

COMMUNITY FACILITIES AND SERVICES / 6

6.1 / OVERVIEW

Community facilities and services within Biloxi include police, fire, emergency services; public and private utility services; parks, libraries, and schools; municipal facilities and services; and health care. Police, fire, emergency services, public water and sewer, parks, and municipal facilities are provided by the City while the remaining facilities and services are provided by private or semi-public organizations. These organizations include the Biloxi and Harrison County School Districts; private power, natural gas, and telephone companies; and the Harrison County Library System. The quality of Biloxi's community facilities and services is an important measure of the City's attractiveness to residents and employers.

Police, Fire, and Emergency Services

Biloxi's police, fire, and emergency services have expanded with the City's population over time. Biloxi's police and fire departments closely monitor response times to emergency and non-emergency calls and both departments are evaluating the need for new officers and satellite locations as the population recovers from Hurricane Katrina. The major focus of emergency preparedness in Biloxi is to reduce hazards and prepare the City for future storm and flood risks. The City distributes a hurricane preparedness guide, provides flood and storm warnings, and requires partial or complete evacuations of the City based on the severity of storm threats. Biloxi's recently updated *Hazard Mitigation/Floodplain Management Plan* presents a comprehensive framework to address future storms and regional disasters.

Utility Services

Utility services provided by the City's Public Works Department include public water supply, sanitary sewer, and stormwater drainage. Water and stormwater drainage are managed solely by the City while responsibility for sewer is shared with the Harrison County Utility Authority. The Public Works Department is responsible for maintaining primary water distribution lines, wells, and water supply tanks. The City contracts with MRS, Incorporated for residential water meter installation, meter reading, and water bill collections. The primary sewer service lines are maintained by the City and connect to large transmission lines maintained by the Harrison County Utility Authority, which operates wastewater treatment plants in the County. Biloxi's *Stormwater Pollution Prevention Plan* and *Stormwater Management Plan* present a comprehensive framework to address stormwater management issues throughout the city. The City's Engineering Department (a division of Public Works) and Development Review Committee are responsible for administering the two plans.

With the exception of Woolmarket north of I-10, the City is well served by public water and sanitary sewer facilities that generally have adequate capacity to meet future demands. A new water supply well is planned for the Caillavet Street area. Currently the major area of the City for new residential and commercial development is North Biloxi due to the availability of vacant land and public sewer and water service. Over the next five years the City will extend water and sewer lines along Highway 67 north of I-10 into un-served areas of Woolmarket (planned improvement areas are shown on Figure 6.2). Together with a new wastewater treatment plant planned by the

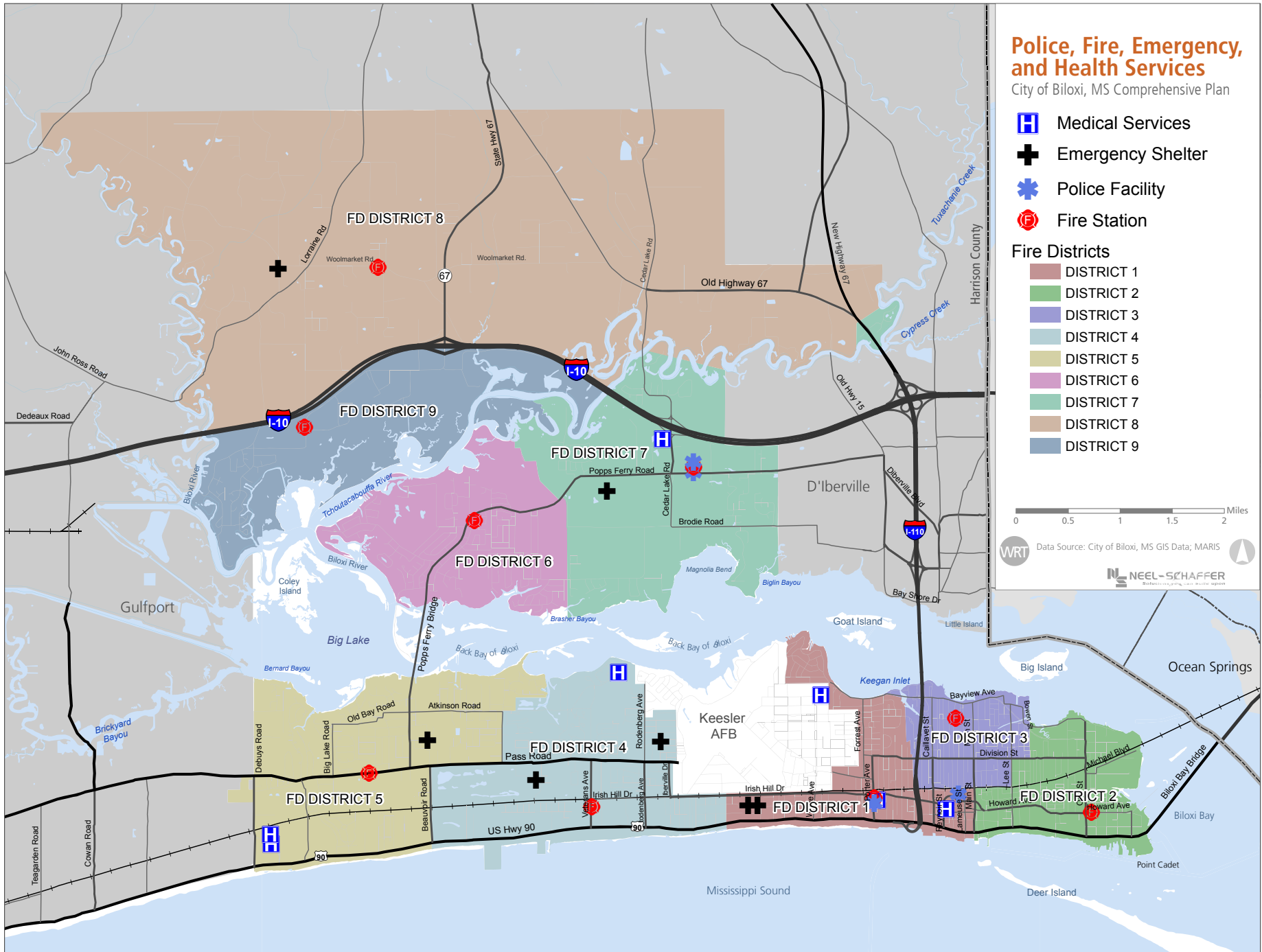


FIGURE 6.1/POLICE, FIRE, EMERGENCY, AND HEALTH SERVICES

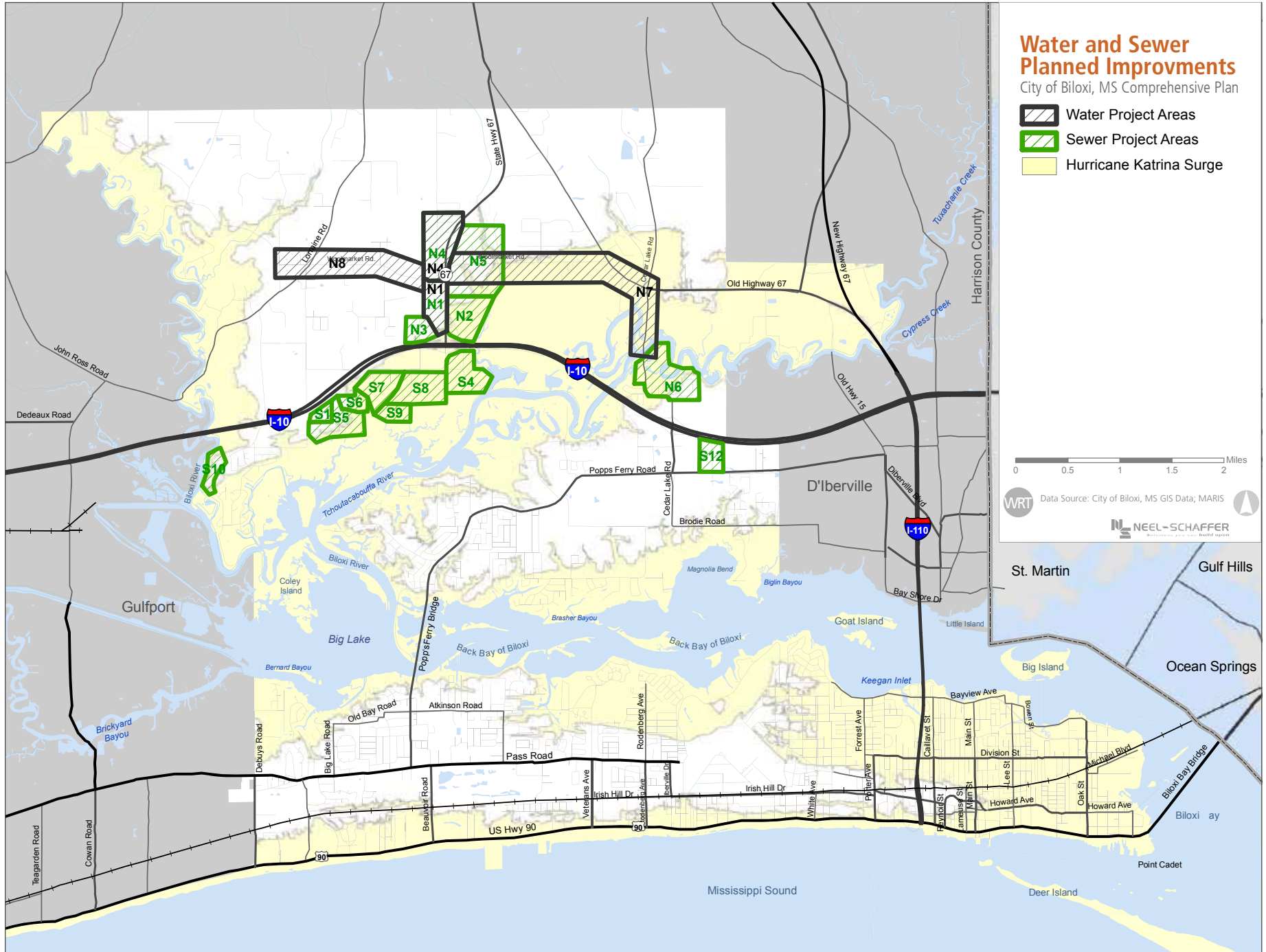


FIGURE 6.2/WATER AND SEWER SERVICE/PLANNED IMPROVEMENTS

Harrison County Utility Authority, these improvements will spur new development in the Woolmarket area.

Existing utility systems in Biloxi were severely damaged by Katrina. The West Biloxi Treatment Plant sustained wind damage and the Keegan Bayou Treatment Plant in East Biloxi was inundated by flood waters. Wastewater collection systems were flooded and are also subject to inflow and infiltration during normal wet weather conditions, resulting in water quality contamination. These issues are being addressed through the Stormwater Phase II program and the City's Infrastructure Repair Program, which is a direct response to the damage caused by Katrina. This program will repair or replace approximately 426,000 linear feet of sewer main, 485,000 linear feet of water main, 48 sewer lift stations, 320,000 linear feet of storm drainage, and 100 miles of street paving.

Private utility companies serving the City of Biloxi include Mississippi Power and Coast Electric Power Association, a not-for-profit, member-owned cooperative. Mississippi Power serves the peninsula and provides power generation for the

entire Mississippi Gulf Coast. Coast Electric Power Association is the service provider for the North Biloxi and Woolmarket areas. Natural gas is provided by Center Point Energy. In addition, the Gulf South Pipeline Company and Williams Energy Services own natural gas pipelines that traverse Woolmarket. The primary phone service is provided by AT&T.

Parks and Recreation

Biloxi's Department of Parks and Recreation is divided into two divisions (Parks and Recreation) and is the primary organization overseeing services. The Ports Division is a separate department overseeing marine facilities (e.g., ports, piers, docks, boat ramps). Residents have access to over 233 acres of public parks and recreational fields (Table 6.1). While the number of parks and recreational programming has increased over the last decade, residents identified a desire for increased recreational activities for seniors, families, and children. Specifically, Woolmarket residents note the need for new parks and programs to serve the growing population.

With the exception of the Biloxi Bay Bridge, the I-10 walking track, and the County's Sand Beach, Biloxi lacks a network of trails, walkways, open space connections, or bikeways for public use. The highly successful Biloxi Bay Bridge walking/biking path suggests a latent demand for attractive and accessible walking paths and trails. Planned improvements for the Popp's Ferry Causeway will provide residents new opportunities for walking, cycling, and recreational access to the water.

Biloxi's Ports Division manages the City's public marinas, docks, and piers. These facilities are addressed in Chapter 4 (Transportation).



TABLE 6.1/PARKS AND RECREATIONAL FACILITIES

Map Fig.6.3	Park or Facility	Acres
1	I-110 Pkwy. Walking Tracks	25
2	Bay Terrace/Circle Park	1.5
3	Biloxi Natatorium	NA
4	Biloxi Sports Complex	62
5	Biloxi Town Green	2.4
6	Businessmen's Park	2
7	Cavalier Ball Park	2
8	Clay Point Park	1.5
9	Connery Circle Park	0.5
10	D'Anella Park	1.5
11	Donal M. Snyder Comm. Center	1
12	Doris C. Bush Park	1
13	Edgewater Park	1
14	Hiller Park	75
15	John Henry Beck Park	2
16	John Joseph O'Reilly Park	2
17	Larry Bogard Volunteer Ball Park	3.5
18	Lee Street Athletic Fields	N/A
19	Lopez Park	1
20	Margaret Peresich Park	0.5
21	Margaret Sherry Complex	2
22	Mary Mahoney Park	0.5
23	McDonald Ball Park	2
24	Miramar Park	0.5
25	Oak Park	0.5
26	Pennzoil Park	5
27	Peresich Park	0.5
28	Popp's Ferry Causeway Park	8
29	Popp's Ferry Recreational Area	20
30	Savarro Park	2
31	St. Mary's Park	2
32	Tanglewood Park	0.5
33	Todd Miguez Park	3.5
34	Westview Park	0.25
Total Acreage		232.7

Source: City of Biloxi, Neel-Schafer

Public Schools

The Biloxi Public and Harrison County Public School Districts serve Biloxi residents. The Biloxi School District operates 10 schools, including six elementary schools, one sixth grade school, one junior high school, and the Biloxi High School. The District also manages an alternative school, Lopez School, and the Career Technology Center. The Biloxi High School was recently designated one of four “National Blue Ribbon Schools” in the state and one of only 287 in the nationwide. At the time of publication of the Comprehensive Plan, Keesler Air Force Base’s major housing construction project was nearing completion and the District anticipates a significant increase in enrollment in 2010 as a result.

The Biloxi Public School District enrollment figures from 2005 through October 2009 (Table 6.2) illustrate a 21% drop in enrollment from pre-Hurricane Katrina figures, but increase in enrollment since October 2005.

The Harrison County’s School District operates 21 schools that serve a large geographic area, including unincorporated Harrison County and sections of Biloxi, Saucier, and D’Iberville. As enrollment increases, the District is planning to open a new West Harrison County High School and a Workforce Training Academy. The new schools will accommodate anticipated growth and offer specialized classes to meet the needs of the regional economy (e.g., tourism, metal trades, and aerospace).

TABLE 6.2/SCHOOL ENROLLMENT

School	Pre-Katrina	Oct 05	Jan 06	Jan 07	Jan 08	Oct 09
Beauvoir (K-6)	437	219	308	313	315	373
Gorenflo (K-6)	368	84	140	146	150	274
Jeff Davis (K-6)	532	185	324	361	361	315
Nichols (K-6)	327	69	133	138	182	220
North Bay (K-6)	843	572	705	810	800	651
Popp’s Ferry (K-6)	631	329	472	562	585	458
Michel (7)	488	266	356	361	399	324
Biloxi Jr. High (8-9)	982	535	723	796	774	765
Biloxi High (10-12)	1,201	789	951	987	1,027	1,460
<i>Lopez Alternative School (Lopez was closed as an elementary school in May 2009 and is now an alternative school)</i>						
Total	6,125	3,167	4,281	4,663	4,792	4,840

Source: Biloxi State of the City 2009, Biloxi School District, 2009

Health Care

The variety of quality health care options in Biloxi and the region is growing. Medical services and providers located in the City include: Biloxi Regional Medical Center (Downtown Biloxi), Coastal Family Health Clinic (East Biloxi), Keesler Medical Center (Keesler AFB), the Veterans Affairs Hospital (East Biloxi), and Cedar Lake Medical Park (North Biloxi) (see Figure 6.1). The City's health care facilities serve Biloxi residents and the larger regional population, including over 50,000 veterans from Mississippi, Alabama, and Florida. With the recent development of the Cedar Lake Surgery Center, the I-10/Cedar Lake Road interchange in North Biloxi has become a center for medical services in the region.

Key Community Facilities and Services Issues

- It is difficult to project the future trajectory of Biloxi's population after Hurricane Katrina. The number of housing units is expected to increase through 2012; however, factors such as the current economic recession, slow financing for large development projects, and flood insurance rates may slow the rate at which the City redevelops. As redevelopment occurs, Biloxi's police, fire, and emergency services are closely monitoring development to determine where and when new facilities are needed.
- The City owns a number of municipal buildings and land throughout Biloxi. Some of these buildings (e.g., City Hall) are in need of upgrades and renovations to address deferred maintenance.

- The impacts of sanitary sewer and stormwater facilities on water quality and quantity (runoff from developed areas during storms) are issues of concern given the importance of Biloxi's waterways to its economy and quality of life and the City's vulnerability to natural hazards.

- Expansion of sewer and water service north of I-10 will lead to new development in Woolmarket. The location and timing of utility extension projects by the City will play a major role in determining whether this development is consistent with the Future Land Use Plan (Chapter 3).

- Issues of concern for private utility companies (electric, gas, and telephone) include planning for the vulnerability of facilities to natural and man-made hazards (an issue addressed by the City's *Hazard Mitigation/Floodplain Management Plan*), energy conservation, and developing infrastructure to serve future growth.

- Residents say they want additional parks, open space, trails, bikeways, and recreation. Overall the City has about 4.5 acres of parkland/1,000 residents, which is less than NRPA guidelines of 6.25 to 10.5 acres/1,000 persons. In particular, developing areas such as Woolmarket lack neighborhood parks and recreational opportunities.

- Community surveys and other types of public input indicate residents' desire for more community gathering spaces, educational opportunities, and programs geared towards families and children. A new library/civic center and new Lighthouse Visitors Center with meeting space in East Biloxi will help to meet this need, but there may be other opportunities in other areas of the City such as North Biloxi or Woolmarket to develop similar facilities.



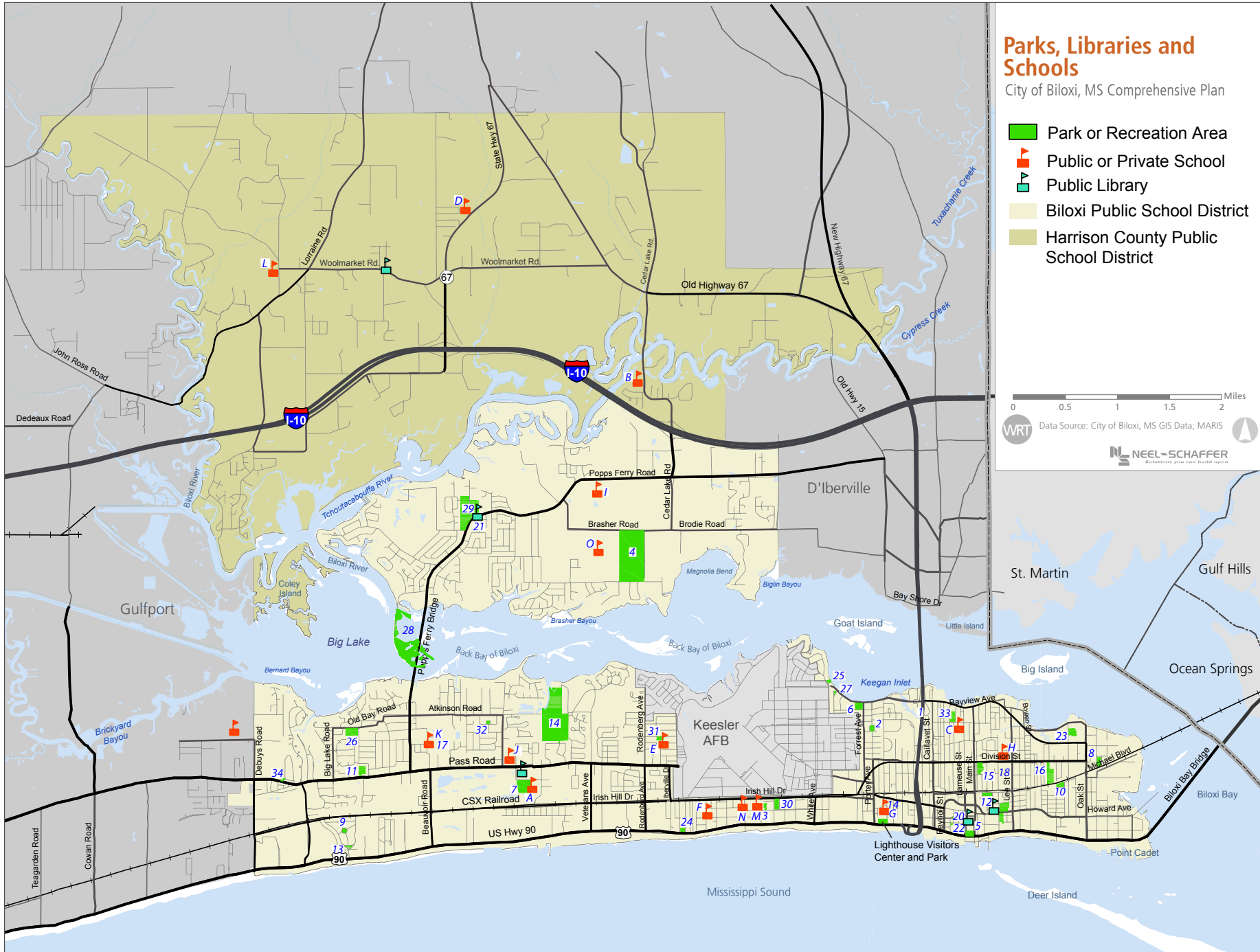


FIGURE 6.3/PARKS, LIBRARIES, AND SCHOOLS

6.2/LONG RANGE GOAL, OBJECTIVES, AND ACTIONS

The long-range goal and supporting objectives and actions are designed to guide the City in making regulatory, investment, and other decisions related to Biloxi's community facilities and services. They address citizens' needs for quality community facilities and services (Objectives 6-1 through 6-7), coordination with future land use (Objective 6-8), and environmental resource protection (Objectives 6-9, and 6-10).

Community Facilities and Services Goal

Provide quality, cost-effective community facilities and services that meet citizens' needs based on objective standards, support desired future land use, and protect environmental resources.



Meeting Citizens' Needs

Objective 6-1 Provide effective police, fire, and emergency services and coverage for existing and future development.

- Action 6-1-1 Develop capital improvements plans for police, fire, and emergency service community facilities and set targets for acceptable level of service standards.
- Action 6-1-2 Reserve future fire and emergency facility sites in Woolmarket to serve growing population centers.
- Action 6-1-3 Partner with local school districts and colleges to support police recruitment and training. Support development of workforce housing in mixed-use centers to provide additional housing options for police, fire, and safety personnel.
- Action 6-1-4 Continue to implement the City's Hazard Mitigation Plan/Floodplain Management Plan goals, objectives, and actions to improve emergency management capabilities for existing and future populations.

Since Hurricane Katrina devastated the Gulf Coast region, it has been difficult to forecast how Biloxi's population will change in the future. Long-term projections indicate that Biloxi's population will continue to increase from post-Katrina lows, with faster rates of recovery and growth in North Biloxi, Woolmarket, and other areas located outside of the 100-year floodplain. One strategy of the Comprehensive Plan is to direct

new housing, retail, and employment to compact, mixed-use centers (e.g., near the I-10 interchanges with Woolmarket, Cedar Lake) that can be more effectively served by community facilities, services, and infrastructure. Biloxi's police, fire, and emergency service departments can anticipate expansion needs based on the planned population centers. For example, the Biloxi Fire Department is planning to add three new facilities in Woolmarket, each with a 1.5-mile radius coverage area, to serve the Woolmarket area in the long term. As Biloxi's police, fire, and emergency service departments consider future improvements, it is essential that they coordinate capital planning with Comprehensive Plan implementation. In addition to improving efficiency and reducing costs by focusing resources, such coordination will assist the City in implementing the Future Land Use Plan.

Objective 6-2 Optimize the efficient use and operation of the City of Biloxi's public buildings and facilities.

- Action 6-2-1 Evaluate space needs, functions, and inter-departmental relationships against existing (e.g., city hall) and potential new facilities for the purpose of eliminating deficiencies, improving efficiencies, and controlling costs.
- Action 6-2-2 Enhance and upgrade municipal facilities through modernization, energy efficiency improvements, and acceleration of deferred maintenance.
- Action 6-2-3 Address needs identified per Actions 6-2-1 and 6-2-2 through a coordinated plan and phased capital improvement program.

Deferred maintenance of facilities such as the historic city hall building is an issue that is costly to address. In addition, governmental facilities with separated functions often present higher utility and operational costs and challenges for different departments and agencies that work together. These issues should be addressed through a coordinated evaluation of facility conditions (modernization, deferred maintenance, etc.) and functional space requirements. This evaluation, in turn, will provide the foundation for a capital improvement program for municipal facilities that can be phased over a number of years. “Green” building and site techniques should be incorporated into the improvements per Action 6-10-3.

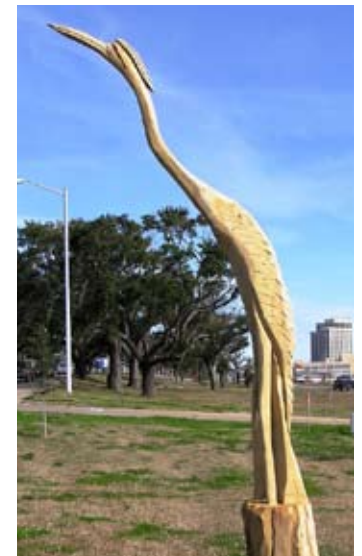
As the City evaluates the future of its buildings and facilities, it is important to explore the feasibility of co-locating uses. In addition to conserving energy and eliminating inefficiencies, co-location of facilities provides convenient service to the community by reducing one’s time spent traveling between buildings. The new library and civic center on Howard Avenue in East Biloxi is an example of two uses sharing one structure rather than using two separate buildings. The courtyard will serve as the main entry point for the library and the civic center. Major events such as Mardi Gras balls can be held at the Civic Center with seating for over 1,000 people, while the library will serve the everyday needs of Biloxi residents. The Lighthouse Visitors Center will follow the same conceptual program (i.e., tourist information, meeting and reception space for residents, and cultural/heritage exhibits for both residents and visitors).

Objective 6-3 Provide parks and recreational facilities well distributed throughout the City to

meet citizens’ recreation needs, using NRPA guidelines, the standards set in the 2020 Vision Plan, and analysis of service radii around existing parks as a starting point.

- Action 6-3-1 Locate new parks and recreational facilities to be accessible to neighborhoods consistent with the Future Land Use Map.
- Action 6-3-2 Develop parks and recreational facilities to meet needs in underserved areas such as Woolmarket as a priority.
- Action 6-3-3 Meet needs for parks and recreational facilities through city acquisition/development, as appropriate, and partnering with other providers (e.g., school districts, private recreational providers). Involve the public in planning for parks and recreation to the extent possible.
- Action 6-3-4 Enact common open space set-aside standards for new developments in the LDO. Ensure the open space is usable and accessible for recreational purposes. [Land Use Action 3-10-2, Natural Cultural, and Historic Resources Action 5-3-2]

Biloxi’s Vision 2020 Plan included a parkland inventory and guidelines for future parkland provision categorized according to park type (mini-park/playlot, neighborhood park/playground, community playfield, major community park, urban greenspace or open space, and regional park). The plan established guidelines for the provision of these different types of



parks expressed as parkland acreage per 1,000 city residents. Added together, these guidelines called for a total of 4.5 acres of public parkland to be provided per 1,000 residents (exclusive of the regional park category, a need that is met by DeSoto National Forest in unincorporated Harrison County).

Since the *Vision 2020 Plan* was adopted in 1996, the City has increased its total parkland acreage and completed numerous improvements to recreational facilities and equipment. Currently, Biloxi has about 233 acres of city parkland or 4.5 acres/1,000 residents. This meets the acreage standard set by the 1996 plan but falls short of the suggested NRPA standards. Of greater importance than meeting an overall target, however, is providing parks and recreational facilities that are well distributed and accessible to residential neighborhoods throughout the City. Ideally, publicly accessible parkland should be provided within a ½-mile walk of all residents. Figure 6-4 illustrates a ½-mile radius outside of existing city parks and schools (which typically have playgrounds, playing fields, and other outdoor facilities that can function as a neighborhood recreational resource). As shown on this map, there are significant areas of the City that do not meet this widely accepted standard. This was confirmed by the planning process, through which residents identified specific needs such as the provision of city parkland in Woolmarket.

To address this issue, the City should initiate a phased program to identify, secure, and develop parkland in underserved areas, beginning with Woolmarket as a priority. Public acquisition, partnerships with schools and other recreational providers (see Objective 6.6 below), and dedication of open space within new developments all can be pursued to provide accessible parkland and recreational facilities to meet the need.

There is immediate potential for enhancements to Hiller Park (e.g., improved pedestrian access, community gardens) in West Biloxi. The City should also study the potential for acquiring land for a park/recreational fields at Harrison Court.

Many communities across the U.S. are requiring developers set aside a percentage of a site to be developed for common open space or other recreational purposes (e.g., a park or plaza). Usable open space provides benefits to the community, environment, and typically increases the value of neighborhoods and homes. As described in the Land Use Element (Action 3-10-2), the LDO can be revised to add a common open-space “set-aside” requirement for all new single-family, multi-family, and nonresidential development (e.g., consider a minimum 20% open space requirement for residential areas outside of Downtown).

Objective 6-4 Develop an open space system structured around Biloxi’s waterways and waterfront areas and maximize public access.

Action 6-4-1 Develop a Biloxi Greenways and Trails Plan through partnerships. As part of this Plan, identify existing and potential greenways and opportunities for linking trails with the proposed continuous public walkway connection around East Biloxi.

Action 6-4-2 Partner with the Land Trust for the Mississippi Coastal Plain (Land Trust) to identify and prioritize opportunities for preservation of public and private open space along Biloxi’s waterways. [Natural

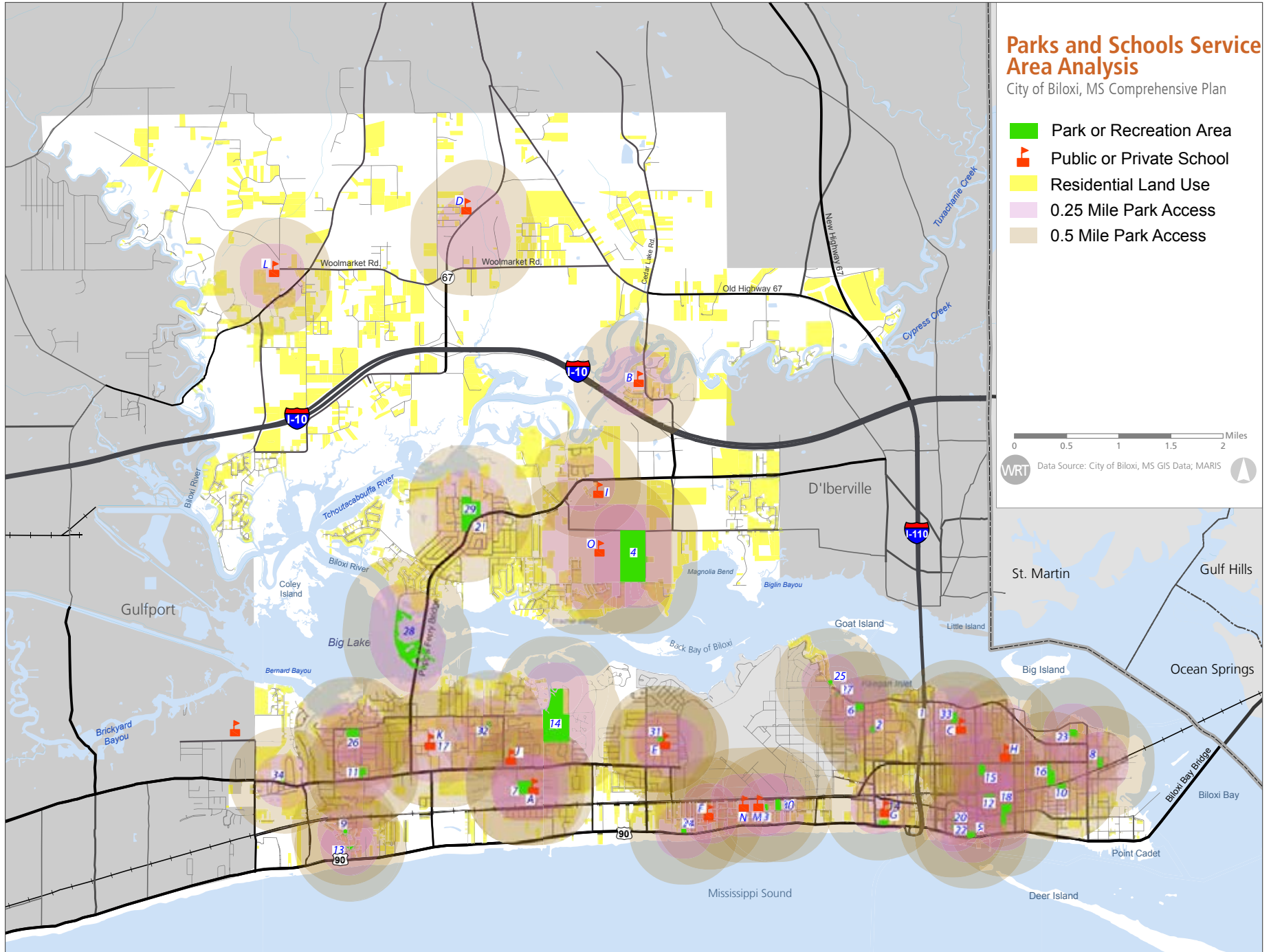


FIGURE 6.4/PARKS AND SCHOOLS SERVICE AREA ANALYSIS

Green Infrastructure

Green infrastructure has been defined as “our natural life support system” because it performs functions essential to environmental quality, community health, and economy. In Biloxi it includes the City’s network of natural areas, green spaces, and greenways, as well as components of the built landscape such as parks, street trees, and even green roofs. Examples of green infrastructure benefits include natural resource protection, energy conservation, improved water and air quality, recreation, increased property values, and reduced costs of engineered gray infrastructure.

The Land Trust for the Mississippi Coastal Plain and Mississippi Department of Marine Resources are developing a “**Strategy for Incorporating Green Infrastructure into Hurricane Recovery and Renewal**” to identify a potential conservation network for post-Katrina South Mississippi to develop state and local-level conservation implementation strategies. This effort would assist Biloxi in identifying its green infrastructure network and potential conservation lands.

Across the Country, communities are responding to the need to develop green infrastructure plans. Lufkin and Angelina Counties in Texas (about 100 miles northeast of Houston) are situated within the Texas Pinewoods. In 2008, the two counties developed a green infrastructure network design and identified priority conservation resources. The Plan immediately led to a National Park Service grant to support trail development and recommendations on enhancing environmental-based economic development.



- Resource Action 5-4-3]
- Action 6-4-3 Pursue strategies to facilitate productive uses of open land in flood prone areas, such as urban agriculture, recreation, community events, and working waterfront related uses. [Land Use Action 3-11-4]
- Action 6-4-4 Update the LDO to provide incentives and/or consider other strategies to encourage sensitive floodplain development, minimize effects on flood storage capacity, and encourage buffers/setbacks along water bodies and wetlands.
- Action 6-4-5 Provide a well-lit and maintained public parking area on the south side of Highway 90 at the at the foot of the bridge for recreational walkers and bikers.

Participants in the comprehensive planning process identified Biloxi’s waterways and waterfront areas as a major opportunity to create an open space system that maximizes public access. The first step, preparing a Biloxi Greenways and Trails Plan, is essential to establishing a citywide open space system. Figure 6-5 provides a conceptual framework for this plan, structured around Biloxi’s waterways. In developing the plan, parks, trails, and greenways should be viewed as part of an integrated **green infrastructure** system that includes components such as wetlands, riparian corridors along waterways, parks and recreational fields, community gardens, and other green features.

Since Hurricane Katrina, residents and City leaders have realized that Biloxi has a unique opportunity to integrate open space, parks, and other recreational amenities into the City’s redevelopment. The East Biloxi Neighborhood Improvement Strategy (Section 9.1) proposes a continuous public walkway

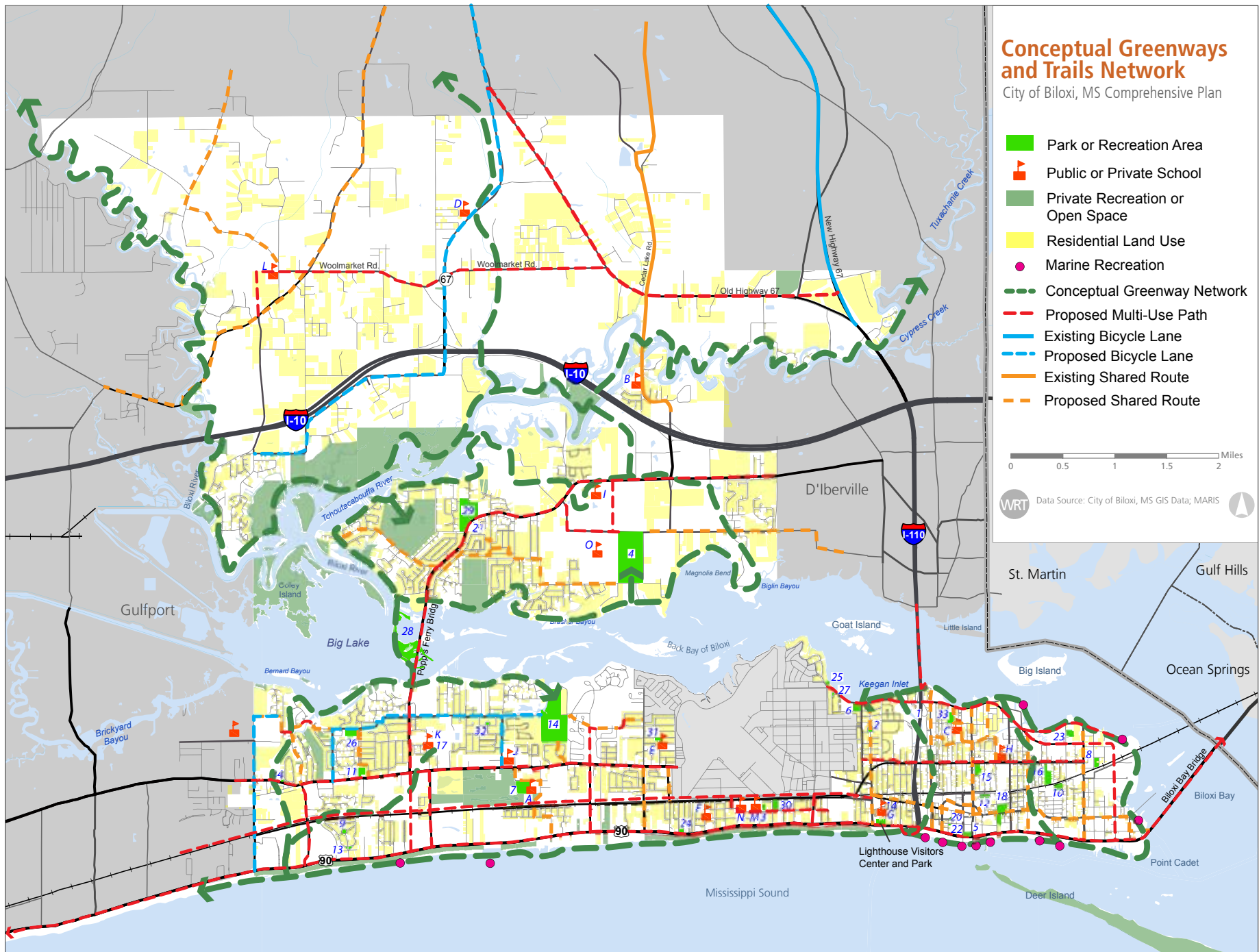


FIGURE 6.5/CONCEPTUAL GREENWAYS AND TRAILS NETWORK

San Antonio Texas River Walk

Located along the banks of the San Antonio River, the River Walk is now the most popular destination for tourists visiting San Antonio. It is actually a network of walkways one level below street grade. Restaurants, bars, and retail stores and services line the walk and provide a unique pedestrian environment along the waterfront. The River Walk connects major tourist attractions, including the Alamo and Convention Center, and hosts year-round events such as the annual springtime River Parade.



(the Peninsula Path) linking key destinations (e.g., casinos, museum center, the Biloxi Bay Bridge, Sand Beach, etc.) thus providing residents and tourists with a major recreational amenity. This walkway should be designed to enhance the natural environment and provide an added layer of protection from storms. The Peninsula Path and any associated infrastructure (e.g., parking areas) should incorporate pervious paving, storm resilient materials, natural stormwater filtration systems, bio-retention ponds, erosion control, etc. as recommended by the Army Corps and EPA Best Management Practices (BMPs).¹

The character of open space and waterways in Biloxi varies greatly by location. To capture different characteristics of open space, greenway/trail planning might include special zones addressing Biloxi's unique waterways (e.g., Mississippi Sound and the Sand Beach, the Back Bay, the Tchoutacabouffa River, and the Biloxi River). The City should revise the LDO to encourage development that is sensitive to the floodplain and minimizes any effects on flood storage capacity. Cities across the U.S. regulate development near waterways through riparian overlays and/or mandatory setbacks from water bodies and wetlands. A 100-foot setback or buffer from waterbodies and wetlands is often considered the minimum area to protect water resources and allow native vegetation and habitat to flourish. Incentives in the LDO are another tool to encourage private development that protects waterways.

¹ In 2008, the Gulf Coast Community Design Studio (GCCDS) with partners from MS State University College of Architecture and the Department of Urban Studies and Planning at MIT produced studies and concept drawings of Biloxi's potential waterfront design, issues and opportunities, treatment of wetlands, BMP's, and other topics that will be useful in planning and redesigning the City's open space system and treatment of the water's edge.

Left: San Antonio River Walk

Objective 6-5 Enhance the role of community facilities as centers of community activity through their locations, programs, and physical connections to surrounding neighborhoods.

Action 6-5-1 Create multiple-use synergies and opportunities for cost-sharing by co-locating facilities where possible.

Action 6-5-2 Evaluate the need for a community center in Woolmarket.

Community facilities offer central locations where residents of surrounding neighborhoods can gather for a variety of activities. For example, community centers can accommodate group activities, educational (e.g., business and language) classes, recreational programs, and informational services. The library/civic center to be constructed on Howard Avenue and the new Lighthouse Visitors Center in East Biloxi is an example of the multiple-use synergy created by co-locating facilities that will benefit both residents and tourists.

As the Biloxi Peninsula recovers and Woolmarket develops, community centers can play increasing roles as activity centers for surrounding communities. A new community park/center to serve Woolmarket is a priority need. Other community facilities, such as fire stations, can incorporate community-serving functions such as meeting space. To be successful, community facilities should be centrally located; easily accessible for pedestrians, bikers, and drivers; and incorporate multiple uses in one location.

The Economic Impact of Trails

Numerous studies have demonstrated that trails improve the local economy by increasing nearby property values and resulting tax revenues, increasing expenditures by residents on recreation, providing business opportunities, and attracting tourists who spend money on lodging, food, and recreation-related goods and services. Greenways frequently provide economic opportunities for communities (e.g., concession food sales, bike rentals, restaurants with outdoor seating, recreational retail stores, etc.) in addition to recreational benefits.

While studies agree that trails improve the local economy, the actual economic impact of trails is difficult to quantify in dollars per user. A 2004 study of the Virginia Creeper Trail (a 35-mile shared bike/walk trail in SW Virginia) found that trail users were almost evenly split between locals (47%) and non-locals (53%). Over 90% of the visitors are one-day users with the majority visiting in the summer months. From November 2002 to October 2003, visitors spent about \$2.5 million in recreational spending. Non-local visitors during the one-year period generated \$1.6 million in economic impacts and supported approximately 30 jobs in the region.

Source: The Virginia Creeper Trail: An Assessment of User Demographics, Preferences, and Economics, Prepared for the Virginia Department of Conservation, USDA Forest Service, Southern Forest Research Station, University of Georgia, December 2004.

Objective 6-6 Partner with other agencies, such as the Biloxi and Harrison County Public School Districts, to meet needs for parks, recreation, and other community facilities.

Action 6-6-1 Develop joint use agreements between agencies.

Action 6-6-2 Explore the potential for expansion of programs and facilities available for youth activities, families, and seniors.

Recreational facilities and schools are often ideal partners to serve the needs of local residents and provide joint services for parks, recreation, and other facilities. In addition, locating recreational facilities adjacent to schools provides an opportunity for parents, teachers, and students to interact. Meeting the needs of residents for parks and recreational programs should be a collaborative effort between the City and school districts. Private and nonprofit organizations (e.g., the Mississippi Renaissance Garden Foundation and the Gulf Coast Bicycle Club) can also play an important role in meeting the recreational needs of the community.

Objective 6-7 Support providers of community facilities not managed by the City (e.g., public schools, libraries, health care institutions, social services) to ensure that they meet the existing and future needs of residents.

Action 6-7-1 Maintain partnerships between the City and providers of community facilities to monitor and plan for future facility and service needs using the best available population projections and other data.

Action 6-7-2 Explore development of enhanced literacy and job training programs through the School Districts and other partners such as the Innovation Center.

Action 6-7-3 Continue to support the efforts of human service organizations to assist residents in need. [Housing Objective 7-3]

Biloxi is well served by community facilities operated by other providers. As shown in Table 6.2 above, enrollment in Biloxi Public Schools declined dramatically after Hurricane Katrina and subsequently recovered but is still 21% below pre-Katrina levels. East Biloxi elementary schools (Gorenflo and Nichols) have experienced particularly severe enrollment declines, but residents assert the importance of these schools to neighborhood identity. Conversely, Harrison County Public Schools is planning to develop new schools to serve projected growth in the Woolmarket area. Ideally, future schools should be located to reinforce the mixed-use center concept proposed in the Comprehensive Plan. The City should continue to work closely with both the Biloxi and Harrison County Public Schools to monitor enrollment and associated space needs, and to coordinate land use and school facility planning.

Equipping students and adults (including many for whom English is a second language) to be productive members of the 21st century workforce is a key education-related issue.

Harrison County Public Schools is planning to develop a “workforce training academy” tied to regional industry “clusters” (tourism, metal trades, and the aerospace industry); the Biloxi Public School District should also consider such a facility. Development of literacy and job training programs (e.g., education-based programs for non-native English speakers, vocational training, arts and cultural programming, etc.) that are readily available and accessible to adults who may not own vehicles is another priority.

Quality, accessible health care facilities are vital to a healthy community. The City should continue to work with the Biloxi Regional Medical Center to maintain a strong presence in Downtown Biloxi as satellite facilities are developed in emerging centers at Cedar Lake and Tradition.

A variety of public, non-profit, and faith-based organizations provide housing, health and human services, and economic assistance and support for residents in need. Examples include Back Bay Mission, Biloxi Housing Authority, Catholic Community and Social Services, Hope Community Development Agency (formerly East Biloxi Coordination and Relief Center), Harrison County Long Term Recovery Coalition, and Mercy Housing and Human Development. The displacements and hardships caused by Hurricane Katrina greatly increased the need for such services and the economic recession has placed additional demands on organizational capacity. The City should continue to support the work of these organizations in helping residents to recover and “get back on their feet” and encourage efforts to collaborate/share resources.



Relationship to Future Land Use

Objective 6-8 Maintain and expand utility (sewer and water) service in a planned and logical manner to support the designated future land use pattern.

Action 6-8-1 Coordinate land use planning and capital programming to ensure that utility infrastructure improvements and extensions are phased to support desired future land use [Land Use Action 3-6-2].

Action 6-8-2 Designate a Greater Biloxi Planning Area to accommodate the future expansion of the City to the north [Land Use Action 3-6-3].

One of the major themes of the Comprehensive Plan is the need to accommodate the future growth of Biloxi to the north (away from flood hazard areas) in an orderly, sustainable manner. Because they are key determinants of future development, public sewer and water service extensions should be planned to support the Comprehensive Plan's goals, objectives, and actions for land use. Specifically, priority should be given to providing sewer and water service for centers designated in accordance with the Future Land Use Map and text, as opposed to scattered development that is more inefficient and costly to serve.

The short-term impacts of growth pressures to the north will be felt primarily in the Woolmarket area, which has most of the undeveloped, environmentally unconstrained land remaining within Biloxi city limits. In anticipation of longer-term growth, the Comprehensive Plan designates a Greater

Biloxi Planning Area (i.e., the area into which the City could logically choose to expand in the future through annexation and provision of public facilities and services). As with sewer and water extensions in Woolmarket, future utility service in the Greater Biloxi Planning Area should be planned to support an orderly land use pattern focused on compact centers rather than sprawling, inefficient development.

Environmental Resource Protection

Objective 6-9 Protect drinking water, promote water conservation, and reduce the impacts of community facilities and infrastructure on water resources.

Action 6-9-1 Continue to implement the City's Phase II Stormwater Program to protect water bodies and ground water from natural and man-made hazards.

Action 6-9-2 Reduce impacts on water and other sensitive environmental resources in the siting, design, and operation of other community facilities and infrastructure.

Action 6-9-3 Continue to monitor and improve the quality of the City's public water through means such as the Annual Report on the Quality of Drinking Water.

Action 6-9-4 Continue to implement the City's *Hazard Mitigation/Floodplain Management Plan* to protect critical facilities and infrastructure from natural and man-made hazards.

The City developed a Stormwater Phase II Program in March 2003 to address water quality impairment caused by polluted stormwater runoff in accordance with federal EPA requirements. The specific water quality issues addressed by the program are:

- Pollution caused by general stormwater runoff
- Illegal dumping and improper disposal of household hazardous wastes, automobile wastes, and disposal of litter and debris
- Erosion and sedimentation associated with construction and development
- Leaking individual on-site wastewater treatment systems and sewage pollution
- Requirements for impaired water bodies and Total Maximum Daily Loads (TMDL) under the federal Clean Water Act²

As part of the program the City administers stormwater requirements for development projects between one and five acres in size to control 1) erosion and sedimentation during construction and 2) the amount of runoff generated after construction compared to pre-development conditions. (Projects greater than five acres in size are regulated by the Mississippi Department of Environmental Quality.) Other program components include public education and involvement, detection and elimination of illegal discharges, and pollution prevention/"good housekeeping."

The City should continue to administer and strengthen its comprehensive stormwater management program in order to reduce impacts on water resources from public facilities, infrastructure, and development in general. Priorities include:

- Use best stormwater management practices in the design of new public infrastructure
- "Retrofit" existing stormwater management systems to use best management practices
- Enact stormwater best management standards for new developments, including integration of more "natural" solutions into site design as landscape amenities

As noted, Hurricane Katrina caused significant damage to Biloxi's utility infrastructure, a situation that is being addressed through the City's Infrastructure Repair Program. Critical infrastructure (wastewater treatment plants, sewer and water lines, and public buildings and roads, etc.) should be located and designed to minimize 1) direct impacts on water resources from construction and operations and 2) vulnerability to damage from storms and other natural and man-made hazards. The *Hazard Mitigation/Floodplain Management Plan* addresses hazards associated with utility systems, including natural gas systems (distribution lines), sanitary sewer systems (wastewater treatment plants and sewage lift stations), and water systems (wells, tanks, and distribution lines/connections).

Objective 6-10 Promote energy conservation and other "green" practices to provide cost savings for Biloxi residents and businesses and to reduce the environmental impacts of community facilities and services.

- Action 6-10-1 Work with Mississippi Power and Coast Electric Power Association to increase energy conservation and the use of renewable energy sources.

² The Mississippi Department of Environmental Quality, Surface Water Division administers the state's TMDL program. TMDL refers to the maximum amount of a pollutant that a water body can receive and still meet water quality standards for its designated use(s) (e.g., shellfishing, contact recreation, etc.). Biloxi's major waterways, including the Mississippi Sound, Biloxi Bay, Tchoutacabouffa River, and Biloxi River, are classified as impaired under this program.



Action 6-10-2 Incorporate energy efficiency and other sustainability measures in the design, construction, and operation of municipal facilities.

Action 6-10-3 Work with the Harrison County Utility Authority, businesses, institutions, and residents to reduce solid waste volumes and increase recycling in Biloxi.

Buildings are heavy consumers of natural resources and produce a significant portion of greenhouse gases that impact climate change. The education, government, industrial, office, and hospitality sectors are all expected to experience growth in “green building” over the next few years as a result of major government incentives/initiatives, growing consumer interest, and improved/lower cost sustainable materials.³ With energy costs associated with fossil fuel sources expected to resume their upward trend as the economy recovers, energy efficiency makes good economic as well as environmental sense.

Both power companies serving Biloxi, Mississippi Power and Coast Electric Power Association, offer energy efficiency products and services for residential, business, and institutional customers. Mississippi Power is partnering with the Naval Construction Center in Gulfport on an energy conservation project that will include lighting and mechanical retrofits of a number of buildings at the facility. Similar partnerships with institutional uses in Biloxi on energy conservation and efficiency projects should be encouraged. Keesler Air Force

Base, for example, has a variety of energy conservation initiatives underway, including projects funded through the Air Force Infrastructure Energy Strategic Plan. Mississippi Power also has a renewable energy program that is focusing on increasing the use of biomass through a partnership with the U.S. Forest Service.

An important first step Biloxi can take to reduce energy costs is to conduct energy audits of existing municipal buildings. Based on the results of the audits, the City can pinpoint relatively easy ways to reduce energy consumption while maintaining or even improving building environments. Addressing deferred maintenance is another approach that can save money over the long term. Where new buildings are needed, incorporating LEED or other equivalent standards into site and building design will reduce energy use and other operational costs.

Reduction in the amount of waste generated by residential, commercial, and institutional uses (including construction activities) through recycling and material reuse is another way to reduce environmental impacts and promote sustainability. The Harrison County Utility Authority manages solid waste collection and recycling programs for Biloxi.

³ USGBC, Green Building by the Numbers, April 2009.