized to filter and cleanse runoff.

Mitigating Stormwater Runoff

An effective way to reduce stormwater run-off and improve water quality is through the reduction of impervious surface area through the use of alternative roadway, parking lot, sidewalk, and roof top design and material selection. Successful road and parking lot design will decrease the impacts of new development on the centralized stormwater canal infrastructure through the use of detention and retention ponds, bioswales, and drainage ditches. Some basic strategies for roadway design include low-impact roadway layouts, narrow road widths, shared driveways, and open-sec-

tion roadways. Parking lot designs should be encouraged to break up large parking lots, maximize shared parking, rethink parking requirements, and use permeable paving where appropriate.

Recommended Minimum Street Widths

Narrow road widths, i.e. 26 foot-wide pavement, can be utilized in residential zones to slow traffic and reduce stormwater runoff. 26 foot wide paved areas still provide safe travel corridors, emergency vehicle access, and adequate parking. On most low-traffic roads, a 46 foot wide right of way with 26 foot wide pavement is adequate to accommodate two way traffic. The National Fire Protection Administration Uniform Fire Code (2003) recommends a minimum unobstructed width of just 20 feet, with the recognition that local authorities set lower standards if turnouts or alternate exits are available.

In order for Jefferson Parish to achieve the environmental benefits of narrower street widths, regulations must specify these site design standards so that developers utilize alternative designs. Strategies to implement narrow roads include:

- Require parking on one side of the street only, especially for areas with adequate off–street parking
- Encouraging parking lanes or road shoulders constructed of permeable paving, such as grass pavers or paving blocks (http://www.mapc.org/regional_planning/LID/roadways_parking_lots.html).
- Utilize roadways with a single travel lane and one or two "queuing lanes", which can be used for either parking or travel. This strategy will reduce street width by a third. It creates safe traffic speeds by requiring driver courtesy for oncoming vehicles, by pulling into the queuing lane until the oncoming car has passed. Research indicates that "tight streets" actually improve traffic safety by encouraging vehicles to slow down in residential neighborhoods. Throughout Massachusetts, many older neighborhoods built before current standards were enacted have narrow streets that function well, tame traffic, and lend character to the community

Parking Lot Design

Large parking lots that drain to just a few catch basins generate large volumes and high velocities of runoff that necessitate the use of pipe-and-pond stormwater techniques. One low impact development method that will help mitigate this problem is the creation of multiple smaller parking lots. These smaller lots should be separated by natural vegetation and bio-retention areas . Another option for low impact development is the use of permeable paving hybrid parking lots, which use conventional paving for driveways and aisles, and permeable paving for stalls. Permeable paving may also be appropriate for overflow parking areas, which are generally used only a few weeks out of the year.

www.mapc.org/regional_planning/LID/roadways_parking_lots.html

Shared Parking

Shared driveways in residential subdivisions can reduce the costs of site development costs and impervious surfaces. Driveways should be limited to 10 feet in width and a slope or crown will help to evenly drain water onto adjacent vegetated areas (not onto the street) where water will be infiltrated. In mixed-use areas, businesses and or residents may be able to share parking between day and night time uses. Many communities have provisions for shared parking, so that mixed use developments, or single-use developments near other uses, can share parking according to a formula based on the peak demand periods; residents use the parking spaces at night and customers or employees use the same spaces during the day. Parking spaces designed for compact cars can also help to limit impervious coverage. This is a common and extremely effective smart growth strategy.

www.mapc.org/regional_planning/LID/roadways_parking_lots.html

Constructed Stormwater Wetlands

The use of constructed or man-made wetlands has grown to be an increasingly popular mechanism to contain and maximize the removal of

pollutants from stormwater runoff. They provide an area to hold water from a small surrounding region, which can alleviate demand on the drainage canals by slowly releasing stormwater. These structures serve as a replacement for the natural absorption of a forest or wetland process that was lost when the area was developed. Retention ponds are designed to blend into the neighborhoods and when done well provide an amenity to the area.

Similar to the wetlands constructed for wastewater treatment, retention ponds and constructed wetlands also have the ability to improve water quality. The microbes that grow on certain wetland vegetation have the capacity to extract and transform soluble carbon, nutrients, and other pollutants.

In addition to their functional benefits to infrastructure, constructed wetlands also serve as wildlife habitat for amphibians, birds and other species. This is especially true when a diverse mix of native plants is used to landscape the pond.

The costs associated with stormwater wetlands are significantly lower than the total costs and often lower in capital costs than conventional treatment systems. Operation and maintenance requirements are low, since a correct mixture of wetland plants can tolerate fluctuations in flow and pollutant concentrations. Stormwater wetlands can be constructed for a variety of space requirements and drainage capacity.

www.metrocouncil.org/Environment/Watershed/BMP/CH3_STConstWLSwWetland.pdf

Bioswales

Bioswales are landscape structures designed to remove silt and pollution from runoff water. They consist of a swaled drainage ditch with gently sloped sides (less than six percent) and filled with vegetation, compost and riprap. The water's flow path, along with the wide and shallow ditch, is designed to maximize the time water spends in the swale which aids in the trapping of pollutants and silt. Biological factors also contribute to the breakdown of certain pollutants.

A common application is around parking lots and adjacent to roadways, where automotive pollution is collected in the stormwater runoff and flushed into the drainage canals. An example of successful bioswales projects are Seattle's Street Edge Alternatives (SEA)

Streets, information about the design, effectiveness and costs can be found at

www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/Natural_Drainage_Systems/Street_Edge_Alternatives/index.asp.

Wastewater Treatment by Constructed Wetland

Wastewater polishing and treatment is also becoming more popular, and the Churchill Site characteristics are ideally suited for this type of treatment to handle the needs of the new growth. The following case study lends details regarding a wastewater treatment facility located in Jackson, Mississippi. There are always concerns with odor and adequate containment with siting wastewater treatment facilities, but so far this model has proven very successful and nuisance free.

West Jackson Mississippi Wetland Wastewater Treatment Facility

A wetland wastewater treatment facility created in West Jackson, Mississippi has been a successful and innovative way to manage the area's infrastructure needs, while maintaining critical wetland functions. The Natural Wastewater Treatment System in West Jackson County, consists of three parallel treatment systems that cover 56 acres and treats 2.6 million gallons of effluent per day. West Jackson's system treats approximately 2.6 million gallons of effluent per day, which could serve a significant developed area of Jefferson Parish. These constructed wetlands provide "a high level of wastewater treatment with low operation and maintenance requirements and low energy costs".

As described in previous sections, wetlands have an incredible capacity to improve water quality by acting as a natural water filter that absorb nutrients, chemicals and heavy metals. Organic carbon, nitrate nitrogen and phosphate phosphorus are transformed into plant matter. Properly designed wetlands can be used to treat large volumes of municipal wastewater. This variation in water level facilitates a high level of vegetative and wildlife diversity, particularly mosquito fish and wetland dependent

birds. West Jackson's implementation of this wastewater treatment facility has been an effective method for reducing wastewater treatment costs, and increasing the water quality of the discharged effluent.

Constructed wetlands, particularly for stormwater treatment, may be a viable option for smart growth in the newly developing Avondale and Churchill Farms areas of Jefferson Parish's west bank. The current infrastructure serving the West Bank struggles to manage volumes during high flow periods, A model similar to that of West Jackson's treatment facility serves as a viable alternative to or in conjunction with traditional sewerage treatment. The availability of undeveloped land surrounding Avondale and Churchill Farms, makes the area an excellent candidate for this water treatment system.

(http://www.epa.gov/owow/wetlands/pdf/WestJackson.pdf).

Green Roofs

Green roofs can be used to reduce storm-water runoff, conserve energy by moderating the temperatures of the roof and surrounding area, protect conventional roofing systems and usually doubling roof life, and preserve the value of green space. A green roof is comprised of vegetation growing in soil on top of a waterproof membrane. Green roofs are being used across the country and the globe in industrial facilities, residences, offices, commercial and even residential property.

www.epa.gov/heatisland/strategies/greenroofs.html