



*Conservation &
Coastal
Management
Element*

*City of Punta Gorda
Comprehensive Plan
2025*



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I. EXECUTIVE SUMMARY

The purpose of the *Conservation and Coastal Management Element* is to plan, promote and manage the conservation and protection of the City's natural resources. It is important for the City to plan for coastal development in such a way that development mitigates risk, maximizes economic value, and conserves coastal ecosystems. This element addresses measures to protect human life and limit public expenditures in areas that are subject to destruction by natural disaster, while developing and promoting the City's economic engine and is integrally connected with the *Future Land Use, Recreation and Open Space, Infrastructure, and Transportation Elements*.

The *Conservation and Coastal Management Element* inventories and describes the City's existing and proposed natural preserves and conservation areas within and adjacent to the City. The eastern waterfront area, in its undeveloped state, provides a buffer between the water and flood prone areas of Punta Gorda, and represents an important facet of the City's hazard mitigation plan. Preserving the eastern waterfront property from development also contributes to the maintenance of water quality standards by limiting the discharge of pollutants resultant from development.

The preservation and enhancement of public access points and their protection of the undeveloped areas of Punta Gorda's waterfront area are the major concerns of this element. Other concerns of the element are the enhancement of the viable traditional economy by promoting water-dependent and water-related uses, the mitigation of adverse effects from the development by promoting low-impact development, the protection of natural resources and hazard mitigation

The greatest potential impact to the natural resources of Punta Gorda and its environs, including the near pristine Charlotte Harbor estuary, is population growth in unsustainable patterns and rapid suburbanization within the coastal area. The City is committed to implementing strategies that will balance growth, including residential and commercial development and the associated infrastructure, through innovative and creative approaches that will least impact the natural systems.

II. INTRODUCTION

Purpose

The purpose of the *Conservation and Coastal Management Element* is to plan, promote and manage the conservation and protection of the City's natural resources. It is important for the City to plan for development activities in areas that would mitigate or otherwise lessen the disturbance of upland or coastal resources. This element addresses measures to protect human life and limit public expenditures in areas that are subject to destruction by natural disaster.

Relationship to the City's Comprehensive Plan

The *Conservation and Coastal Management Element* provides the underlying foundation and detailed policies regarding conservation, use and protection of natural and coastal resources. It relates to the other elements as follows:

- It is through the *Future Land Use Element* and the Future Land Use Map that the City's growth management strategy is fully implemented. Therefore, it is essential that the uses prescribed by the Future Land Use Map be consistent with sound coastal policy, and that the policies of the *Future Land Use Element* promote compatibility between development activities and the conservation of natural resources.
- The *Recreation and Open Space Element* identifies the potential recreational opportunities for which these natural preserves may be utilized. Such uses typically include passive recreation, outdoor education, and resource-oriented activities such as hiking, paddle craft boating and camping.
- The *Infrastructure Element*, which is divided into sections pertaining to Drainage, Solid Waste and the provision of Sewer and Potable Water services, is directly related to the *Conservation and Coastal Management Element*. The impacts of existing and proposed facilities on natural systems must be taken into consideration during the establishment of levels of service for water and sewer facilities, facility site location criteria, and overall policies regarding the City's infrastructure. Dealing with these challenges is accomplished through the policies of the drainage section of the *Infrastructure Element*.
- The *Transportation Element* deals with the City's road network and addresses port and aviation facilities, and bicycle paths and pedestrian walkways. The policies of the *Transportation Element* must reflect those of the *Conservation and Coastal Management Element* to ensure that

roads are sited in the least sensitive areas possible, designed in a manner which minimizes impacts to the surrounding environment and provide adequate hurricane evacuation times.

III. LEGISLATION

The following is an assessment of existing regulations and programs which affect land use decisions and regulate development impacts to the natural environment and coastal planning area.

Federal Regulations

The Rivers and Harbors Act (1899)

The Rivers and Harbors Act (1899) regulate all activities affecting the navigable waters of the United States, including the approval of dredging and filling activities in wetlands. This regulation affects the construction of bridges, roads, wharves, and other activities interpreted as affecting navigable waters. The primary enforcement agency for this act is the U.S. Army Corps of Engineers.

The National Flood Insurance Act of 1968

The National Flood Insurance Act of 1968 establishes the National Flood Insurance Program (NFIP) which makes federally backed flood insurance available in communities which adopt and adequately enforce floodplain management ordinances that meet NFIP requirements. The Act also required that the Federal Emergency Management Agency establish flood risk zones in all flood prone areas. The City of Punta Gorda actively participates in the program through building code enforcement and through the Community Rating System (CRS) which encourages best practices in floodplain management through the granting of community wide flood insurance rate discounts. Punta Gorda currently maintains a Class 6 designation in the CRS program.

The Clean Water Act

The Clean Water Act establishes a permitting program and criteria for the discharge of pollutants into the country's waters, including minimum water quality standards. The Act focuses on surface waters, and provides the greatest protection for wetlands of any federal legislation.

The Clean Air Act (1970, 1990)

The Clean Air Act (1970, 1990) establishes emission standards for point source emitters of airborne pollutants and motor vehicles. It also sets pollution controls which require communities and industry to meet ambient air quality standards for a number of air pollutants.

The Marine Mammal Protection Act of 1972

The Marine Mammal Protection Act of 1972 gives the U.S. Department of the Interior the responsibility for the management and protection of marine mammals found within the territorial boundaries of the United States, including the West Indian

Manatee.

The Coastal Zone Management Act (CZMA) of 1972

The Coastal Zone Management Act (CZMA) of 1972 establishes a cooperative state and federal program to manage coastal zones in the United States. The Federal Government delegated regulatory authority to the State of Florida under the Florida Coastal Management Program in 1982.

Endangered Species Act (ESA)

Adopted by Congress in 1973, the Endangered Species Act (ESA), and subsequent updates, establishes criteria for the listing of plants and animals as threatened or endangered. The ESA also provides a permitting program which helps ensure that ecosystems upon which listed species rely are conserved during development activities. The Act also provides the impetus for the creation of species-specific Habitat Conservation Plans intended to address the long-term viability of populations of endangered or threatened species.

The Safe Drinking Water Act of 1974

The Safe Drinking Water Act of 1974 charges the U.S. Environmental Protection Agency with ensuring that drinking water meets established criteria.

The Coastal Barrier Resources Act (1982)

The Coastal Barrier Resources Act (1982) prohibits federal expenditures for new or expanded development on undeveloped coastal barriers.

State Regulations

The Florida Endangered and Threatened Species Act

The Florida Endangered and Threatened Species Act establishes criteria for the listing, protection and management of plant and animal species considered to be endangered, threatened, or of special concern.

The Preservation of Native Flora of Florida Act

The Preservation of Native Flora of Florida Act recognizes the native plant species that are endangered, threatened, or commercially exploited.

Chapter 39 Florida Administrative Code (FAC)

Also known as the **Florida Wildlife Code**, Chapter 39, *FAC*, restricts the pursuit, molestation, harm, harassment, capture, or possession of a listed species. The Code establishes a permitting program for such activities, including permits for the "incidental take" (lawful killing "incidental to" otherwise allowable activities) of individual animals.

The Florida Manatee Sanctuary Act

The Florida Manatee Sanctuary Act establishes protective measures for the endangered West Indian manatees, and establishes manatee sanctuary areas throughout the State.

The Water Resources Act

The Water Resources Act establishes state water policy and implementation measures, which include the creation of the five regional water management districts. This act mandates the formulation of a state water use plan. The City of Punta Gorda lies within the Southwest Florida Water Management District (SWFWMD).

The Florida Water Quality Assurance Act

The Florida Water Quality Assurance Act requires the Florida Department of Environmental Protection to maintain a statewide groundwater quality monitoring network and data base.

The Florida Safe Drinking Water Act

The Florida Safe Drinking Water Act establishes a statewide framework for regulating drinking water quality.

The 1984 Groundwater Protection Rule

The 1984 Groundwater Protection Rule establishes guidelines for the restoration, conservation, and management of the State's groundwater resources.

The Florida Solid Waste Management Act (1988)

The Florida Solid Waste Management Act (1988) requires each County and City to include recycling programs in their comprehensive plans and to develop and initiate recycling programs with the goal of reducing the waste stream by 30% by the end of 1994.

Rule 9J-5 FAC

Rule 9J-5, Florida Administrative Code (FAC) establishes the minimum criteria for local government comprehensive plans, and is used by the Florida Department of Community Affairs to determine whether such plans fulfill the requirements of the State's Growth Management Act. This rule prescribes the minimum requirements for each element of the comprehensive plan.

Chapter 161, Florida Statutes (F.S.), and Chapter 62B-33, FAC

Chapter 161, FS, and Chapter 62B-33, FAC, establish the State's beach and shore preservation regulations including structural requirements.

Chapter 370, FS, and Chapter 16N-35, FAC,

Chapter 370, FS, and Chapter 16N-35, FAC, established the state's salt water fishing license requirements.

Chapter 163, FS

Chapter 163, FS (Local Government Comprehensive Planning and Land Redevelopment Act) requires that each City and County prepare and adopt a comprehensive plan containing mandatory elements that address growth management issues including conservation and coastal zone management.

The Surface Water Improvement and Management (SWIM) Act of 1987

The Surface Water Improvement and Management (SWIM) Act of 1987 - requires each of the State's five water management districts to identify those surface waters most in need of restoration or preservation. The act mandates the development of management plans ("SWIM plans") for each waterbody identified, including detailed schedules of implementation.

The Mangrove Trimming and Preservation Act

The Mangrove Trimming and Preservation Act was enacted during the 1995 legislative session and provides standards for the selective trimming of mangrove trees, and establishes a permitting program to allow such activities. It was amended during the 1996 session to provide regulations for trimming and altering mangroves on private and public property.

Local Regulations

City Ordinance

Chapter 6, Boats, Docks, and Waterways Ordinance

Boats, Docks, and Waterways Ordinance, Chapter 6 of the City Code of Ordinances provides authority to the City to regulate waterways within the City limits. The provisions include regulation of boats, sanitation rules, mooring and speed zones, construction in waterways, maintenance of seawalls, and commercial harvesting of shellfish. The code defines the 5 member Canal Maintenance District, and a governing body with specific powers.

Chapter 6A, National Pollution Discharge Elimination System

National Pollution Discharge Elimination System, Chapter 6A of the City Code of Ordinances was adopted for the purpose of maintaining efficient economic and safe operation of storm sewer system and for the safe operation of the health safety and general welfare of the public within the City. It ensures that land development activities are conducted in a manner which minimizes the loss of top soils, controls run-off through the application of "best management practices".

- Article I is intended to prevent and abate pollution through the regulation and control of connections and discharges to the separate storm sewer

system of the City of Punta Gorda and to limit the use of the separate storm sewer system to the collection, conveyance, treatment and disposal of stormwater through appropriate regulation and enforcement.

- Article II includes provisions for environmental protection and promotes public welfare through the regulation of the design, construction, use and maintenance of any development or other activity which disturbs land or removes the vegetative cover or results in the movement of soils on construction sites within the City.

Chapter 26, Land Development Regulations

Chapters 26, of the City Code of Ordinances are known as the Land Development Regulations (Codes) and deal with a variety of natural resources issues.

- Article 8, Section 13, Soil Conservation: provides for the installation of erosion control barriers during development, the stabilization of soils ensures that land development activities are conducted in a manner which minimizes the loss of top soils and ensures the application of "best management practices" for agricultural land uses.
- Article 8, Section 16, Transfer of Development Rights: provides for the transfer of density units associated with real property. This subsection promotes the protection and conservation of environmentally sensitive areas of the City such as wetlands, mangrove clusters and endangered species habitats. The ordinance establishes an incentive for the dedication and/or discounted sale of property to the City for general purposes such as parks, roads, right-of-ways, government service sites, public access and affordable housing and continues to provide limitations and conditions for transfer of density units for the establishment of a land acquisition trust fund.
- Article 12, Landscape Standards: establishes minimum landscape design standards including approved and prohibited plant species lists, and landscaping standards on all commercial, multi-family and single family development within the City limits.
- Article 14, Flood Hazard Areas: It is the purpose of this Article to mitigate potential losses due to flood conditions in specific areas by provisions.

IV. **INVENTORY & ANALYSIS - CONSERVATION**

The common theme of the *Conservation and Coastal Management Element* is the continued conservation, use and protection of Charlotte Harbor the most valuable natural resource of the City of Punta Gorda. All of the City's surface water runoff discharges into the Harbor which joins two major surface water conveyance systems of the Peace and Myakka Rivers.

The City of Punta Gorda lies within a sub-tropical environment dominated by pine-palm-palmetto low-lying uplands separated from the river and harbor by extensive mangrove forests and salt marsh ecosystems. The two most significant environmental events that have impacted the City are the development of the residential canal communities and the preservation of thousands of acres of native habitat through state acquisition. These preservation areas surround the City as the Charlotte Harbor State Buffer Preserve. The greatest potential impact to the natural resources of Punta Gorda and its environs, including the near pristine Charlotte Harbor estuary, is the population growth in unsustainable patterns and rapid suburbanization within the coastal area. This growth, including residential and commercial development and the associated infrastructure, creates a significant impact to all natural systems through land clearing practices and surface water quality issues.

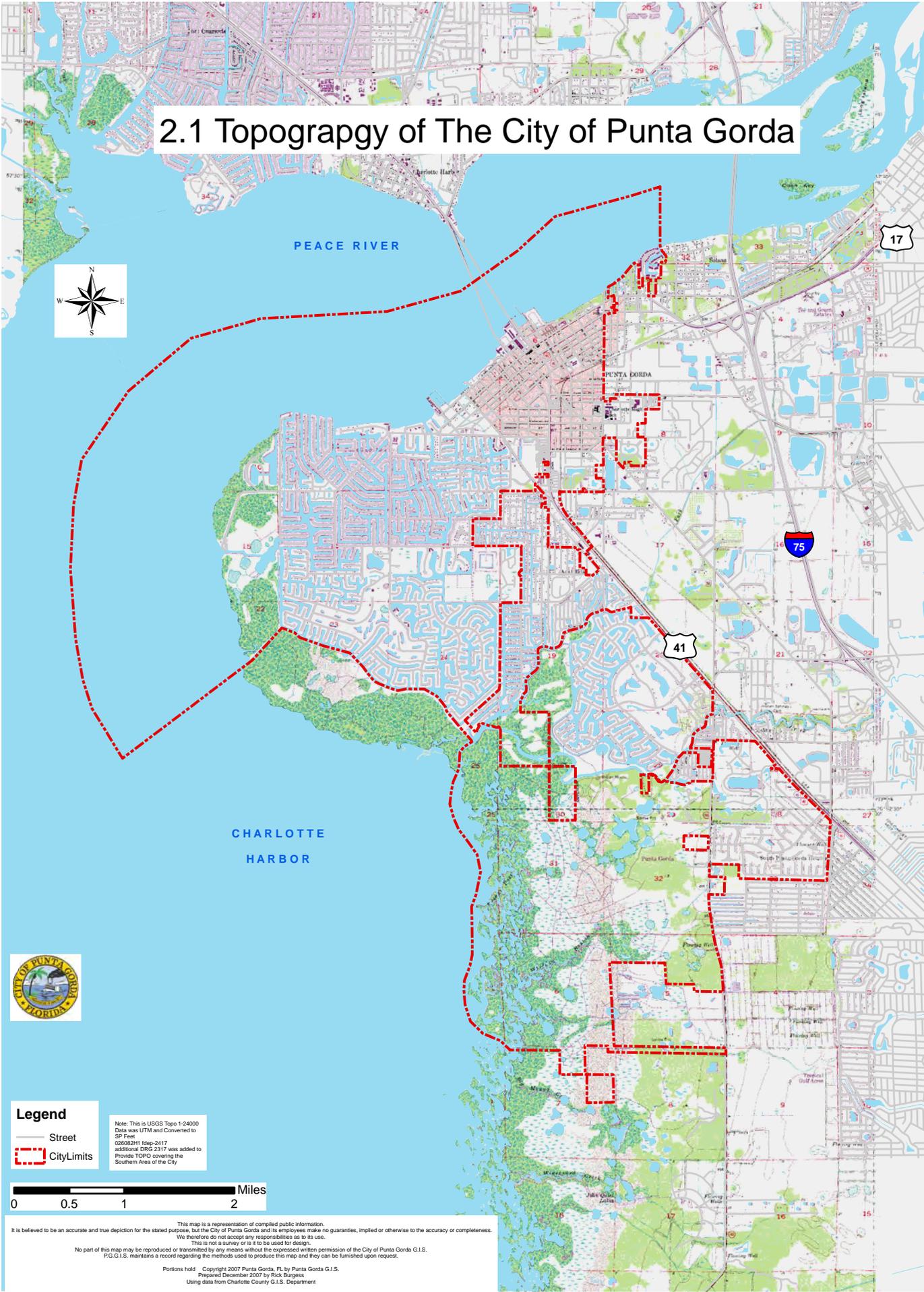
Charlotte Harbor with its great natural beauty provides a variety of social benefits to the City, including recreational amenities for residents and visitors, and tourism opportunities which stimulate the area's economy.

Punta Gorda area receives an average annual rainfall of fifty-four (54) inches, with approximately sixty percent (60%) falling during the summer months of June through September in a typical wet season/dry season. Rainfall in the winter months is generally associated with cold fronts moving across the region and is characterized by low intensity, higher duration events. The summer rainfall patterns consist of short duration, intensive convective storms typically occurring in the late afternoon. It is this type of rainfall event that causes the highest volumes of storm water runoff with the potential of spot flooding and potentially damaging effects to Charlotte Harbor.

The topography of the City of Punta Gorda, identified in Map 2.1, and its environs is generally flat with elevations ranging from sea level to approximately fifteen (15) feet above sea level. Three vegetative zones can be distinguished:

- The coastal marsh is predominantly tidal mud flats, mangroves, and grass marsh areas ranging in elevations from zero (0) to five feet (5) above mean sea level.
- The transitional zone connects the coastal area with the inland prairie

2.1 Topography of The City of Punta Gorda



Legend

- Street
- CityLimits

Note: This is USGS Topo 1-24000
 Data was UTM and Converted to
 SP Feet
 026052H Idop-2417
 additional DRG 2317 was added to
 provide TOPCO covering the
 Southern Area of the City



This map is a representation of compiled public information. It is believed to be an accurate and true depiction for the stated purpose, but the City of Punta Gorda and its employees make no guarantees, implied or otherwise to the accuracy or completeness. We therefore do not accept any responsibilities as to its use. This is not a survey or is it to be used for design.

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 Prepared December 2007 by Rick Burgess
 Using data from Charlotte County G.I.S. Department

Air Quality

Air quality is good within the City of Punta Gorda and well within the standards set by State and Federal regulatory agencies. The air quality is monitored by the Florida Department of Environmental Protection (FDEP) for carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulfur dioxide. FDEP monitors are concentrated in areas of high population densities. The one air quality monitoring station in the area was located at the near the Charlotte County Airport. However, since the monitoring standards have changed and since most of Southwest Florida, including the City of Punta Gorda is listed as an attainment area by the US Environmental Protection Agency (USEPA) the Punta Gorda station is no longer monitored.

Automobile exhaust was previously identified as the most significant individual threat to the City's and Charlotte County's air quality. While improved automotive exhaust pollutants technologies have reduced that threat significantly, auto-dependent development patterns in conjunction with increasing populations will increase auto related air pollutants over the planning horizon.

Open burning is another common source of air pollutants, as a result of development activities or in the form of wildfires. The major pollutants that result from open burning are suspended particulates and carbon monoxide. The size of the particles released through open burning are directly linked to a high potential for causing health problems. However, the emissions produced from open burning are generally short term and localized in nature. Open burning occurs around the City to a lesser extent including wildfires and prescriptive burns for land management purposes. In Florida, open burning is regulated by the State Division of Forestry and FDEP. While open burning is not usually permitted in or near residential areas, it is important to recognize that controlled or prescribed burning is employed in forestry, and wildlife management as an essential land management tool. One of the major benefits of prescriptive burning of lands, such as the Charlotte Harbor State Buffer Preserve, is to periodically reduce the accumulation of dry leaf litter and other dead plant materials in forests and prairies, and thus prevent highly destructive wildfires from occurring.

Water Resources

Surface Water Systems

As provided by Chapter 403, *Florida Statute (FS)*, Florida's surface waters are classified into five categories according to their present and future most beneficial uses. Table 2.1 divides the five (5) categories of surface waters identified in Section 62-302.400, *FAC*:

Table 2.1 - Surface Water Categories

Category I	Potable Water Supplies
Category II	Shellfish Propagation or Harvesting
Category III	Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish/Wildlife
Category IV	Agricultural Water Supplies
Category V	Navigation, Utility, and Industrial Use

Source: Florida Department of Environmental Protection

Category I surface waters are generally the highest quality and subject to the most stringent protective measures. Category II and III waters may, for certain uses and water quality parameters, receive equal or even greater protection. Category IV water bodies are generally located in agricultural areas. Category V Waters are generally industrial in nature. There are no Category IV or V waters within the City of Punta Gorda.

Special consideration is also given to waters classified as Outstanding Florida Waters or Outstanding National Resource Waters which are defined by Chapter 62-302, *Florida Administrative Code (FAC)*, as:

- Outstanding Florida Waters - waters designated by the Environmental Regulation Commission as worthy of special protection because of their natural attributes.
- Outstanding National Resource Waters - waters designated by the Environmental Regulation Commission that are of such exceptional recreational or ecological significance that water quality should be maintained and protected under most circumstances.
- Aquatic Preserves - The Florida Legislature may, as provided by Chapter 258, *FS*, declare submerged lands and associated waters that are of exceptional biological, aesthetic, and scientific value “ to be Aquatic Preserves which are set aside forever...for the benefit of future generations.” (Section 258.36, *FS*). The City of Punta Gorda contains a portion of the Gasparilla Sound-Charlotte Harbor Aquatic Preserve.

The most significant surface water features in and adjacent to the City of Punta Gorda are the Peace River and Charlotte Harbor to the north and west; and Alligator Creek to the south; have been designated as aquatic preserves by the State. The City is bordered on the west by mangrove forest and tidal marsh areas that form part of the Charlotte Harbor State Buffer Preserve.

Rainfall accumulations during the wet season flood the area. As the water table rises above the land surface, the water drains either through natural channels, such as sloughs, creeks and rivers, or by slowly moving across large areas of flat land. This process is known as sheet flow movement and it allows water to filter out pollutants as it moves slowly across the large areas.

Historically, much of the City drainage sheet flowed generally west and north into the harbor. Early populations settled on well drained lands to avoid seasonal flooding. However growing populations and land development disrupted the natural drainage patterns as urban development and agricultural needs increased. These activities employ the draining of lands through the construction of canals and ditches.

Significant alterations of natural drainage features include:

- Creation of man-made canals
- the use of surface water as potable water
- development activities which result in the reduction of drainage basins
- the destruction of sloughs that served as natural flow ways
- loss of wetlands that serve as water storage areas
- the alteration or elimination of sheet flow due to development activities

The most significant man-made alteration to wetlands and natural drainage features was the construction of two (2) large dredge and fill residential canal communities, Punta Gorda Isles and Burnt Store Isles. These two (2) communities now include over one hundred and thirty (130) miles of seawall along the shores of over fifty (50) linear miles of tidal canals.

Surface Water and Drainage Basins Affecting the City

Surface water consists of the collective water flowing on the surface that develop into larger streams and eventually combine to form a river. The location of Charlotte Harbor to the City of Punta Gorda is critical to the economic engine of the City and it is in the City's best interest to support monitoring and protection programs related to the surface water, stormwater and drainage basins connecting to the Harbor.

Surface water studies through programs administered by the Southwest Florida Water Management District and the Charlotte Harbor National Estuary Program collect and organize data necessary to monitor water quality. Both groups are committed to improving and maintaining Charlotte Harbor through similar goals.

Current data indicates the City's surface water resources are in good condition.

The enforcement of State, Federal, and local regulations, coupled with the public's continually awareness of the need to conserve and protect water resources, have combined to enhance the protection of these waters from point and non-point source pollution. The primary threats to the City's surface waters continue to include non-point source pollution generated by urban and agricultural runoff, leachate from septic tanks and package wastewater treatment plants, erosion from improper land clearing activities, upstream sources of contamination, and historic construction of dead end finger canals.

Non-point sources by their nature are difficult to isolate and identify, other than by their proximate causes as stated above. It is even more difficult to develop and successfully implement programs to reduce the amount of such pollutants which enter the surface water system because such programs usually rely on public education and voluntary compliance

Map 2.2 identifies the City of Punta Gorda's drainage basins. A drainage basin is the topographic region from which a stream receives runoff, sheet flow and groundwater flow. Drainage basins are divided from each other by topographic barriers which will define waterflow patterns. Thirteen (13) Basins are included within the City's boundaries. The largest basin is identified as the Alligator Creek. The flow from this basin transects the City as the North and South Forks of Alligator Creek, eventually discharging to Charlotte Harbor south of the large residential community of Punta Gorda Isles and north of the Charlotte Harbor State Buffer Preserve.

As one of five (5) contiguous aquatic preserves within the greater Charlotte Harbor estuary complex, the Charlotte Harbor Aquatic Preserve receives protection under the Florida Aquatic Preserve Act of 1975. In addition to the two (2) major tributaries that drain into the preserves, the preserves connects to several extensive residential canal systems located in Punta Gorda, Port Charlotte, and Cape Haze in northwestern Charlotte County. The locations of the Aquatic Preserves in association with the City are shown on Map 2.3 Aquatic Preserves. Any impacts received to the tributaries and the canal systems may negatively affect the preserve. The City of Punta Gorda shall review new developments and support monitoring activities occurring along these areas in efforts to prevent and reduce negative impacts such as nutrient run-off to the preserve.

A drainage basin, sometimes called a watershed, is an area where all surface water shares the same drainage outlet. Drainage basins act like funnels by collecting water within an area and channeling it into a waterway. They are divided by topographical boundaries. Surface water and drainage systems form hydrologically and ecologically interconnected and mutually interdependent system. The following brief discussions describe the City's major surface waters features.

2.2 City of Punta Gorda Drainage Basins



Legend

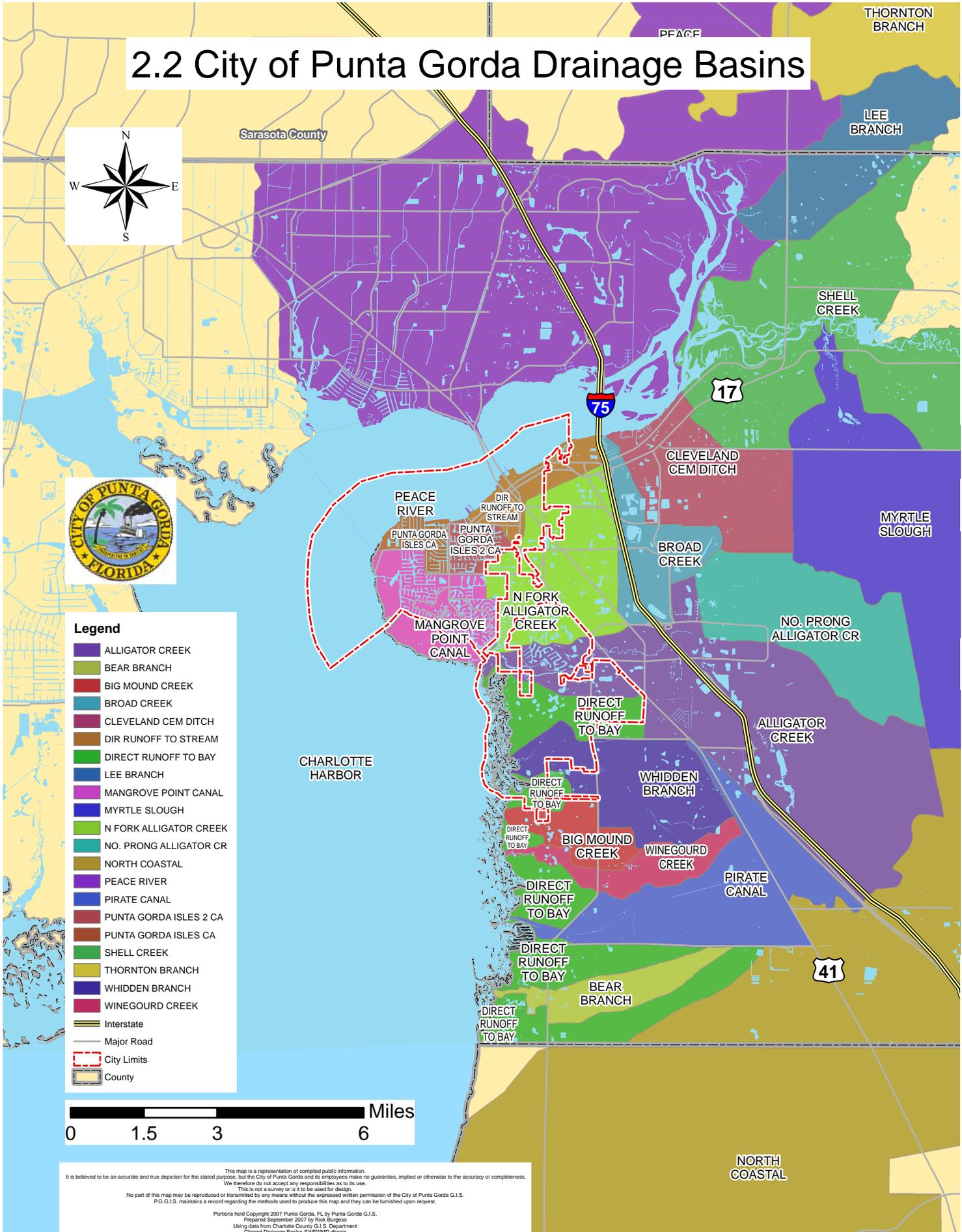
- ALLIGATOR CREEK
- BEAR BRANCH
- BIG MOUND CREEK
- BROAD CREEK
- CLEVELAND CEM DITCH
- DIR RUNOFF TO STREAM
- DIRECT RUNOFF TO BAY
- LEE BRANCH
- MANGROVE POINT CANAL
- MYRTLE SLOUGH
- N FORK ALLIGATOR CREEK
- NO. PRONG ALLIGATOR CR
- NORTH COASTAL
- PEACE RIVER
- PIRATE CANAL
- PUNTA GORDA ISLES 2 CA
- PUNTA GORDA ISLES CA
- SHELL CREEK
- THORNTON BRANCH
- WHIDDEN BRANCH
- WINEGOURD CREEK
- Interstate
- Major Road
- City Limits
- County



This map is a representation of compiled public information. It is believed to be an accurate and true depiction for the stated purpose, but the City of Punta Gorda and its employees make no guarantee, implied or otherwise to the accuracy or completeness. We therefore do not accept any responsibility as to its use. This is not a survey or is fit to be used for design.

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Map 2.3 - Aquatic Preserves



Legend

Aquatic Preserves

- LAND
- WATER
- County
- City Limits
- Interstate
- Major Road



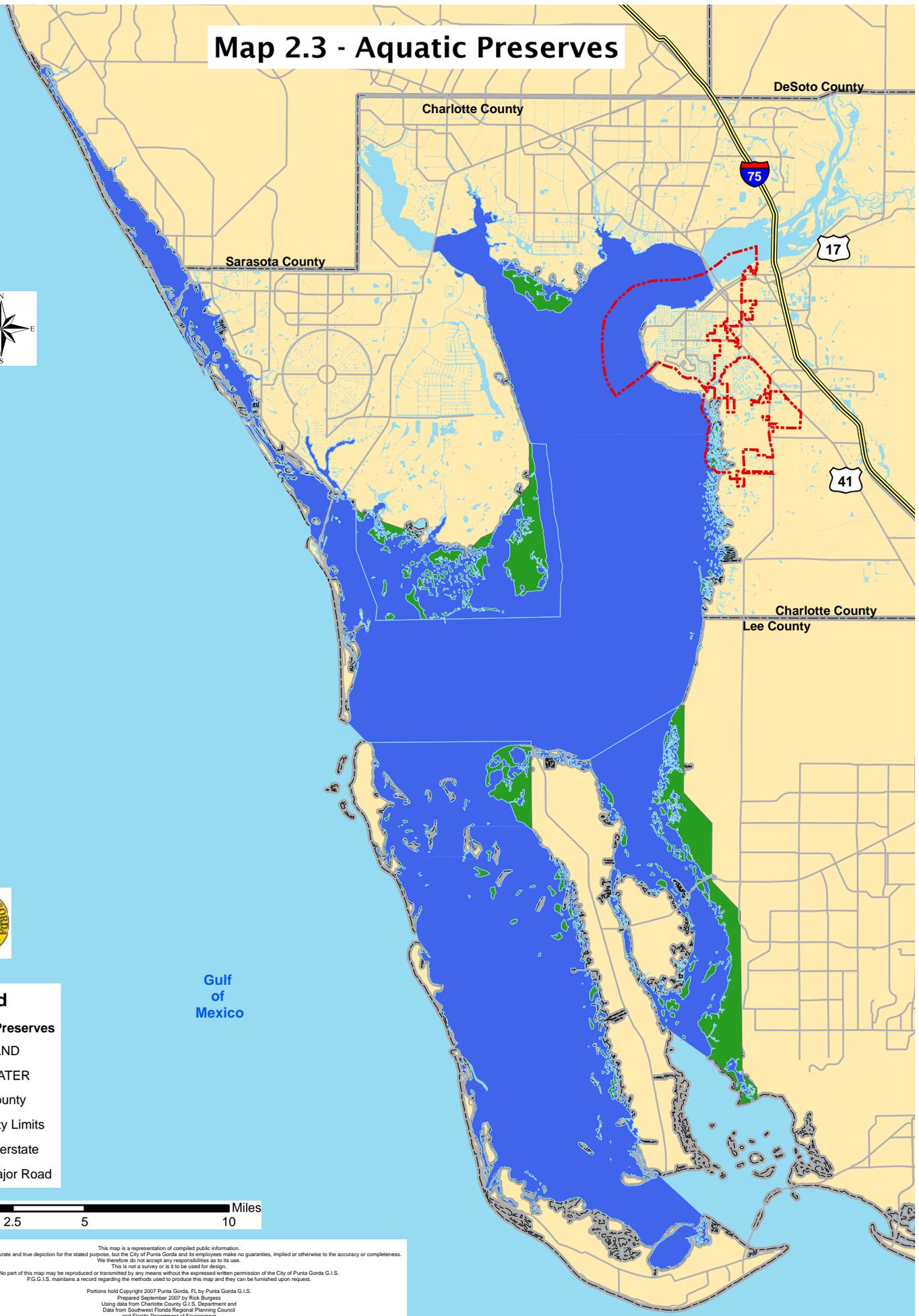
Gulf
of
Mexico

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 Prepared September 2007 by Rick Burgess
 Using data from Charlotte County G.I.S. Department and
 Data from Southwest Florida Regional Planning Council
 and Florida Department of Environment



The Peace River

The Peace River begins in the waters of the Green Swamp in Polk County (Black, Crow and Eidsness, 1976). After coalescing into a defined stream near Bartow, it flows generally southwest for approximately one hundred and five (105) miles until it empties into Charlotte Harbor draining twenty-four hundred (2,400) square miles of land area (Hand, et. al., 1994) as shown in Map 2.4.

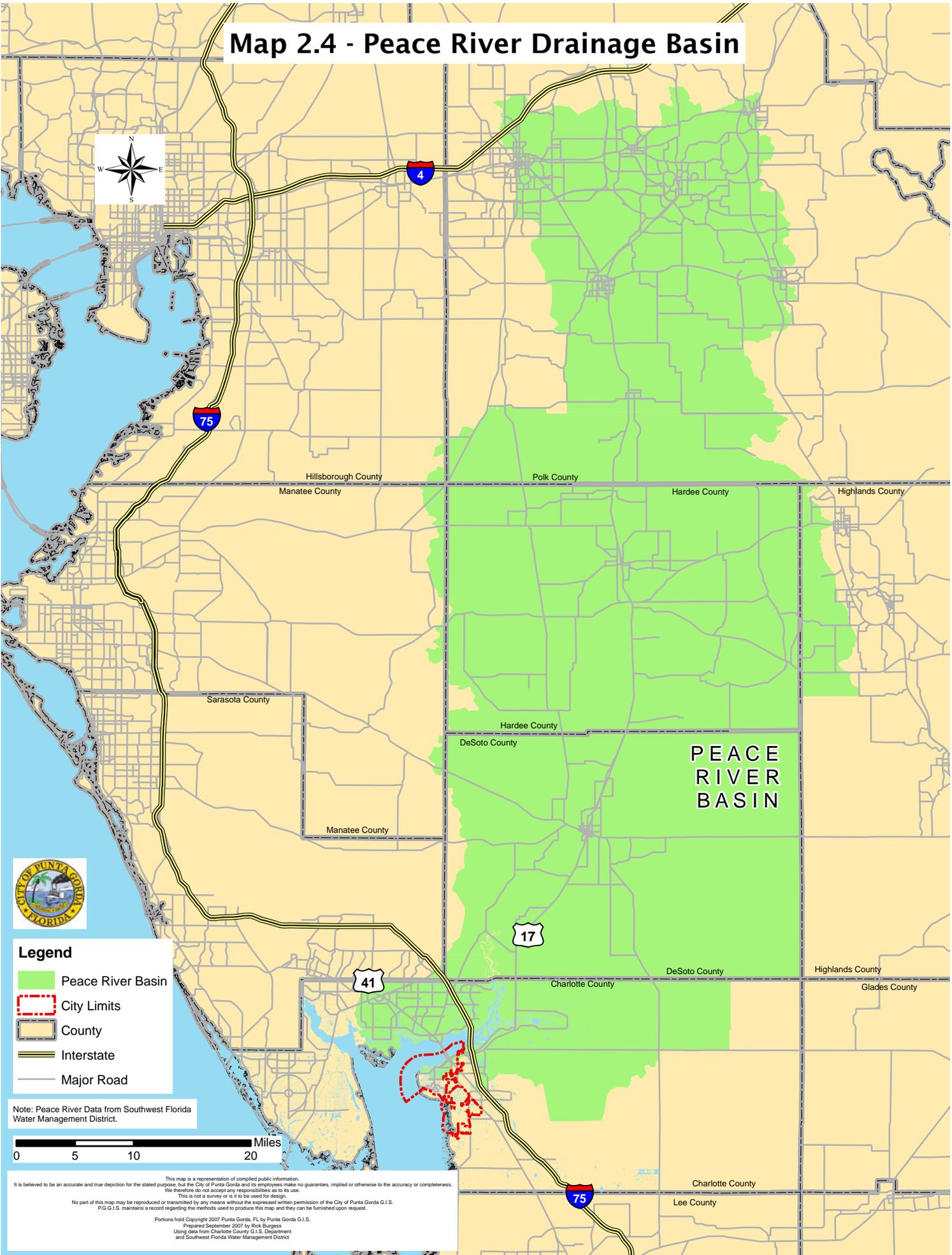
Water Quality

The Peace River, the largest of Charlotte Harbor's tributaries, contributes well over half the freshwater which flows into the estuarine system and is the principal source of potable water for much of the greater Port Charlotte area, as well as an important river for industry, agriculture, tourism and the environment.

Although the main body of Charlotte Harbor and its adjacent estuarine systems are in relatively good condition, the watershed reflects the pressure of human activities. As the population continues to grow within the watershed, these pressures must be addressed to prevent further threats to natural systems and to protect current uses of resources. The challenge for the city is to participate with local agencies and the Charlotte Harbor National Estuary Program (CHNEP) in the protection of all the basins by implementing the CHNEP's goals:

- Managing mangrove areas;
- Protecting seagrass areas;
- Securing new water supply sources for growing populations and business;
- Managing waste generated by septic tanks and storm sewer outfalls;
- Protecting wetland areas for water retention, groundwater recharge, and wildlife habitat; and
- Improving the efficiency of freshwater usage.

Map 2.4 - Peace River Drainage Basin



Legend

- Peace River Basin
- City Limits
- County
- Interstate
- Major Road

Note: Peace River Data from Southwest Florida Water Management District.



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The CHNEP goals are greatly affected by land use decisions made by local governments. Local governments are facing serious land development and management issues which include securing a reliable water supply, treating residential wastewater, and preserving local habitat. All of which become increasingly difficult to manage as the population increases in an unsustainable pattern. This pattern is exacerbated by the lack of coordination of land use decisions by the various local governments within the watershed.

The DEP, in coordination with the Southwest Florida Water Management District (SWFWMD), has completed a resource management plan for the Peace River Basin. This plan recommends a number of regulatory and non-regulatory approaches toward reducing cumulative impacts in the basin. The plan incorporates many existing programs from the FDEP, SWFWMD and the Florida Department of Agriculture and Consumer Services (FDACS). Recommended actions include:

- Development of a land acquisition plan and funding strategy for the Peace River Basin through collaboration of local, state, and regional conservation land acquisition entities to assure a coordinated and equitable approach;
- Development of a proposal to ensure adequate funding for the Non-mandatory Mine Reclamation Program targeted at specific water resource benefits in the basin;
- Joint reviews by DEP and SWFWMD on Environmental Resource Permitting;
- Consideration in combining the Environmental Resource Permit and Conceptual Reclamation Plan approval processes into a streamlined and more protective, comprehensive phosphate mining authorization to enhance environmental protection and restoration; and
- Work with the SWFWMD and area local governments to evaluate, plan and initiate financing for the necessary environmental infrastructure to assure sustainable water supplies and improved water quality in the Peace River Basin.

Primary conclusions of the study indicate the following:

- Long-term variations in rainfall have led to substantial declines in average and above average flows over the last 60 years;
- Groundwater withdrawals have caused a loss of spring flow and base flow in the upper part of the watershed, resulting in the periodic loss of perennial flow in the river between Bartow and Homeland during low flow conditions;
- Increased dry season flows from agricultural runoff have led to water quality degradation;

- Land use and cover patterns in the watershed have changed dramatically since the 1940s, with most changes occurring prior to 1979; and
- Water quality improvements have been made with respect to some parameters over the watershed as a whole, however, some portions of the watershed continue to experience water quality degradation.

Charlotte Harbor

Charlotte Harbor is designated as a priority waterbody of the Southwest Florida Water Management District's (SWFWMD) Surface Water Improvement and Management (SWIM) program and identified as a critical waterbody by the 2002 *Southwest Florida Strategic Regional Policy Plan*, (SRPP). In 1995, Charlotte Harbor was included in the National Estuary Program administered by the US Environmental Protection Agency. With a surface area of approximately 270 square miles and a drainage basin of approximately 4500 square miles (SWFWMD, SWIM Plan 1993), Charlotte Harbor, is the second largest estuary in the State of Florida. In addition to being considered one of the State's most productive estuaries for commercial and recreational fishing, and a provider of habitat for a variety of endangered species, the Harbor is the focal point of the City's waterfront. The harbor's major tributaries are the Peace, Myakka, and Caloosahatchee Rivers. Numerous smaller creeks and streams also feed into the harbor.

Charlotte Harbor's Shoreline

Charlotte Harbor's shoreline is characterized by large areas of mangrove swamps with limited urban developments occurring in some areas of the Harbor (Port Charlotte) and at the mouth of the Peace River (Punta Gorda). Along the southern basin boundary behind the existing State Buffer Preserve larger residential developments exist or are being planned.

Water Quality

Although the State Regional Policy Plan (SRPP) and the CHNEP report that the water quality in the basin is good; there are some areas of concern. The CHNEP states that nutrient levels such as phosphorus and nitrogen are elevated. Pollution within the estuary is primarily linked to bacteria, which may enter the system from urban runoff through canals, and sediments from construction or possibly agricultural run-off from upstream.

Excessive surface water withdrawals from rivers and creeks for purposes of water supply may also degrade estuaries by reducing or altering the timing of freshwater inflows. Changes in historic/natural duration, seasonality and volume of water affect important sport and commercial saltwater fisheries and other estuarine species. Reports indicate that fisheries have declined and shellfishing is periodically closed due to bacterial contamination.

The watershed reflects the pressure of increasing human activities. Urban development continues to change the character and ecology of river mouth and coastal waters. Mangroves are removed or aggressively trimmed, red tide events cause public health warnings, seagrass areas have declined or have been damaged, and groundwater pumping has continued to increase. If the watershed's population continues to grow in unsustainable patterns, these pressures must be addressed to prevent further threats to natural systems and to protect current uses of resources.

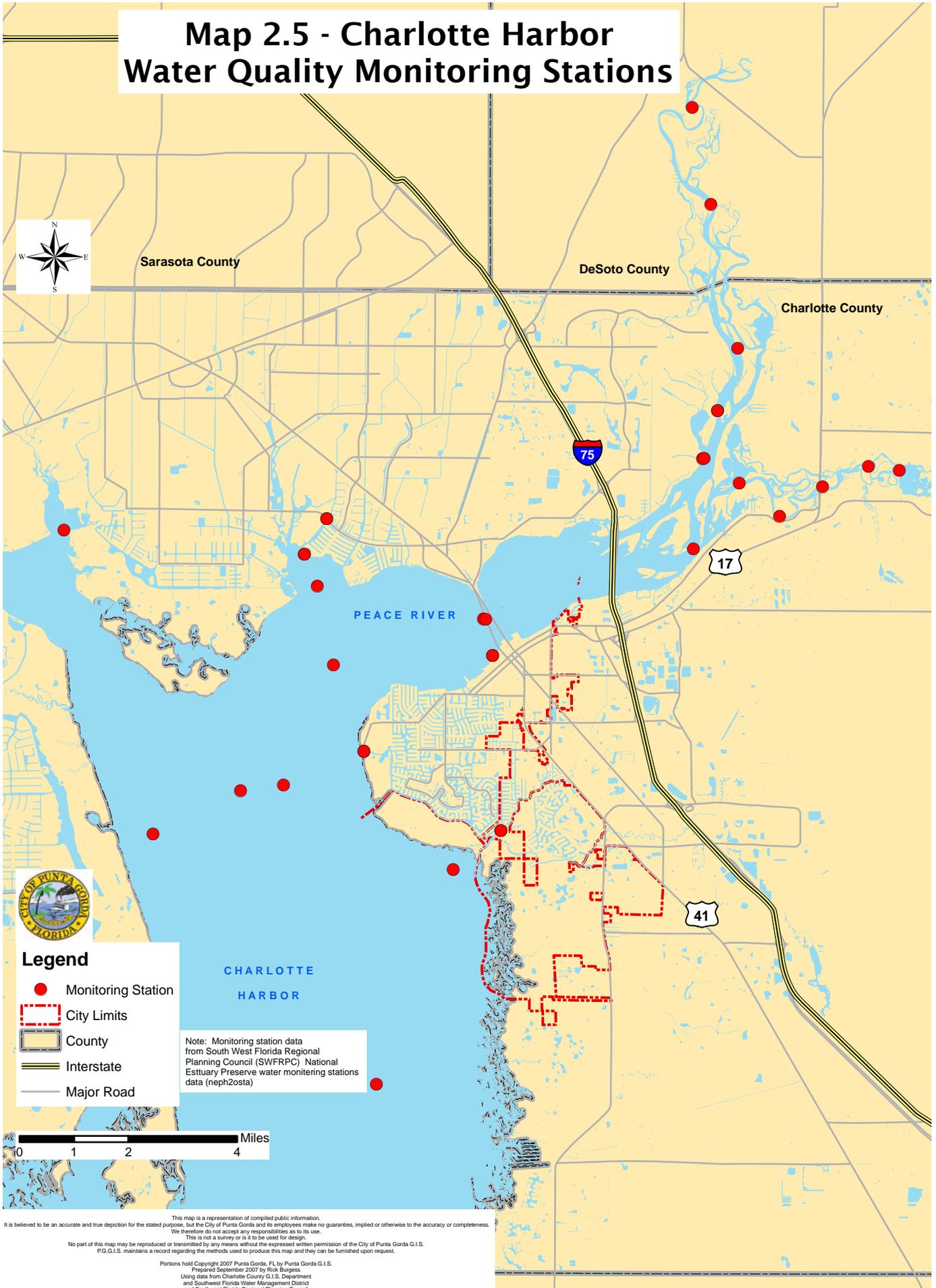
The Charlotte Harbor Estuary provides many benefits and opportunities to the City of Punta Gorda. The establishments of the CHNEP program, goals were developed to provide guidance to protect this estuary; however development and implementation of a formal Charlotte Harbor management plan will be necessary for achieving goals of estuary protection.

The City's challenges include not only water quality issues but management of mangrove areas, protection of seagrass areas from boat damage and water pollution, establishment and protection of new water supply sources for growing populations and businesses, management of waste generated by septic tanks and storm sewer outfalls, protection of wetland areas for water retention, groundwater recharge, and wildlife habitat, and improving the efficiency of freshwater usage.

Ongoing Water Quality Monitoring

Charlotte Harbor continues to be the focus of numerous water quality monitoring programs. In 2001 Charlotte County and Southwest Florida Water Management District (SWFWMD) entered into an agreement to provide random water quality sampling in Charlotte Harbor. The agreement states that SWFWMD is responsible for the water sampling which is done by the Florida Fish & Wildlife Conservation Commission, Fish & Wildlife Research Institute, while Charlotte County is responsible for the lab analysis. The agreement requires five samples be taken monthly in a variety of locations including the ten samples in upper Charlotte Harbor. These sample sittings can be seen on Map 2.5 Charlotte Harbor Water Quality Monitoring Stations. This data is uploaded into STORET, (Storage Retrieval) EPA's national data system. This system holds all of the water quality data collected by the various entities in Florida. Charlotte Harbor Environmental Center utilizes this system as well. This agreement has been extended through 2008 with the anticipation of additional extensions at the time of expiration.

Map 2.5 - Charlotte Harbor Water Quality Monitoring Stations



Prairie and Shell Creeks

In a usual arrangement for South Florida costal communities, the City of Punta Gorda uses surface water as its sole source of potable water. This surface water is drawn from an in-stream reservoir on Shell Creek. Shell Creek and Prairie Creek are discussed in this section as they have supplied potable water for the City of Punta Gorda since 1965.

Water Quality

Prairie Creek rises in east central DeSoto County, draining a basin of approximately 233 square miles which occurs in both Charlotte and DeSoto counties. Shell Creek rises in north central Charlotte County and drains a basin of approximately 373 square miles (Black, Crow and Eidsness, 1976). Shell and Prairie Creeks, shown on Map 2.6 are both classified as Class I Outstanding Florida Waters from the reservoir to their headwaters.

As a Class I outstanding Florida Water, data is collected at various stations indicating that water quality in the system was generally good and met all the requirements of its classifications. However, as a result of a prolonged drought in 1999-2000 and again in 2006-2007 monitoring identified elevated amounts of total dissolved solids.

Ongoing Water Monitoring

The City of Punta Gorda monitors a number of stations both up and downstream of the dam since 1995 (Environmental Quality Lab, 1995). In 2001 a group was created to address these water quality issues under the guidance of the Florida Department of Environmental Protection (FDEP). However, supervision is now transferred to the SWFWMD to pursue a water management plan which addresses the water quality issues of the entire watershed. The management program is concerned with elevated levels of minerals and chemicals identified in the water from activities such as run-off from development and agricultural lands which may negatively impact the watershed. More detailed information associated with the Shell and Prairie Creek Water Management Plans can be obtained from the following website: http://www.swfwmd.state.fl.us/documents/plans/spjc_wmp.pdf

Special Surface Water Protection Overlay District (SSWPOD)

Intergovernmental coordination efforts to protect the City's potable water supply resulted in Charlotte County creating and adopting the Special Surface Water Protection Overlay District (SSWPOD) around Prairie and Shell Creeks as an overlay to the County's Future Land Use Map. The SSWPOD is identified in Map 2.7. The SSWPOD Ordinance, adopted in 1989, requires all land use activities within the SSWPOD, including agricultural, to be reviewed for potential water quality impacts prior to the issuance of a County development approval. The SSWPOD was modified in 1992 (County Ordinance 92-25) to specifically prohibit petroleum pipelines.

Although the current water quality is generally considered good, increased development occurring in the area of Prairie and Shell Creeks may pose a threat to the creeks' good water quality if not managed properly. Leaking septic tanks, increasing use of fertilizers, pesticides, and other impacts associated with urbanization constitutes threats to the system. The City will continue to coordinate reviews of land use activities in and around this area that may impact water quality and threaten the potable water source.

Map 2.6 - Prairie and Shell Creek



Sarasota County

DeSoto County

Charlotte County



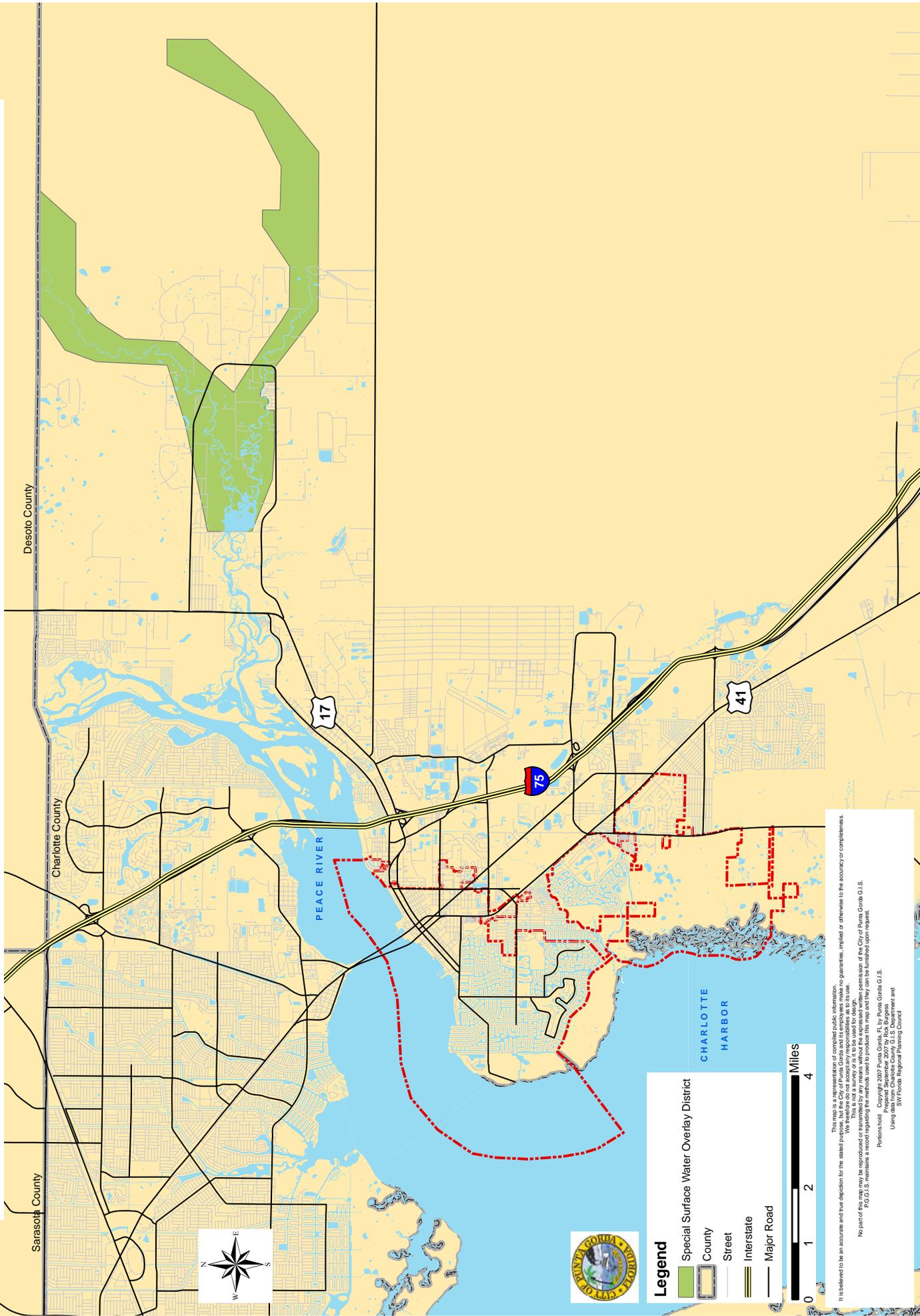
Legend

- Prairie and Shell Creek
- City Limits
- County
- Interstate
- Major Road



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Map 2.7 - Charlotte County Special Surface Water Protection Overlay District



Legend

- Special Surface Water Overlay District
- County
- Street
- Interstate
- Major Road

Miles

0 1 2 4

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Conservation Resources

The *Infrastructure Element* details the water conservation efforts utilized by the City which have resulted in a decrease in the per capita demand (from 135 in 1996 to 122 in 2005). Although the City has made considerable progress in its conservation efforts during the past ten (10) years, the City is committed to further reducing individual levels of potable water consumption. Future conservation efforts will likely focus on education and outreach to increase public awareness, as well as the Inflow and Infiltration Study discussed in Section 3.5.2 to move toward the City's reuse goal. Existing and potential future conservation programs are detailed in Section 3.4.4 of the *Infrastructure Element*.

The City will continue to utilize Shell Creek as a water source and construct an off-line reservoir to incorporate elements to be considered an alternative water supply project. This source is included in the SWFWMD Regional Water Supply Plan with sufficient quantities to meet the City's 10-year water demands. The definition of alternative water supply includes surface water captured predominantly during wet weather flows, which requires the City to construct an off-stream reservoir for Shell Creek to be considered an alternative water supply project.

A summary of the projected water demands and available sources for City supply is provided in Table 2.2. As shown, the City has sufficient permitted raw water supply to meet the 10-year water demand projections. The City plans to expand its water treatment plant to 16 mgd to meet the projected future peak day demand of 15.75 mgd at build-out between 2027 and 2035. The expansion is planned to come online by 2014 when the peak day demand is expected to exceed the existing WTP capacity.

Year	2007	2012	2017
Average Daily Demand (mgd)	4.580	5.22	6.50
Annual Average Permitted Quantity (mgd)	8.088	8.088	8.088
Annual Average Permitted Surplus (mgd)	3.508	2.868	1.588
Peak Day Demand (mgd)	8.000	9.08	11.30
Available WTP Capacity (mgd)	10.000	10.00	16.00
Field Capacity Surplus (mgd)	2.00	0.92	4.70

Notes:
1. The City's WTP will be expanded from 10 to 16 mgd by 2014

Source: Carollo Engineers

Alligator Creek

Alligator Creek, shown on Map 2.8, rises in central Charlotte County and flows generally westward, drains a basin of approximately thirty-eight and a half (38.5) square miles, including portions of the Babcock/Webb Wildlife Management Area. Both the north and south prongs of Alligator Creek are classified as Category I waters from their headwaters to Taylor Road (State Road 765 - A). Alligator Creek served as the City of Punta Gorda's drinking water supply from 1936 until 1965 when the Shell/Prairie Creek system came on line. The tidal portions of Alligator Creek (from the salinity barrier located at Taylor Road along the South Fork and to Taylor Road for the North Fork) are part of the Charlotte Harbor Aquatic Preserve.

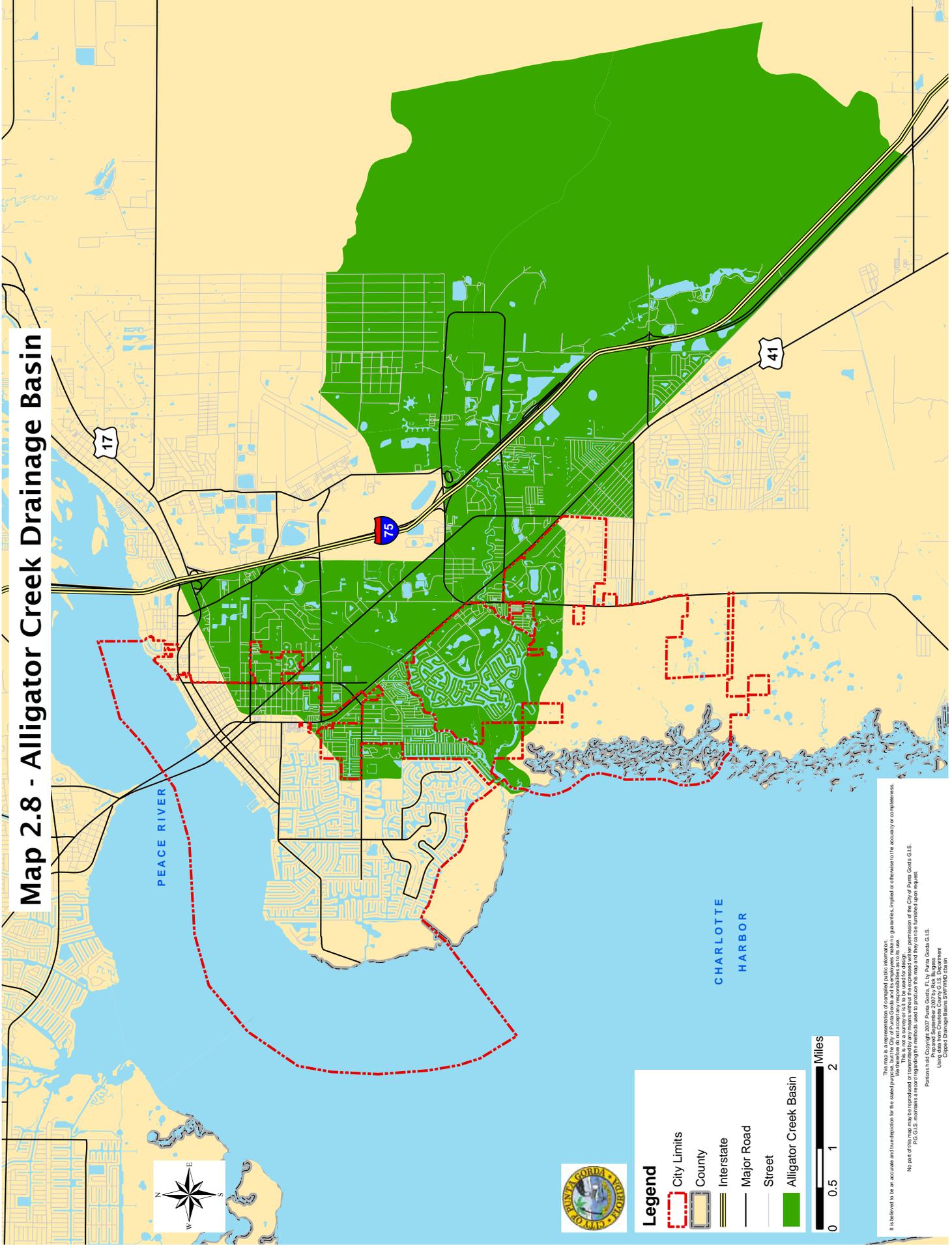
Land uses along Alligator Creek currently range from native range and undeveloped woodland (both in private and public ownership) to residential and some commercial uses including the Indian Springs Cemetery. However, this area is coming under increasing development pressure due to its proximity to US 41 and the I-75 interchange at Jones Loop Road. Included in this area is the Loop DRI (currently under review) a proposed Mixed-Use development of over 1 million square feet of commercial retail and office space and 500 residential units. On its way to Charlotte Harbor, Alligator Creek passes through the State-owned lands which comprise the Charlotte Harbor Buffer Preserve. The Charlotte Harbor Environmental Center occupies approximately twenty (20) acres of the buffer preserve in the vicinity of Alligator Creek, and provides opportunities for outdoor education and recreation.

Water Quality

Alligator Creek is subject to extended periods of little or no flow and is also known to have elevated levels of chlorides and dissolved solids as well as periods of low dissolved oxygen (Black, Crow, and Eidsness, 1976). Because of its past use as potable water supply and Class I designation, Alligator Creek was also included in the County's Special Surface Water Protection Overlay District.

Though it is no longer a potable water supply, the City of Punta Gorda continues to monitor monthly for following parameters, alkalinity, pH, chlorides, total hardness, sulphates, iron, TDS, color, NTU, Conductivity. The monitoring occurs at the Taylor Road Bridge near the salinity barrier along the South Prong.

Map 2.8 - Alligator Creek Drainage Basin



Legend

- City Limits
- County
- Interstate
- Major Road
- Street
- Alligator Creek Basin

Miles

0 0.5 1 2

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Ongoing Water Monitoring

Water sampling is performed by a variety of groups. Over the past two (2) years, Charlotte Harbor Environmental Center (CHEC) has submitted test results to the database on the World Water Monitoring Day web site. However, 2004 proved to be quite a challenge due to the hurricanes that passed through the area. When testing commenced, the volunteers found that the waters were full of sediments and other debris churned up by the storms.

The latest water testing information is compiled from a sub committee from the CHNEP which is mapping all the monitoring sites from the various groups and agencies monitoring the Harbor. Sampling is scheduled to continue.

Man-made Canals

The City of Punta Gorda has miles of man-made canals which were constructed as part of the Punta Gorda Isles, Burnt Store Isles and other residential subdivisions. These canal systems were created through dredge and fill operations in and around natural drainage features as well as excavated uplands. These canals serve a number of purposes, including drainage, creation of waterfront property, boating access to Charlotte Harbor and the Gulf of Mexico, and as a source of fill material (when originally constructed) for the creation of developable lots.

Water Quality

The Burnt Store Isles' and Punta Gorda Isles' canal systems do not drain into an interceptor lagoon for treatment. These systems are somewhat self-contained with relatively few points of discharge into the Harbor. The City of Punta Gorda monitors the quality of the water at a number of stations located throughout this canal system.

Ongoing Water Monitoring

Analysis of existing data indicates that water quality within the City's canal systems is generally good, although problems are becoming apparent and are identified in recent studies. These studies of the Punta Gorda canal system report dissolved oxygen levels below State standards indications of increasing levels of nutrients in the water column as well as increasing levels of metals in bottom sediments.

Surface Water Management Activities

The City's surface waters patterns are associated with the County's surface water system and were identified through the numerous studies throughout the previous decades. The 1970s brought the Section 208 studies mandated by the Clean Water Act, the 1980s saw special attention drawn to Charlotte Harbor through the Charlotte Harbor Resource Planning and Management and Surface Water Improvement and Management programs, and this trend continued with the inclusion of Charlotte Harbor in the National Estuary Program. Balancing the

needs of natural systems and the effects of the surface water run-off with humans' water-oriented recreational and commercial activities requires careful consideration in the City's use of the waterfront.

Section 208 Studies

Assessing the impact of non-point sources of pollution on the estuaries was the subject of two water quality management studies (Section 208 studies) conducted by the County in 1976-77 for the Charlotte Harbor estuarine systems. In the Charlotte Harbor 208 study, septic tank leachate, eroded soil and urban stormwater containing lawn fertilizers were identified as local non-point sources of contamination. Detectable levels of organo-chlorine pesticides, including Benzylchlorida, Dieldrin, Lindane, Heptachlor, and Aldrin were found in the tributaries and in the northern portion of the estuary. High levels of these pesticides may adversely affect the estuary.

Charlotte Harbor Resource Planning and Management Plan 1981

In January, 1979, the Charlotte Harbor Resource Planning and Management Committee was formed to address problems related to rapid population growth, the need to improve and expand public services, and to protect the Harbor and its related coastal estuaries. The Charlotte Harbor Resource Planning and Management Plan (CHRPM) outlined many issues relevant to the preservation of water and land resources. The plan developed two overall goals for Charlotte Harbor:

- To maintain and improve the functional and structural integrity of the natural estuarine ecosystems and related coastal components through coordinated management of human impacts in surrounding uplands and freshwater systems; and
- To identify and address the impacts of growth so as to minimize or eliminate adverse effect on the Charlotte Harbor area.

The CHRPM also outlined the need for region wide commitment to the plan and laid out regulatory actions in the form of goals, objectives, and policies that addressed twelve issues relating to water quality and growth. Overall, the CHRPM is considered a success, accomplishing many of its goals and setting into motion programs and policies intended to preserve the estuary.

Charlotte Harbor Surface Water Improvement and Management (SWIM) Plan

The Surface Water Improvement and Management Act of 1987 directed the State's water management districts to design and implement plans and programs for the improvement and management of surface waters. Of particular concern was the ecological, recreational, aesthetic, and economic value of the State's waters.

Charlotte Harbor's estuarine system ranked sixth on the Southwest Florida Water Management District's (SWFWMD's) priority list of SWIM waterbodies. Since the Charlotte Harbor watershed was seen as being of regional and statewide significance, with overall good water quality, and natural systems that were not significantly degraded, it was designated as a Preservation Waterbody. This means that the plan focuses primarily on maintaining and protecting existing water quality and natural systems, and enhancing and restoring water quality or natural systems when necessary and feasible. This is a benefit to the City of Punta Gorda.

Four (4) primary goals were developed for the Charlotte Harbor SWIM program are:

1. Preserve natural and functional components of the ecosystem while restoring, where feasible, such conditions to the degraded portions of the system;
2. Preserve or, where necessary, restore the quantity and quality of water necessary to support thriving biological communities, containing appropriate diversities of native species, within the riverine, estuarine, and lagoonal systems of the Charlotte Harbor watershed;
3. Establish an ongoing public education program to communicate the beneficial reasons for the long-term conservation and preservation of the Charlotte Harbor system; and
4. Pursue the development and implementation of management plans for each of the Harbor's major tributaries, concurrently with implementation of the management plan.

Projects included under the SWIM plan include establishing water quality targets, determining the loading capacity of major pollutants (including nutrients), identification of point and non-point sources of pollutants, habitat protection and land acquisition, regulatory enforcement and compliance monitoring, and public education. All of the projects are important to the overall health of the estuary which ultimately is important to the City's waterfront activities.

Charlotte Harbor National Estuary Program

In 1995, Charlotte Harbor was selected for inclusion in the National Estuary Program (NEP) administered by the Environmental Protection Agency. The Charlotte Harbor National Estuary Program (CHNEP) study area includes substantial portions of Lee, Charlotte, DeSoto, Hardee, Polk, Sarasota, and Manatee Counties. The CHNEP is administered locally by the Southwest Florida Regional Planning Council (SWFRPC).

The CHNEP is governed by a management conference comprised of a Policy Committee, a Management Committee, a Technical Advisory Committee, and a Citizens Advisory Committee. The goals, policies, and implementing actions of the CHNEP are contained in a Comprehensive Conservation and Management Plan (CCMP) completed in March 2000. The CCMP is implemented through research,

restoration, legislative advocacy, and public outreach. The CHNEP program contracts targeted research, support grants, conducts public outreach, participates in and coordinates restoration programs, advocates positions to protect Charlotte Harbor and its watersheds, and pursues funding on behalf of partners.

Peace River Cumulative Impact Assessment (PRCIA)

In 2003, the Florida Legislature directed the Florida Department of Environmental Protection (FDEP) to assess the cumulative impacts in the Peace River in accordance with Chapter 2003-423, Laws of Florida. The purpose of the study, published in January 2007, was to assess the cumulative impacts of activities in the Peace River Basin, and to form the basis for preparation of a resource management plan. Punta Gorda needs to review these results in addition to land and water use issues throughout the watershed with the municipalities, counties and jurisdictional agencies regarding any negative impacts upstream which may affect the waters surrounding the City. The cumulative effects of land use, water use, and climate changes within the study area on Peace River can also adversely impact water flows, water quality, and ecological factors.

The PRCIA Report contains a database of existing information and applied statistical and analytical techniques to assess the degree of influence various factors have had on the Peace River drainage basin and Charlotte Harbor.

The FDEP, in coordination with the Southwest Florida Water Management District (SWFWMD), completed a resources management plan based on the PRCIA for the Peace River Basin which recommends approaches toward reducing cumulative impacts in the basin. The plan incorporates many existing programs from the FDEP, the SWFWMD and the Florida Department of Agriculture and Consumer Services. The resource management plan identified regulatory and non-regulatory means to minimize future impacts to the basin. These efforts are described in the following three categories:

- **Hydrological Alterations:** Mitigation of human alterations to natural hydrological flows.
- **Nutrient Enrichment:** Reduce nutrient flows into the basin due to development activities including wastewater discharges, fertilizer run-off and mining activities.
- **Habitat Loss:** Mitigation of Habitat Loss due to development activities by restoration of potentially viable lakes and tributaries.
- All of these efforts combined will assist in maintaining a viable river and harbor which will positively impact the City's waterfront initiatives.

Ground Water

Aquifers

The groundwater underlying the County, including the City of Punta Gorda, has been found to be contained within four distinct complex aquifers (Sutcliffe, 1975, Wolansky, 1983). The four aquifers include the surficial aquifer, two (2) intermediate aquifers, and the deep Floridian aquifer that each contains several water bearing strata. In general, the water in each aquifer is separated from other aquifers by confining beds (relatively impervious mineral or rock layers). Discontinuities or breaks in the confining beds allow some hydraulic exchange between overlying and underlying aquifers.

Wolansky (1978) estimated that one hundred and fifty (150) million cubic feet of relatively good quality water is stored in surficial aquifer county wide. However, the majority of this water is located in the eastern third of the County, at least fifteen (15) miles from the population centers of Port Charlotte and Punta Gorda. Both natural and manmade impacts may affect the basin's resources. These impacts include hydrologic, geologic, and vegetative changes from activities such as drought, mining and agricultural activities that occur outside of the City's boundaries.

In Charlotte County, the Floridian aquifer has an average thickness of seventeen hundred (1,700) feet and provides wells capable of producing thousands of gallons of water per minute. However, drawing water from the Florida aquifer close to the coast line can lead to increased salt water intrusion.

Ground Water Movement

The general direction of ground water movement in the surficial aquifer in the area of Punta Gorda is west and north toward Charlotte Harbor. These water levels closely follow the surface topography of the area. Available water level measurements in shallow wells, swamps, and lakes indicate that the water table varies from one (1) to five (5) feet below land surfaces dependent on the wet and dry season cycle.

Ground Water Quality

The ground water in the area of Punta Gorda is confined in the intermediate and Floridian aquifers and has concentrations of total dissolved solids, chloride, sulfate, and hardness (calcium and magnesium) in excess of drinking water standards. Any utilization of water from these aquifers would require desalination to be used as a public water source.

The surficial aquifer in Punta Gorda, while considered to be of poor quality, can be used as a residential source of potable water. As the City currently operates a

potable water treatment facility, few wells are actually installed in Punta Gorda and are used mainly for commercial irrigation. Even these wells could potentially be contaminated by saltwater intrusion from the adjacent river and harbor.

Ground Water Contamination

While the surficial aquifer contains the highest quality ground water in the City, it is also the most susceptible to contamination. This contamination can be caused by saltwater intrusion, leaching from septic tank/drainfield systems, free flowing artesian wells, and stormwater runoff from commercial and residential areas. Another source of ground water contamination is from point source discharges which have occurred in small quantities over many years of operation. These types of discharge, specifically ones with buried tanks, are included in an early detection program implemented by the Florida Department of Environmental Protection (FDEP). This program provides property owners financial assistance for soil and ground water remediation.

The Peace River Management Plan identifies the historical groundwater withdrawals from mining agriculture and public water supply since the early 1930's, the reason for changes in the upper portion of the river. These changes were increased with the drought periods over the last decade (1999, 2000, 2001, 2002 and 2006). The Plan further points out:

“The City of Punta Gorda uses the combined flows of Shell and Prairie creeks as its sole source of potable water supply. Land use practices in the sub-basin containing these two creeks have steadily shifted to more intensive forms of agriculture, with the associated need for more water for irrigation and freeze protection. Because high-quality fresh groundwater is very limited in this sub-basin, water of higher mineral content from the upper Floridan aquifer is used to ensure adequate agricultural supply. During the severe drought of 1999-2001, the quality of Punta Gorda's drinking water declined because agricultural discharges of mineralized groundwater increased the salt content of the surface water supply (PBS&J, 2007). At times, the city's drinking water was in violation of secondary (aesthetic) water quality standards. The drought has revealed the extent to which the long-term use of mineralized groundwater for agriculture has increased salts in the area's fresh surface waters and associated surficial aquifer.”

As these impacts from upstream eventually affect the City, it is important that the City be advised of land use impacts and environmental changes occurring within the watershed. The City will continue to coordinate with the FDEP and the SWFWMD through management plans and through regulatory and non-regulatory means to minimize future impacts and when possible mitigate past impacts.

Recharge Areas

The City of Punta Gorda does not have any intermediate or Floridian aquifer recharge areas. The surficial aquifer is recharged by rainfall that has not been intercepted by evapotranspiration, runoff, foliage, or depression storage; upward leakage from the intermediate and Floridian aquifers; and ground water flow from outside the County. The majority of recharge is by infiltration of rainfall. Upward leakage and ground water flow from outside the County contribute minor amounts, and flowing artesian wells contribute appreciable amounts. Wolansky (1978) estimates that recharge to the surficial aquifer in Charlotte County ranges from less than one (1) inch per year to sixteen (16) inches per year depending on permeability and thickness of aquifer material and the topography.

Soils and Minerals

The City of Punta Gorda is situated at the mouth of the Peace River near its confluence with Charlotte Harbor. The location places the vast majority of City within the 100 year flood plain. The land in and around the City is very low, flat, and poorly drained. Much of the City's current area would not have been suitable for urban development had it not been for extensive dredge and fill operations completed in the early 1960's. In general, the City's soils can be characterized as:

1. Developed/Disturbed Urban Complex;
2. Poorly drained low lying sand; and
3. Tidally inundated mucky soils

These three (3) areas generally support commercial and residential development, pine-palmetto forests and prairies, and mangrove swamps, respectively. These major soil classifications (SCS, Soil Survey, 1984) are presented in Table 2.3 which follows.

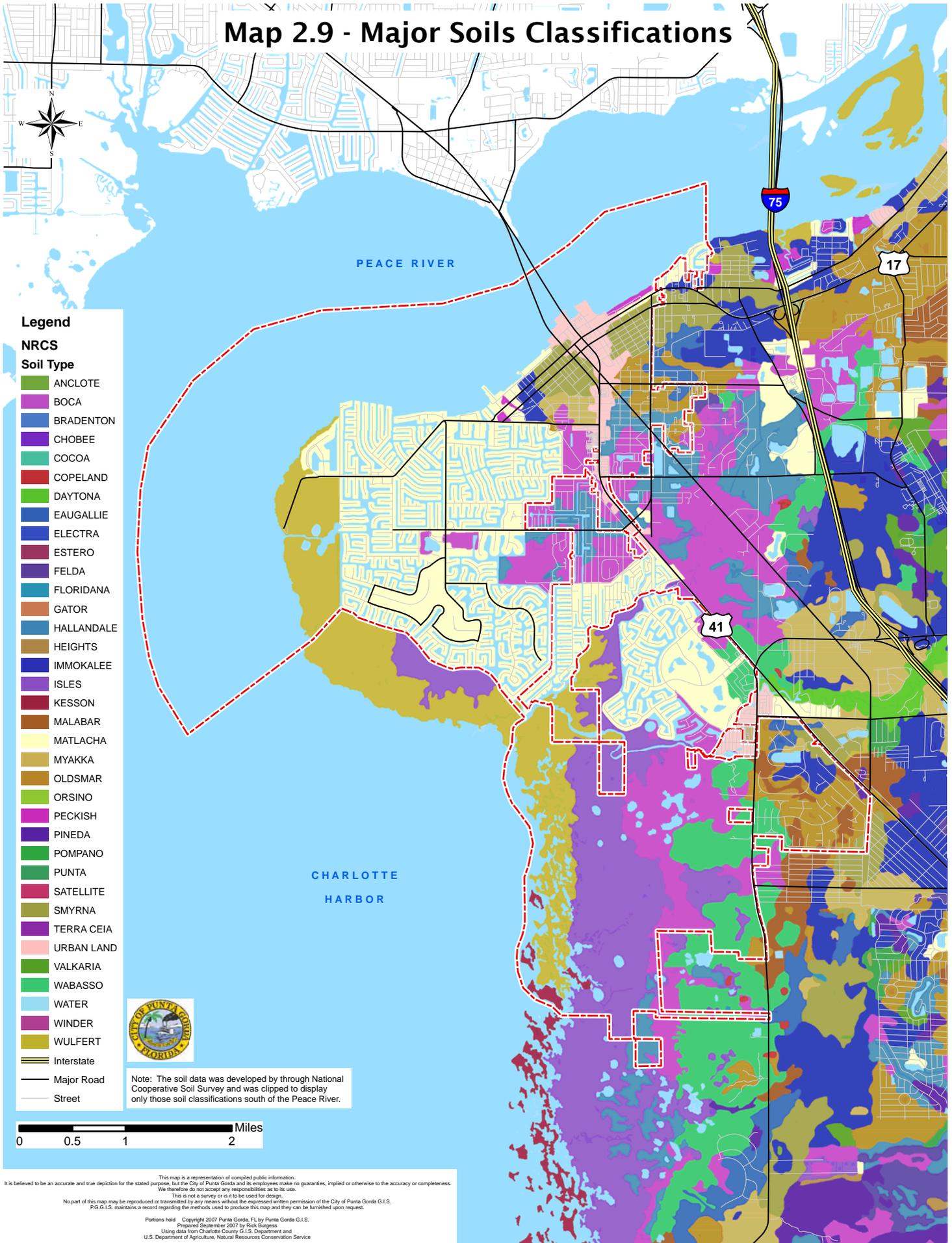
Table 2.3 - Major Soil Classification Types City of Punta Gorda

Soil Type	Description
Matlacha + Urban Land Complex	Developed/Disturbed
Smyrna + Urban Land Complex	Developed/Disturbed
Matlacha Gravelly Fine Sand	Developed/Disturbed
Hallendale Fine Sand	Pine/Palmetto + Upland
Boca Fine Sand	Pine/Palmetto + Upland
Oldsmar Sand	Pine/Palmetto + Upland
Wabasso Sand	Pine/Palmetto + Upland
Boca Fine Sand + Tidal	Tidal Marsh + Wetland
Isles Muck	Mangrove Swamp + Wetland
Wulfert Muck	Mangrove Swamp + Wetland
Kesson Fine Sand	Mangrove Swamp + Wetland
Isles Fine Sand	Freshwater Depressional

Source: SCS, Soil Survey, 1984

Matlacha soils are described as poorly drained soils that are mostly mixed sands with shell and limestone fragments. These soils are found in the major “dredge and fill” waterfront developments, including Punta Gorda Isles and Burnt Store Isles. The depth of the fill material varies, with as much as six (6) feet of fill over native soils. Because the urban areas of the City falls within the 100 year Flood Plain, the ground floor elevation of buildings are required to be above the level of the 100 year flood. Most of the fill soil used currently to elevate buildings is obtained from excavations of surface sand deposits, commonly referred to as “borrow pits.” The City of Punta Gorda’s major soils classifications can be seen on Map 2.9.

Map 2.9 - Major Soils Classifications



Legend

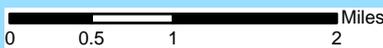
NRCS

Soil Type

- ANCLOTE
- BOCA
- BRADENTON
- CHOBEE
- COCOA
- COPELAND
- DAYTONA
- EAUGALLIE
- ELECTRA
- ESTERO
- FELDA
- FLORIDANA
- GATOR
- HALLANDALE
- HEIGHTS
- IMMOKALEE
- ISLES
- KESSON
- MALABAR
- MATLACHA
- MYAKKA
- OLDSMAR
- ORSINO
- PECKISH
- PINEDA
- POMPANO
- PUNTA
- SATELLITE
- SMYRNA
- TERRA CEIA
- URBAN LAND
- VALKARIA
- WABASSO
- WATER
- WINDER
- WULFERT
- Interstate
- Major Road
- Street



Note: The soil data was developed by through National Cooperative Soil Survey and was clipped to display only those soil classifications south of the Peace River.



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Soil Erosion

The topography of the City is extremely flat, thus accounting for the relatively low rates of soil erosion. Localized soil erosion problems have occurred as a result of poor land development practices. In the past large areas of land were often cleared and left undeveloped for several years, leaving bare soil exposed to erosion by wind and water. Additionally fill slopes and the side slopes of excavations were left unstabilized increasing the sediment load of swales and drainage canals. The problem is largely a thing of the past as the City of Punta Gorda enforces best management practices for erosion control for all new development activity.

Mineral Deposits

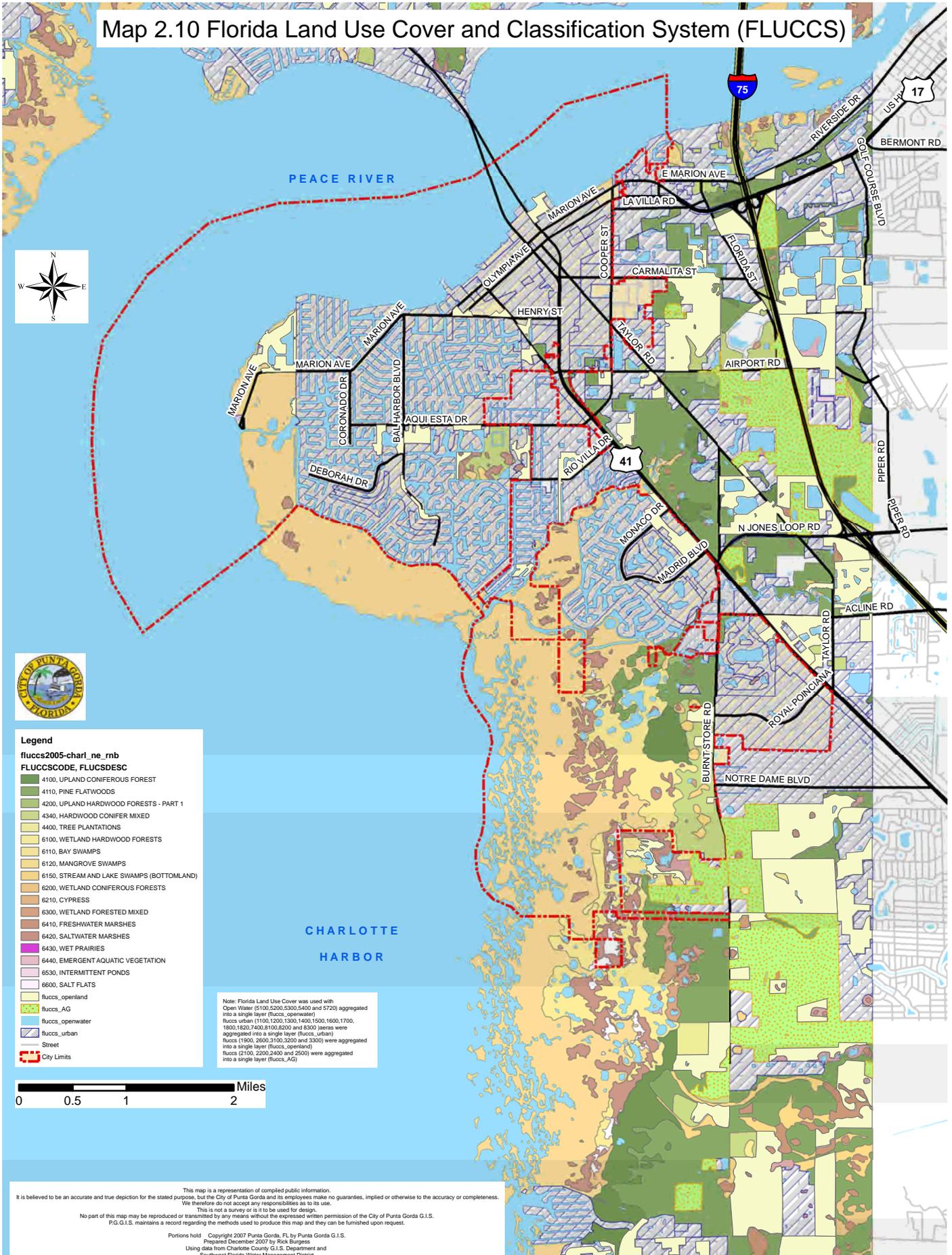
The City of Punta Gorda has no commercially valuable mineral deposits, with the exception of sand, shell and fill material occasionally excavated from a development site to be used on the project location.

Native Habitat and Communities

The City of Punta Gorda is comprised of approximately twenty-three (23) square miles of land and water, with over half that area developed as an urban center. The largest concentrations of urbanized areas are the City's central business district, Punta Gorda Isles, Burnt Store Isles, and Burnt Store Meadows. The balance of the area is comprised of various upland and wetland habitats which perform a number of vital functions. Habitats include coastal wetlands, mangroves and tidal marshes. These habitats improve water quality, act as storm buffers, provide shelter for coastal wading birds and perform a vital role in the complex estuarine food chain. Upland habitats, such as pine forests, are important as they provide habitat for a number of threatened or endangered species such as the bald eagle and perform flood control functions and buffer the area's waterways from pollutants found in stormwater runoff.

These natural communities have been classified and described in Florida Land Use Cover System and Forms Classification (FLUCCS) and the "Guide to the Natural Communities of Florida" by the Florida Natural Areas Inventory (FNAI) and the Department of Natural Resources. The FLUCCS utilizes state of the art aerial photography with vegetative cover and provides a precise classification of land use, cover and forms and creates a flexible way of capturing data into a comprehensive land/use/cover/forms data base. The City's FLUCCS is identified on Map 2.10.

Map 2.10 Florida Land Use Cover and Classification System (FLUCCS)

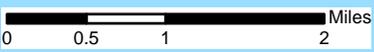


Legend

flucss2005-charl_ne_rnb
FLUCCSCODE, FLUCSDISC

4100	UPLAND CONIFEROUS FOREST
4110	PINE FLATWOODS
4200	UPLAND HARDWOOD FORESTS - PART 1
4340	HARDWOOD CONIFER MIXED
4400	TREE PLANTATIONS
6100	WETLAND HARDWOOD FORESTS
6110	BAY SWAMPS
6120	MANGROVE SWAMPS
6150	STREAM AND LAKE SWAMPS (BOTTOMLAND)
6200	WETLAND CONIFEROUS FORESTS
6210	CYPRESS
6300	WETLAND FORESTED MIXED
6410	FRESHWATER MARSHES
6420	SALTWATER MARSHES
6430	WET PRAIRIES
6440	EMERGENT AQUATIC VEGETATION
6530	INTERMITTENT PONDS
6600	SALT FLATS
	flucss_openland
	flucss_AG
	flucss_openwater
	flucss_urban
	Street
	City Limits

Note: Florida Land Use Cover was used with Open Water (5100,5200,5300,5400 and 5720) aggregated into a single layer (flucss_openwater)
 flucss_urban (1100,1200,1300,1400,1500,1600,1700,1800,1820,7400,8100,8200 and 8300) areas were aggregated into a single layer (flucss_urban)
 flucss (1900, 2600,3100,3200 and 3300) were aggregated into a single layer (flucss_openland)
 flucss (2100, 2200,2400 and 2500) were aggregated into a single layer (flucss_AG)



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 Prepared December 2007 by Rick Burgess
 Using data from Charlotte County G.I.S. Department and Southwest Florida Water Management District

The FNAI provides a ranking system of S1 (Critically imperiled because of extreme rarity with five (5) or fewer occurrences or very little remaining area or especially vulnerable) and S2 Imperiled (because of rarity, 6-20 occurrences or little remaining area, very vulnerable). The Table 2.4 below identifies those vulnerable imperiled communities found in the City that are listed as S2 and provides a brief description of each community. Most occurrences of these communities are located within the areas protected and managed under the Florida Department of Environmental Protection. Map 2.11 identifies the City’s FNAI.

Community	FNAI Ranking	Synonyms	General Characteristics
Dry Prairie	S2	Palm Savannah Palmetto Prairie	Nearly treeless plains with dense cover of wiregrass, saw palmetto, herbs and low shrubs. The natural fire frequency, poor soil quality and seasonal flooding limit pine recruitment in this community.
Mesic Flatwoods		Pine Flatwoods Pine Savannahs Pine Barrens	An open canopy forest of widely spaced pine trees with a dense ground dominated by saw palmetto. The natural fire frequency, poor soil quality, and seasonal flooding limit oak recruitment in this community.
Scrubby Flatwoods	S2	Xeric Flatwoods, Dry Flatwood	An open canopy forest of widely scattered pine trees with a sparse shrubby understory and numerous areas of barren white sand.
Marsh Lake		Flatwoods Lake Prairie Lake	A shallow, generally round or elliptical depression vegetated with concentric bands of hydrophytic herbaceous plants. Open water zone with or without floating plants may occur at the center.
Seagrass Beds/ Open Water	S2	Seagrass Meadows Grass Beds Grass Flats	Expansive stands consisting predominantly of turtle grass, manatee grass, and shoal grass. This community occurs in areas where wave energy is moderate.
Tidal Marsh		Saltmarsh, Brackish Marsh Coastal Wetlands Coastal Marshes Tidal Wetlands	Expanses of grasses, rushes, and sedges along coastlines of low wave-energy and river mouths. They are most abundant north of the normal freeze line, being largely displaced by and interspersed among Tidal Swamps below this line.
Tidal Swamp		Mangrove forest Mangrove swamp Mangrove islands	Dense, low forests occurring along shorelines of low wave energy in southern Florida. Dominant plants are red, black, & white mangroves, and buttonwood providing vital protection to shorelines during tropical storm events.
Blackwater Stream		Blackwater river Blackwater creek	Perennial or intermittent seasonal watercourses originating in sandy lowlands. Water is laden with tannins, particulates, dissolved organic matter and iron derived from drainage through swamps and marshes.

Source: 1997 City of Punta Gorda Comprehensive Plan; Strategic Regional Policy Plan 2003

Listed Species

The City is fortunate to host a great diversity of wildlife species, in its residential, preservation and conservation areas. The City is home to a number of species which have been designated as endangered, threatened, or of special concern by State and Federal agencies. The City requires environmental surveys as part of the development review process on wooded or otherwise undisturbed tracts of land. Though the Federal Endangered Species Act (ESA) and Florida Wildlife Code (FWC) utilize different definitions, these designations may be summarized as follows:

- **Endangered Species:** any species which is in danger of extinction throughout all or a significant portion of its range (summary from ESA);
- **Threatened Species:** any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (summary from ESA); and
- **Species of Special Concern:** means that the species could easily become threatened unless "appropriate protective or management techniques are initiated or maintained" (summary from FWC; "special concern" is a designation applied by the State of Florida and not used by the USFWS).
- Most of the City is an urban development and the majority of the listed species exist within the Charlotte Harbor State Buffer Preserve. Although some species like the Bald Eagle and the Burrowing Owl are existing within the residential developed areas. Protection is provided to the species through coordination efforts with the Florida Fish and Wildlife Conservation Commission, U.S. Fish and Wildlife Service, the Ponce de Leon Wildlife Rescue Center and local residents.

Wetlands in Punta Gorda

Once a wide expanse of wetlands, the vast majority of wetlands in the City of Punta Gorda now occur within the 3,600 acres of public/private open space in the form of conservation, preservation and public parks. This land area comprises approximately 47.24% of the total area of the City. Much of this protected land provides a significant natural buffer between the urban development and the Charlotte Harbor estuarine system. Approximately two-thirds of the City's shoreline remains in its natural condition, specifically mangrove forest or tidal swamp. These areas are generally inaccessible and are nearly 100% jurisdictional wetlands. As such, any development in these areas would require permits from a number of state and federal regulatory agencies, including but not limited to, the Florida Department of Environmental Protection, Southwest Florida Water Management District, and the U. S. Army Corps of Engineers. The City's Land Development Regulations encourage shifting of any development activity on these

properties to less sensitive upland areas and require applicant to provide appropriate permit authorization from these regulatory agencies prior to issuance of any development permits from the City. The City supports the purchase of these privately held environmentally sensitive lands by governmental or non-profit organizations for the purposes of permanent protection.

Inventory of Natural Resources

Sites within the City Boundaries

There are a variety of natural resources sites within the City boundaries. The sites immediately affecting the City are briefly described below and are shown on Map 2.12.

Charlotte Harbor Preserve State Park

The Charlotte Harbor Preserve State Park (formerly known as the Charlotte Harbor State Reserve) forms a protective ring of State-owned lands around Charlotte Harbor which extends from Matlacha Pass (in Lee County) along the eastern, western, and northern shore lines of the harbor, down to the southern tip of the Cape Haze Peninsula. The lands included within the preserve were purchased by the State of Florida through the Environmentally Endangered Lands (EEL) and Conservation and Recreation Lands (CARL) programs. The park encompasses approximately 42,518 acres. Approximately 7,000 acres are uplands and 35,518 acres are wetlands and open waters.

The Charlotte Harbor State Preserve State Park is the single largest natural area within and surrounding the City of Punta Gorda. This area includes many plant and animal species from various habitat types identified by the Florida Natural Areas Inventory Classification system. This area serves as a natural buffer between the City of Punta Gorda's residential communities.

Charlotte Harbor Environmental Center (CHEC)

The Charlotte Harbor Environmental Center (CHEC) lies within the Charlotte Harbor Preserve State Park and is a non-profit corporation with board members from Charlotte County, Charlotte County School District, the City of Punta Gorda and the Peace River Audubon Society. CHEC operates four nature centers within Charlotte County of which the primary lies within the City limits of Punta Gorda.

The site's uplands bordering South Fork Alligator Creek provide natural, scenic vistas of a mixed tropical/sub-tropical forest. This combination of vegetation of oak/palm hammock, brackish marsh, and mangrove forest, results in an unusually high scenic quality of riverine shoreline and is a rare occurrence in such close proximity to the extensive mangrove swamps of Charlotte Harbor. Few other creeks flow into the Harbor, and those that do traverse lowlands and wetlands of little topographic relief and drain those areas primarily by sheetflow. Alligator

Creek is the only one which has both an extended upland watershed and sufficient relief within it to have developed a discrete stream valley.

The CHEC site is a diverse mosaic of plant and animal communities terrestrial and aquatic, freshwater, and estuarine. These communities provide habitat for a number of species listed by either the U. S. Fish and Wildlife Service or the Florida Game and Fresh Water Fish Commission listed with annotations in Appendix 2.1; Appendix 2.2 contains the State & Federally listed species known or suspected to occur on the CHEC site. Appendix 2.3, list the plants by General Community Type Known or Suspected to Occur on the Charlotte Harbor Environmental Center Site (CHEC)

Sites Outside The City Boundaries

Briefly described below are a variety of natural resources sites outside the City boundaries which are shown on Map 2.12.

Charlotte Harbor Environmental Center's (CHEC) Fossil Pit

Within the CHEC site exists a fossil pit with over one hundred and seventy-five (175) distinct species or sub-species and thirty-four (34) unique species believed to occur nowhere else (Ken Campbell, DNR Bureau of Geology, pers. comm.). This fossil formation is known as the "Acline Fauna" which has yielded collections and contributed significantly to geologists' understanding of the stratigraphy and geologic history of the Charlotte Harbor area and of Southwest Florida. In the early 1930's and again in 1958, paleontologists collected fossils from a shell pit in the southeast one-fourth of the southeast one-fourth of Section 32. Map 2.13 also identifies the Archeologically Significant Areas and their relation to land uses. Careful preservation of these areas, as well as others, will protect the remaining fossils and other artifacts for future study.

Fred C. Babcock - Cecil M. Webb Wildlife Management Area (Webb-Babcock)

The bulk of this 79,013 acre tract was purchased from the Babcock Florida Company in 1941 using Federal Aid Project funds and later named in honor of Cecil M. Webb who served as Commissioner of the Florida Game and Fresh Water Fish Commission, the predecessor agency of the Florida Fish and Wildlife Conservation Commission (FWC), from 1948 to 1953. In 1995, Fred C. Babcock's name was added to the management area in recognition of Mr. Babcock's long-standing, cooperative relationship with the FWC. The Webb-Babcock is located in south-central Charlotte County and managed by the FWC for hunting, fishing and general outdoor use by the public. Surrounded by citrus groves, improved pasture, and limited residential development, Webb-Babcock is among the last undeveloped expanses of hydric (wet) pine flatwoods in southwest Florida. The dominant mix of habitats is slash pine flatwood interspersed with wet prairies, marshes and sloughs. Improved pasture, dry prairie, mesic hammocks, and cabbage palm hammocks are also common habitats within the Webb-Babcock

area. A controlled burning program serves to maintain desirable habitat conditions and to support diverse plant and wildlife populations. Web-Babcock provides critical habitat for several threatened and endangered species, including the Red-Cockaded Woodpecker and the Sandhill Crane, and may one day be incorporated into the recovery plan for the Florida Panther.

Babcock Ranch and Telegraph Swamp

In 2006, the State of Florida in corporation with a private developer, Lee County, Charlotte County and South Florida Water Management District completed the largest conservation purchase in Florida's history from the Babcock Florida Company. The complex transaction placed over 74,000 acres of land into public ownership in Lee and Charlotte Counties for the purposes of habitat protection and natural resource preservation. The vast majority of the property preserved is in Charlotte County with approximately 9,000 acres located in Lee County. The largest and most ecologically significant feature of the preserved lands is the area known as Telegraph Swamp which lies within the Babcock Ranch boundaries. Telegraph Swamp represents over 7,000 acres of contiguous swamp and marsh habitats which drain generally southward, toward the Caloosahatchee River. Currently, Telegraph Swamp is maintained largely for conservation purposes, including water management, ecotourism through Babcock Wilderness Adventures, hunting, and fishing. The Telegraph Swamp provides excellent habitat for game species such as deer and turkey, as well as non-game species. It is an important area for wading birds and supports rookeries for Wood Storks, Great Egrets, White Ibis, Great Blue Herons and Little Blue Herons (Barnett, et. al., 1980). Telegraph Swamp has been designated as an Outstanding National Resource Water.

The Shell Creek and Prairie Creek Corridor

The corridor bordering Shell and Prairie Creeks is characterized by a variety of habitat types, including willow and cypress stands, cabbage palm and oak hammocks, and, in the Washington Loop Road area (C.R. 764), by scrub communities including sand pine scrub, and oak/hickory scrub. In addition to this area's importance as wildlife habitat and potential function as a wildlife corridor, the Prairie Creek and Shell Creek drainage systems provides the primary source of potable water for the City of Punta Gorda as well as much of unincorporated Charlotte County south of the Peace River. This area consists of a patchwork of private ownerships, making it difficult to preserve. Private land use rights exist on each parcel allowing for the properties to be developed as residential single family. With the increased urban development the potential of negative impacts from fertilizers and pesticides increase.

In an effort to protect the City's drinking water, Charlotte County created a Special Surface Water Protection Overlay District (SSWPOD), previously shown on Map 2.7. around these creeks. Although the district contains designated boundaries which prohibits certain intensive land use activities, and scrutinizes other activities it s not ensure maintenance of a natural upland and wetland ecosystems. The City

should coordinate with the County to review the need for such maintenance. The Southwest Florida Water Management District classifies the Shell/Prairie Creek Corridor as a "Group A" project of its Save Our Rivers program. This means that a resource evaluation report has been completed, and the project has been authorized for acquisition through the Save Our Rivers Program.

The Peace River Wetlands

The wetlands and islands located near the mouth of the Peace River functions as prime wildlife habitat. Many of these wetlands are privately owned; however, three of the islands, Bird Key, Coon Key and Long Island are owned by the State and contain wading bird rookeries.

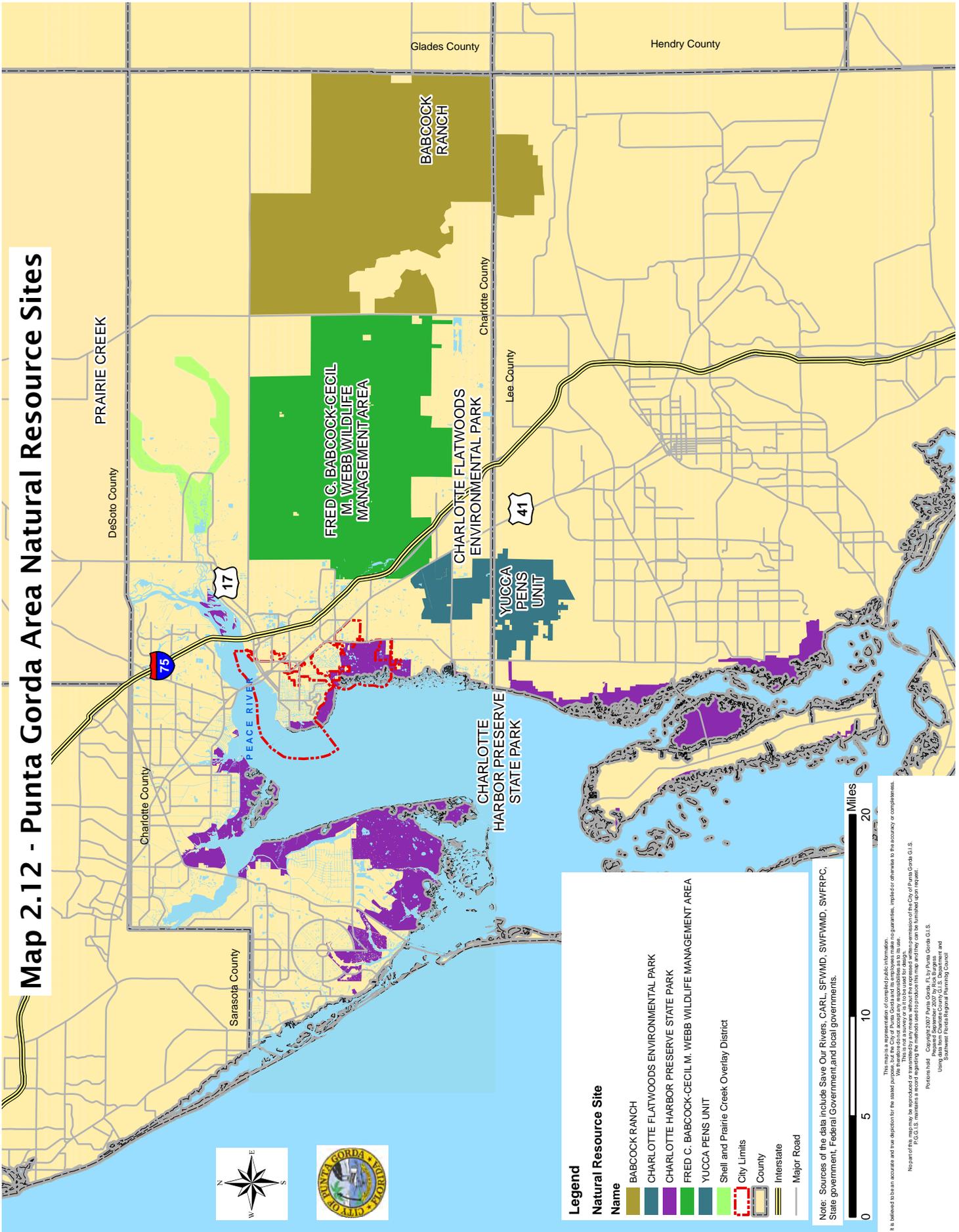
Yucca Pens Unit

The Yucca Pens Unit is a part of the Fred C. Babcock-Cecil M. Webb Wild Life Management Area which contains an extensive slough system that lies between Charlotte Harbor and U.S. 41 south of Punta Gorda. The Yucca Pens Unit is composed of a network of freshwater swamps, marshes, and wet prairies. The slough system is bisected by Zemel Road, and its northern and southern portions are hydrologically connected by a series of culverts. The slough ultimately drains into Charlotte Harbor, passing under Burnt Store Road through a series of culverts and ditches. The project is a part of the Florida Forever project which straddles the Lee/Charlotte line encompassing approximately 23,700 acres of which 14,389 acres have been acquired. The Yucca Pens Unit forms a critical link between the State's coast and its interior and serves as a natural urban sprawl barrier.

Archeological Sites Affecting the City

There are many significant archeological and historical sites located within and adjacent to Charlotte Harbor. The sites affecting the City of Punta Gorda are identified on Map 2.13. Include shell middens, Indian mounds and a fossil pit.

Map 2.12 - Punta Gorda Area Natural Resource Sites



Legend

Natural Resource Site

Name	Color
BABCOCK RANCH	Yellow
CHARLOTTE FLATWOODS ENVIRONMENTAL PARK	Green
CHARLOTTE HARBOR PRESERVE STATE PARK	Purple
FRED C. BABCOCK-CECIL M. WEBB WILDLIFE MANAGEMENT AREA	Dark Green
YUCCA PENS UNIT	Blue
Shell and Prairie Creek Overlay District	Light Blue

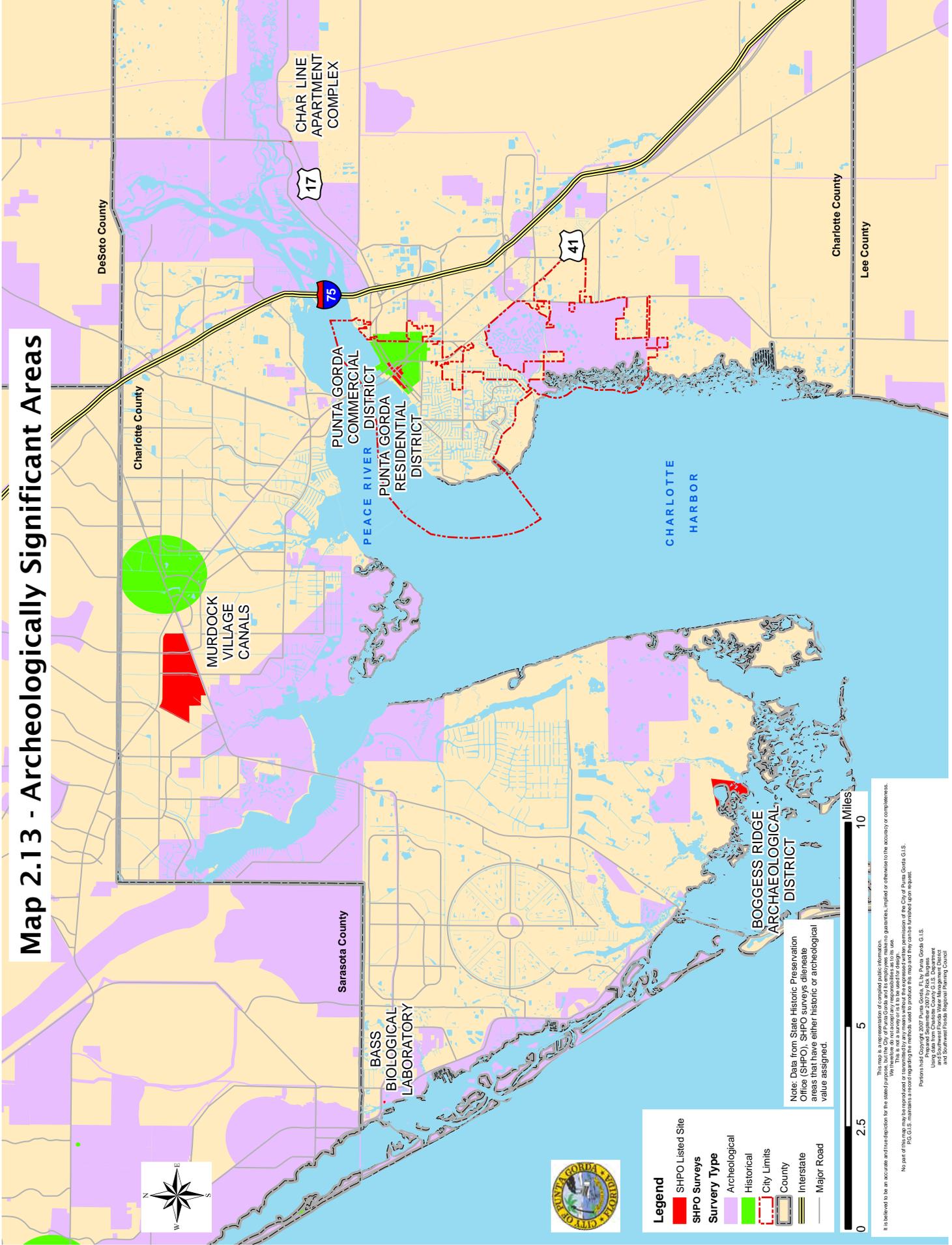
 City Limits
 County
 Interstate
 Major Road

Note: Sources of the data include Save Our Rivers, CARL, SFWMD, SWFWMD, SWFRPC, State government, Federal Government and local governments.



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Map 2.13 - Archeologically Significant Areas



Legend

- SHPO Listed Site
- SHPO Surveys
- Survey Type**
- Archeological
- Historical
- City Limits
- County
- Interstate
- Major Road

Note: Data from State Historic Preservation Office (SHPO), SHPO surveys delineate areas that have either historic or archeological value assigned.



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Natural Habitat Acquisition & Preservation Programs

A variety of state and federal programs are available to the City for the acquisition of natural habitat and preservation. They include Conservation and Reclamation Land, Save Our Rivers, and the Florida Communities Trust Programs. The Florida Forever Program, the State of Florida's ten-year, \$3 billion land acquisition funding legislation, provides the majority of the money for these programs. These programs provide funding for the acquisition of land to be set aside for natural resource preservation which provides excellent opportunities for public recreation and education.

In 2006 Charlotte County voters passed a referendum to provide local funds for land preservation, water access, and passive recreation purposes. The structure of this program falls under a twenty year program called Conservation Charlotte. The referendum will allocate .20 mils to generate \$77 million to pay back debt services to pay for land acquisition and conservation easement purchases.

While The City does not have any dedicated funding sources for natural resource preservation, it does pursue the use of innovative techniques for the acquisition of natural habitat. These techniques may include conservation easements, requiring the preservation of open space in native habitat for large scale development, transfer/purchase of development rights, or tax incentives to encourage private conservation efforts. The challenge facing the City is to ensure that its preserved areas continue to provide the functions and values so necessary to maintaining the quality of life enjoyed by residents and visitors, and to prevent such areas from becoming isolated islands of native habitat surrounded by incompatible land uses. The City employs the following techniques to preserve lands:

Wildlife Linkages and Natural Preserve Design

When natural lands are set aside as reserves or conservation areas, their effectiveness in that role is dependent upon a number of interrelated factors. These factors include the diversity of habitats; the diversity of plant and animal; the character of surrounding land uses and the size of the area preserved. The establishment of preserves in a piece-meal fashion result in isolated, fragmented natural areas which are disconnected from one another by disturbed and developed land. The populations of wildlife found within these fragmented sites are more susceptible to impacts from fire, drought, flooding, and infectious disease.

A solution to these problems is to establish linkages between existing and planned natural or semi-natural lands in order to provide greater areas and diversity of interconnected habitats. With proper management, these linkages are likely to increase fitness and potential for long-term survivability; provide avenues for escape from fire or other catastrophic events; facilitate recolonization following local extinctions; and provide access to a greater variety of habitats. This

ultimately increases native species diversity.

Linkage zones, areas between existing preservation areas, should be identified and retained when setting aside natural areas as reserves, or during the design of large projects such as Developments of Regional Impact (DRI). The FWC developed a series of recommended Strategic Habitat Conservation Areas which are discussed in great detail in *“Closing the Gaps” in Florida’s Wildlife Habitat Conservation System (FWC, 1994)*. These areas are also referred to in the publication *Habitat Conservation Needs of Rare and Imperiled Wildlife in Florida (FWC 2000)*. The acquisition of carefully considered parcels of land coupled with the development of Preservation and Conservation Areas, Habitat Conservation Plans, and other less than fee simple measures, the City will be able to fully participate in this State-wide effort to preserve the most important segments of Florida’s natural heritage. Map 2.14 identifies those areas that are now owned and managed by the State, County, City or other agencies and the City areas for potential linkage connection. The City remains committed to participate in the State-wide effort to preserve, those important areas necessary to complete wildlife linkages, habitat plans and conservation areas.

As the City moves forward with its annexation strategy, the City is actively working with the FDEP to annex those state lands that lie adjacent to the City’s current boundaries to clarify jurisdictional responsibilities.

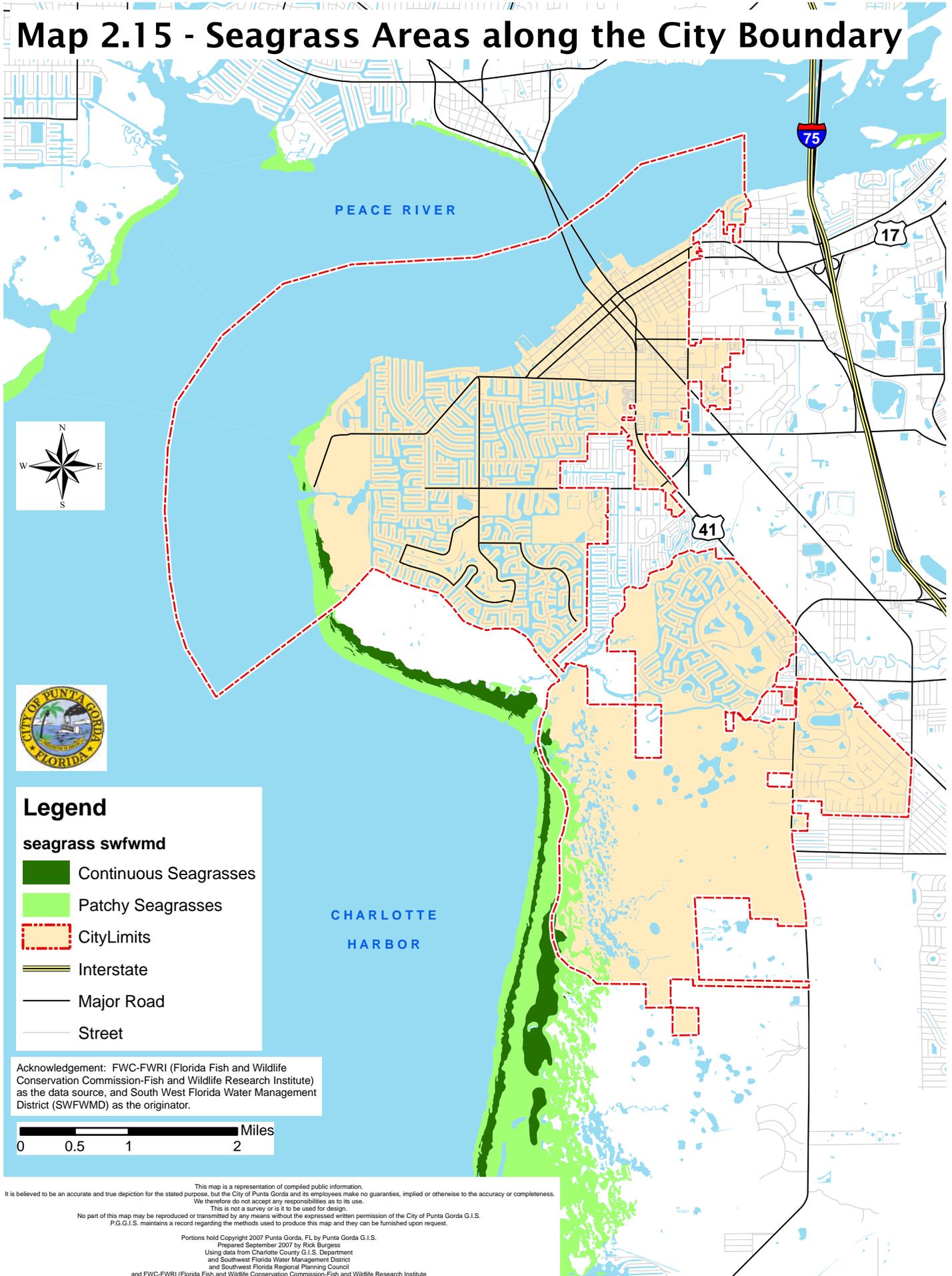
Protective Measures

Once lands are acquired for its natural habitat or preservation aspects, the City takes additional steps to protect the endangered and threatened species and their habitats through a variety of methods. This method is important as the City continues to grow. These protection measures include:

- **Ordinances** which depict the general policies for limiting uses in environmentally sensitive lands within the city for the purpose of protecting natural resources from the potential adverse impacts of future land development activities.
- **Intergovernmental coordination efforts** which implement protection measures of Outstanding Florida Waters (OFWs), Class I and Class II waterbodies, and adjacent uplands; specific habitats; and wildlife corridors.
- **The Future Land Use Map (FLUM)** which is used to advise landowners, land developers, and the City that land development proposals for lands within the Preservation and Conservation designations are subjected to a more comprehensive environmental review process and may be subject to more restrictive plan policies which, in turn, may alter development potential.
- **Manatee Protection:** The City of Punta Gorda adopted a Manatee Protection Plan in 1995. The Plan provides recommended actions for protection of the species including education, establishment of speed zones, signage and enforcement measure, resource protection through land use designation, and marina siting criteria. This plan should be reviewed and updated by the City to include current conditions.
- **Burrowing Owl Protection:** The FWC identifies the burrowing owl as a Species of Special Concern (Florida Administrative Code (FAC) 68A-27.005). Burrowing Owls and their nests are also afforded protection under the Federal Migratory Bird Treaty Act. Seasonal occurrence of Burrowing Owls occurs throughout the year in Florida's open native prairies and cleared areas that offer an expanse of short, herbaceous groundcover. Punta Gorda works with the Peace River Wild Life Center each breeding season to identify and flag the nest as to protect the nests' entrance from lawn mowers, vehicles and other forms of human interference.
- **Seagrass Protection** areas need to occur along the City's northern and western boundaries where sparse seagrass beds are vulnerable to propeller scarring. In 1995, the Florida Department of Environmental Protection's Florida Marine Research Institute (FMRI) now known as the Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute (FWRI) undertook the mapping of seagrass areas which had experienced scarring. According to FMRI Technical Report

TR-1 (FDEP/Sargent, Leary, and Crewz, 1995), approximately 7,440 acres or slightly more than half of City's seagrasses have sustained some degree of scarring, with some 5,910 being moderately or severely scarred. In 2004, FWRI updated the report for the Charlotte Harbor using the same methods employed in the 1995 study. The report used 2003 aerial survey and photography data determined 8,236 acres or 58% of Charlotte County's seagrasses have some degree of scarring. Though the extents of moderately scarred areas were similar in the two studies, the degree of severe scarring increased over the 10 year period from 286 acres in 1993 to 1,840 acres in 2003. The most recent seagrass occurrences along the City boundaries are identified on Map 2.15. The City needs to review projects which may impact seagrasses and coordinate with the jurisdictional agencies to promote seagrass protection.

Map 2.15 - Seagrass Areas along the City Boundary



Legend

seagrass swfwmd

- Continuous Seagrasses
- Patchy Seagrasses
- CityLimits
- Interstate
- Major Road
- Street

Acknowledgement: FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute) as the data source, and South West Florida Water Management District (SWFWMD) as the originator.



This map is a representation of compiled public information. It is believed to be an accurate and true depiction for the stated purpose, but the City of Punta Gorda and its employees make no guarantees, implied or otherwise to the accuracy or completeness. We therefore do not accept any responsibilities as to its use. This is not a survey or is it to be used for design. No part of this map may be reproduced or transmitted by any means without the expressed written permission of the City of Punta Gorda G.I.S. P.G.G.I.S. maintains a record regarding the methods used to produce this map and they can be furnished upon request.

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 Prepared September 2007 by Rick Burgess
 Using data from Charlotte County G.I.S. Department and Southwest Florida Water Management District and Southwest Florida Regional Planning Council and FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute)

V. INVENTORY & ANALYSIS – COASTAL MANAGEMENT

The City, consisting of approximately twenty-three (23) square miles of land and water, is surrounded by Charlotte Harbor and the Peace River to the north and northwest. Its western boundary is protected by the Charlotte Harbor State Buffer Preserves. South and east the City abuts the Charlotte County South Planning District which consists of a variety of land uses. Generally flat, the City is subject to periodic flooding which can result not only from tropical weather, but also from prolonged periods of heavy rains. With these concerns particular attention is necessary in managing the City's coastal attributes.

The City of Punta Gorda's coastal management section plans for the protection and enhancement of the City's natural, cultural and economic resources. It involves coordinated efforts with local, state and federal agencies utilizing laws and policies to ensure that the coast is protected and preserved for future generations. Management of the City's coastal connection improves the quality of life for the residents, increases economic development for the businesses, increases job opportunities and provides for logical compact and contiguous growth. The data and analysis section follows the requirements set forth in Chapter 163.3177(6)(g) of the Florida Statutes and 9J5.012 Coastal Management, Florida Administrative Code (FAC) and includes the requirements pursuant to 9J-5.005(2), FAC. The City's coastal management planning supports sound urban planning strategies resulting in compact and contiguous development. This section of the element considers the following 9J-5 requirements:

Balancing the coastal resources

The City's location lies within the state's defined coastal planning area¹. This area is defined by local governments and includes at a minimum, those areas within the coastal high hazard area (CHHA) as defined by the State of Florida. The CHHA is discussed in greater detail later in this section. The City's coastal planning area encompasses hurricane vulnerability zones; estuarine and coastal waters, wetlands, water dependent and water related facilities, and lands which may impact water quality.

Protecting human life

Because of its proximity to the Charlotte Harbor Estuary, tourism, fishing and business industries utilize the waterfront as a major component of the City's economic engine. Management of the City's coastal connection improves the quality of life for the residents, increases economic development for the businesses, increase job opportunities and provides for continual growth opportunities. To do this effectively requires the City to coordinate long and short term planning goals which balance the natural attributes of the waterfront with the increasing population. As the the City continues to grow, planning efforts must

focus on development patterns which incorporate the above components effectively.

Limiting public expenditures in areas subject to impacts by natural occurrences

The City of Punta Gorda lies within a low lying elevation subject to numerous flooding and storm related events. The City uses the best management practices available when it comes to expenditures within areas subject to natural occurrences.

Land Uses

The City of Punta Gorda lies adjacent to the second largest estuary in Florida, the Charlotte Harbor Estuary. A variety of land uses surround the dynamic waterfront community. These land uses include a mix of residential, multi family, commercial, medical and preservation providing a complete menu of development opportunities. This section describes the various existing and future land uses that exist within the City of Punta Gorda and the potential development the City expects to see over the next planning decade.

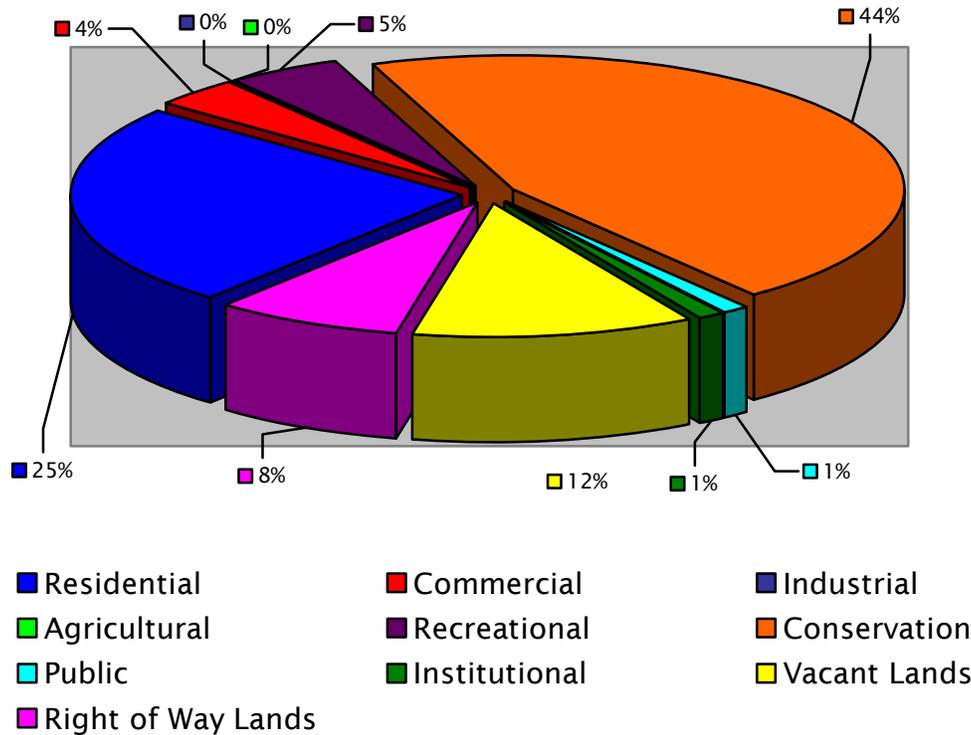
Existing Land Uses

Table 2.5 and Chart 2.1 identify those land uses currently existing within the City boundaries. The *Future Land Use Element* provides a detailed description of each use.

Table 2.5 - Existing Land Uses within the City of Punta Gorda			
Existing Land Use Type		Acers ±	Percentage of Total Land Uses
Residential	Single Family	1,631.88	18.09%
	Mobil Hime	92.74	1.03%
	Multi-Family	522.33	5.79%
Commercial		325.83	3.61%
Industrial		55.60	.062%
Agricultural		0.00	0.00%
Recreational		434.74	4.82%
Conservation		3,924.36	43.1%
Public	Educational (Schools)	96.61	1.07%
	Public Buildings & Grounds	78.05	.087%
Institutional		88.86	.99%
Vacant Lands		1,056.91	11.72%
Right of Ways Lands		711.82	7.89%
TOTAL Land Uses		9,019.74	100%

Source: Urban Design 2007

Chart 2.1 - Existing Land Uses in Percentage of Total Land Uses



Critical Areas within Existing Land Uses

The existing land use is comprised of several critical areas. The individual districts synergy is dependent on the connectivity each has upon the other. All are important components in the City’s economic vitality.

Waterfront Overlay District

The City has a coastal waterfront with a tradition of a water oriented economy. The City’s goal is to address long-term conservation and protection of natural resources, protection of human life from natural disasters, and funding for areas which are subject to destruction by natural disasters. The Waterfront Overlay District is a zoning designation which recognizes the major importance of water bodies to the City and its residents and includes a variety of park and commercial properties. It also lies within the CRA. One of the greatest future features of the area will include the Harbor Walk connection. This area will allow the pathway for pedestrian movement through the waterfront. The economy of the City depends in considerable measure upon the water, and it is intended the Marine Park District be used for the purpose of protecting and preserving water areas within the

jurisdiction of the City. All designated waters, including but not limited to all boat basins, bayous, canals, lakes, rivers, streams, waterways, and waters of Charlotte Harbor and Peace River, and all public or privately owned submerged lands there under extending from the mean high-water line or bulkhead line are included in this zoning district.

City Center (Downtown)

The downtown core lies between the two US 41 bridges and extends from the waterfront south to Retta Esplanade. The north portion immediately abuts the Charlotte Harbor and incorporates the City's Gichrist Park. The Business District consists of small businesses including restaurants, shops and stores which service the locals as well as the tourist community and is included in the City's Community Redevelopment Area.

Historic Overlay District

The Historic Overlay District is comprised of both a local historic district and a National Register District. Although their boundaries are not contiguous the districts overlap and together contain the majority of the residential area between US 41 south bound on the east, and Shreve Street on the west. On the north the area is bounded by West Retta Esplanade and on the south by W. Virginia Avenue.

Mainstreet Area Program

The Central Business District (CBD) is comprised of the a retail and general commercial components. The Retail section is bounded by the waterfront on the north, US 41N on the east, US 41S on the west, and W. Virginia Street on the south. It is where the greatest effort has been made to expand retail activity and improve pedestrian connectivity thereby creating that sense of downtown. It is the heart of the City.

The second component of the CBD is zoned commercial and allows a variety of commercial activities not typically associated with retail. It is located east of US 41N and located between Marion Avenue on the north and Carmelita Street on the south.

Medical Overlay District

The Medical Overlay District (MO) was established to provide for the logical expansion of the medical office needs necessary to accommodate the growing community and region in an effort to accommodate highly-specialized, unique uses and development types related to the medical field. The intent of this MO district is to be as generous as possible in permitted uses while at the same time maintaining a clean, attractive community that provides an extension of the community primarily for medical practices.

Future Land Uses

Understanding the City's historic and past development patterns assists the staff in developing strategies that combine the waterfront attribute with sound urban development strategies. Compact and contiguous growth patterns need to be employed to assist the City in growing and developing into a viable economic center. Most of the City's coastal platting occurred prior to any serious consideration of planning. The City's Land Development Regulations (LDR's) rewritten in 2005, support growth management strategies promoting compact and contiguous growth centered around the City's greatest natural resource, Charlotte Harbor, and current infrastructure. The local economy is largely built on the direct and indirect economic impacts derived from this resource. However sound these growth management principles may be, careful consideration must be employed as the City moves into the next planning decade.

The City's adopted future land use designations are identified on Map 2.16. Table 2.6 and Chart 2.2, 2.2A, 2.2B and 2.2C provides a brief description of the future land use and the associated densities permitted under each designation. Future land uses within the City need to be reviewed. This Comprehensive Plan update identifies the need to review these uses in light of present day conditions. A detailed discussion of the land uses and proposed changes for the land uses is provided in the *Future Land Use Element*.

Map 2.16 - Future Land Use Map - 2018



PEACE RIVER

17

75

41

CHARLOTTE HARBOR



Legend

Future Land Use

Commercial Category

- Urban Village
- Highway Commercial Corridor
- Light Industrial
- Professional Office

Residential Category

- High Density Residential
- Medium Density Residential
- Low Density Residential
- Mobile Home

General Category

- Conservation
- Preservation
- Public/Semi-Public
- Recreation-Private
- Recreation-Public

Other Features

- City Limits
- Interstate
- Major Road



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Burnt Store Rd

Notre Dame Blvd

S Jones Loop Rd

N Jones Loop Rd

Airport Rd

Carmalita St

Florida St

Cooper St

Henry St

Marion Ave

Olympia Ave

Bel Harbor Blvd

Aqui Esta Rd

Taylor Rd

Piper Rd

Table 2.6 - The City of Punta Gorda’s Future Land Uses

Future Land Use Designation	Description		Units/Acres	Acreage ±	% of total Acreage
Residential	High Density Residential	Permits residential structures other than mobile homes	10.0 to 15.0 units/acre	1000.80	9.82%
	Medium Density Residential	Permits residential structures other than mobile homes	5.0 to 10.0 units/acre	110.88	1.09%
	Low Density Residential	Permits residential structures other than mobile homes	1.0 to 5.0 units/acre	3532.18	34.67%
	Mobile Home (MH)	Permits residential structures & mobile homes. Recreational vehicles permitted	MH 6.0 units/acre densities of R.V.'s 8.0 units/acre.	117.24	1.15%
Commercial Category	Urban Village	Intended primarily for retail and service business activities with appropriate zoning.	3.5 Units / Acre FAR = 5.00	163.95	1.61%
	Highway Commercial Corridor	Intended to accommodate commercial, retail and office uses that are more auto oriented due scale and typology while respecting pedestrian and alternative transportation modes through development design standards.	3.5 units/acre where residential uses will promote affordable housing or compact & contiguous development. FAR = 1.50	349.52	3.43%
	Professional Office*	Office lands are lands primarily intended for office, professional, medical and institutional uses.	3.5 Units / Acre FAR = 2.00	88.51	0.87%
		Medical Overlay District allows	15 units/acre max FAR = 5.00	23.34	0.23%
	Light Industrial	Intended for activities predominantly connected with manufacturing, assembly, processing, distribution, or storage of material goods.	3.5 Units / Acre FAR = 1.50	73.95	0.73%

Table 2.6 - The City of Punta Gorda’s Future Land Uses Cont.

Future Land Use Designation	Description		Units/Acres	Acreage ±	% of total Acreage
General Category	Conservation	Privately owned lands, similar to “Preservation” lands, which are held in private ownership. These lands are generally undeveloped, have considerable environmental significance.	1.0 dwelling unit/10 ac or 1.0 unit /lot (parcel) of less than ten acres FAR = .05	280.21	2.75%
	Preservation	Publicly owned lands, generally held as open space for environmental, flood hazard mitigation, educational, recreational, cultural, or archeological purposes with minimal development promoting these purposes.	0 units/acre FAR = .05	2302.78	22.61%
	Public/Semi Public	Lands owned by the public and used for public purposes such as governmental offices and operational facilities	0 units/acre FAR = 1.00	247.46	2.43%
	Recreation Private	Intended for recreational uses that are not public property and which are primarily intended to serve a surrounding residential community.	0 units/acre FAR = .05	369.51	3.89%
	Recreation-Public*	Intended to serve active and passive recreational needs of the public.	0 units/acre FAR = .05	1499.40	14.72%

Source: Urban Design Department 2007

* Areas identified in the Medical Overlay District in the Comprehensive Plan and the Land Development Regulations will be entitled to more commercial intensity in order to incentivize medical use development.

Chart 2.2 - The City of Punta Gorda's Future Land Uses Categories in Percent of Total Acreage

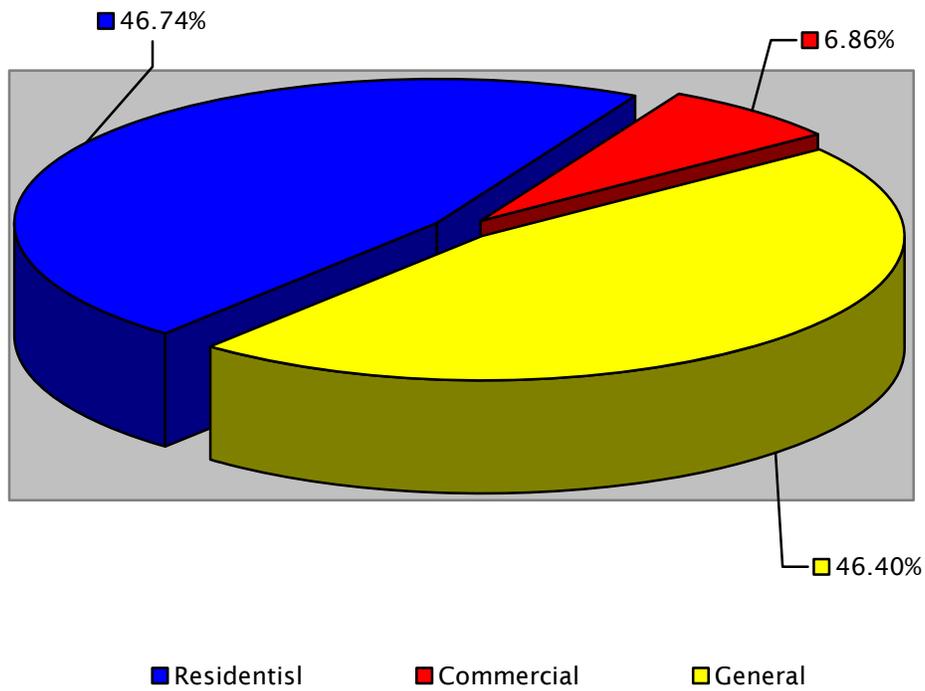


Chart 2.2A - The City of Punta Gorda's Future Land Uses Residential Category in Percent of Total Acreage

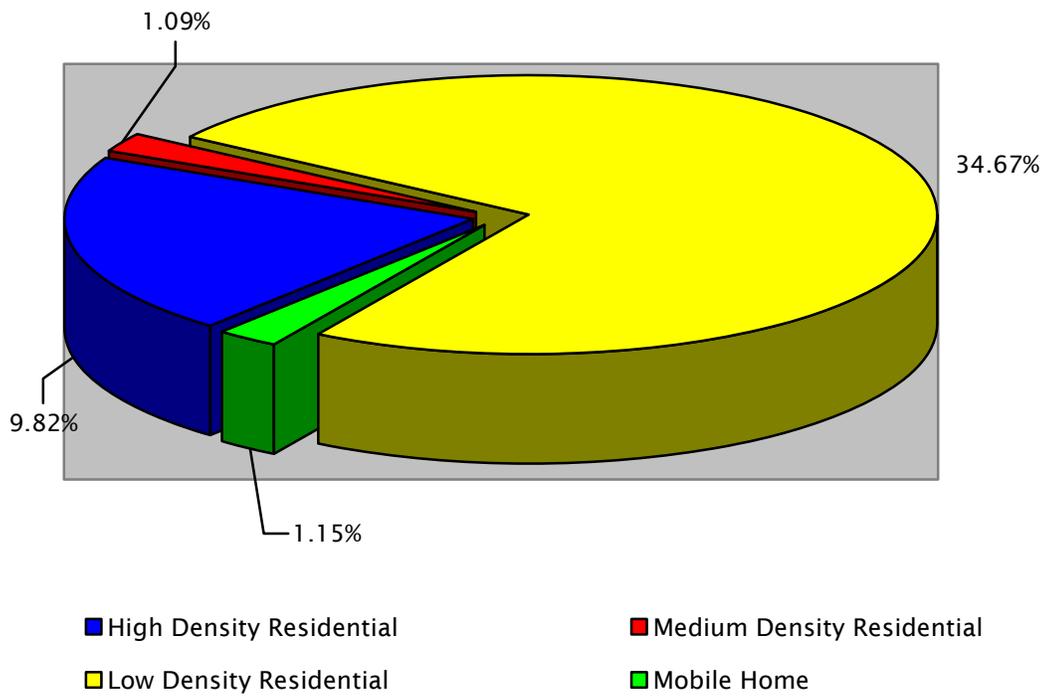


Chart 2.2B - The City of Punta Gorda's Future Land Uses Commercial Category in Percent of Total Acreage

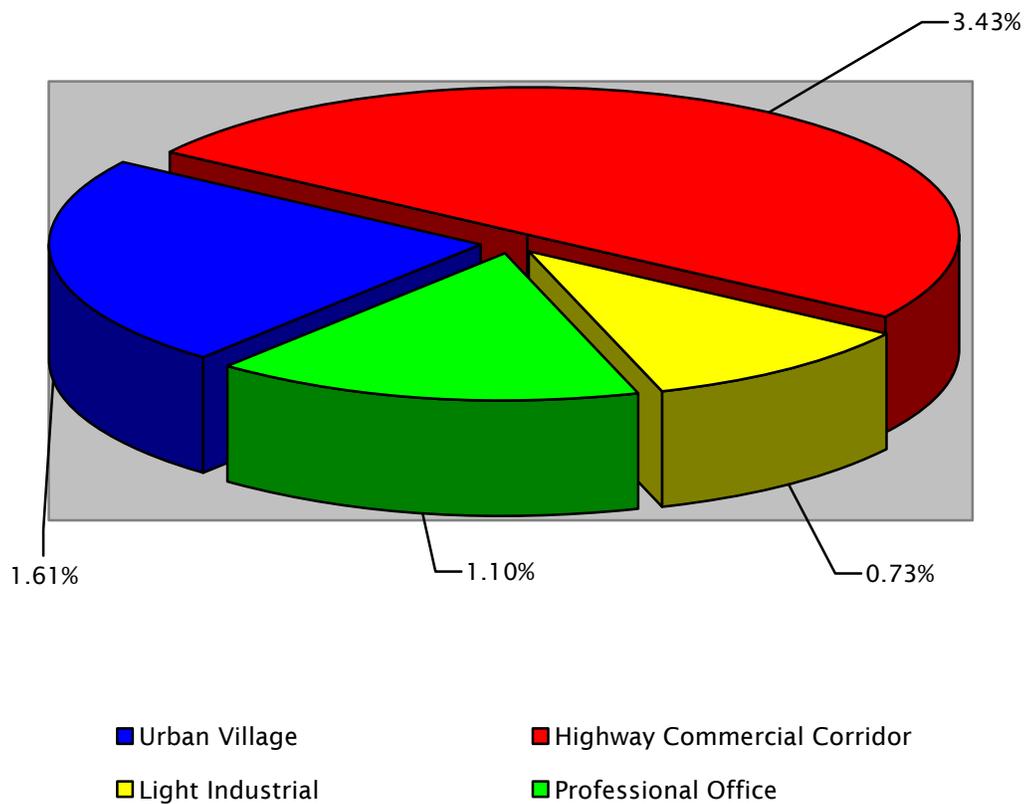
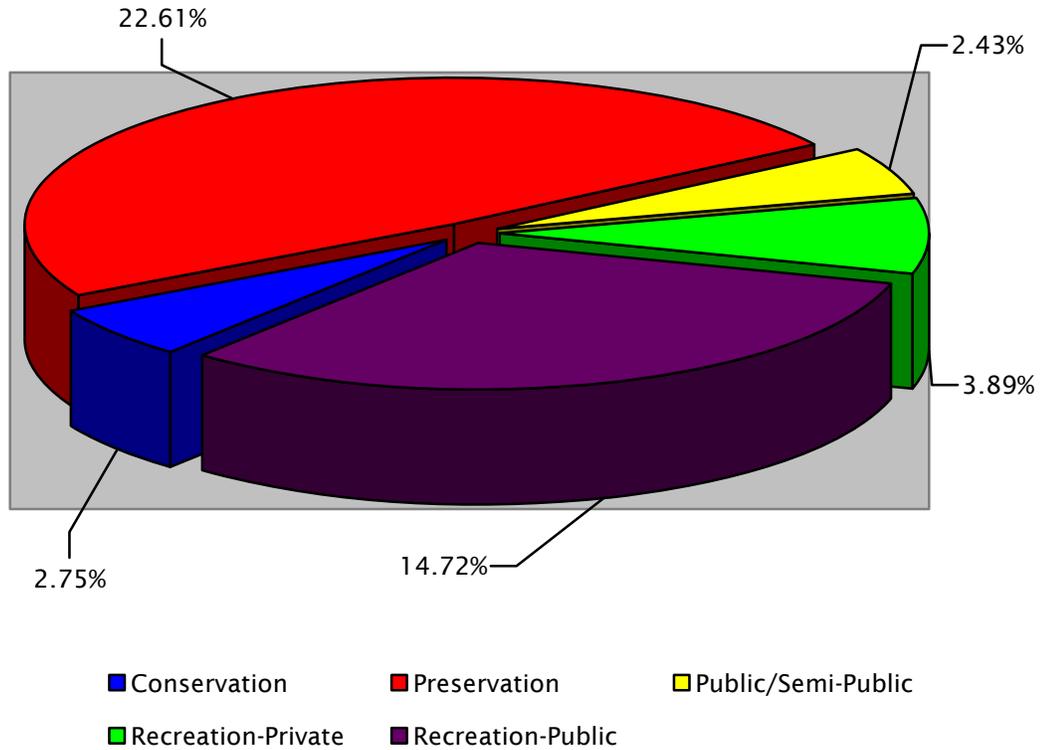


Chart 2.2C - The City of Punta Gorda's Future Land Uses General Category in Percent of Total Acreage



Land Use Challenges

The land uses adjacent to the harbor are a mixture of single and multi-family developments, commercial restaurants, marinas, public land, preservation, and recreation and all are vulnerable to hurricane and storm damage. While Legislation encourages mixed use, high density development in urban infill and redevelopment areas, this type of growth is criticized for density issues within the coastal high hazard area. However it makes sense regarding delivery of services to the City's urban core. These mixed use developments accommodate a variety of uses with higher densities, and promote pedestrian friendly sustainable communities. In the perfect world the City's coastal area would remain undeveloped and would serve as a buffer to minimize the effects of a natural disaster. However because much of the area is already developed, and the area does not have adequate funding to acquire those areas most vulnerable to a disaster, the City works with the residents, the businesses and developer to promote mixed use, high density urban infill and redevelopment projects.

The City will utilize land uses strategies in reviewing future developments which promote water dependent recreation, commercial and residential development, keeping in mind that Charlotte Harbor is the key economic and cultural resource which defines the quality of life found here. Some of the strategies to be used include:

Conservation Lands

In reviewing the land uses within the City, it is important to remember that the City has over 4,000 acres of land within Conservation, Preservation, and Public-Recreation future land use designation of Conservation, areas having considerable environmental of significance. The City continues to acquire land along the waterfront to assist in the reduction of structure damage. This process will continue where possible and when funding is available. The fact that the City has 40.08 of land its total in conservation is a huge asset. This area will remain in conservation to assist in the protection of the adjacent development.

Compatible Zoning

The downtown business area consisting of restaurants and retail shops reduce the potential for incompatible uses being intermingled in other areas of the City. However this will not preclude the zoning of commercial operations on a neighborhood scale. Areas where a Neighborhood Commercial zoning designation will reduce the number of trips onto the major corridors or improve the connectivity within neighborhoods will be considered for approvals. The new marina, located adjacent to the businesses which promote connections between the two uses, is surrounded by high density residential and expansion to the east is unlikely.

Future Development Plans

In an effort to boost the downtown Community Redevelopment Area and the existing local businesses, the City of Punta Gorda is reviewing the possibility of a mooring field. Careful planning and coordination efforts between numerous stakeholders must be developed as the venture moves forward. Intergovernmental coordination efforts and partnerships will be developed as part of the initial planning phase.

Policy Plans

Policies need to be developed which do not limit the development within the coastal planning area but which seek to control the location and structural integrity of the development. Even with the adoption of policies which affect the density of future development, the previous platting and sale of massive residential subdivisions in the coastal area will continue to affect planning. The recent hurricane recovery efforts underway in the City, after Hurricane Charley in 2004, are providing opportunities which never would have occurred in the center of the City. Improved development standards are being utilized and plans to develop the City to be bigger and better are emerging. Future development within hazardous areas should be built to withstand damaging forces of hurricanes and other major storms. As evacuation times are reviewed and evaluated by the Regional Planning Council, new policies will be developed for the City.

Future Land Use Designations

The creation of a mixed use land designation is necessary if the plans that the City wants fulfilled are to emerge. Developments will need to resolve hurricane evacuation times, evacuation routes and sheltering issues. These challenges are an expensive proposition for which Federal, State and local funds are diminishing. Reviewing and evaluating the City's Future Land Use designations with the existing land uses and the current zoning will provide insight to the changes the City may choose as it continues to develop. Future development within the City business area is also critical to the economic viability of the City.

VI. **ECONOMIC VIABILITY**

Punta Gorda's traditional economy was primarily comprised of fishing, tourism, and rail-to-water transportation. In its redevelopment, Punta Gorda seeks to maintain and enhance its traditional economy in the areas of fishing and tourism. The City of Punta Gorda is situated on the Peace River which has been included in the National Estuary Program by the Environmental Protection Agency, and approximately ½ of the proposed waterfront area lies within an aquatic preserve. While taking steps to increase access to the water by commercial fishermen, the City has expanded its fishing industry to include sport fishing. The construction of the open air market at Laishley Park will benefit commercial fishermen as well as the tourist industry.

The City would greatly benefit from exploring collaborative marketing strategies that join different industries together. In this way, Punta Gorda would better be able to market itself and enhance its viable economies, such as traditional fishing, tourism, and sport fishing. At the same time, a successful marketing strategy would enable Punta Gorda to enhance its visibility as a boaters' destination, and attract cruising boaters on the intra-coastal waterway. The City has applied to the State for the Waterfront Florida Partnership Program in 2003 and 2007 in an effort to facilitate the redevelopment of the City's waterfront area and advance the economic engine opportunities of the downtown area.

Of great importance to the economic viability of the City was the formation of a Community Redevelopment Agency (CRA) in 1989 and the citizen's commitment to the implementation of proposed projects. The proposed waterfront area is coterminous with the CRA. The CRA encompasses the downtown and surrounding historic neighborhoods with a mission to create an aesthetically unique environment with high quality character while maintaining small town charm. Citizen commitment and participation is the driving force behind the redevelopment of the downtown area. Both the CRA and the citizen participation is discussed in detail below.

Community Redevelopment Agency (CRA)



In the aftermath of the storm related events of August 2004, the CRA is focusing redevelopment efforts on projects which assist in rebuilding our public space. These efforts concentrate on several expansive projects which stress the importance of maintaining our public waterfront and help to re-establish the critical

mass of structures and economic activity within the downtown area and adjacent neighborhoods. The City of Punta Gorda continues to receive grant funding which contributes to the renovation/construction of development, landscaping, reforestation and economic development of the City's CRA. Although scheduled to sunset in 2009-2010, the City is in the process of modifying its Redevelopment Plan, known as the "Plan", to extend the time forward to 2019, F.S. 163.361(3)(a). With the adoption of this time extension the City will complete two vital projects: Laishley Park and the Herald Court Parking Garage (pictured above), bringing its CRA accomplishments to a successful completion of the twenty-two (22) projects originally outlined in the "Plan". A sampling of the CRA project accomplishments are:

Economic Feasibility Study

In joint participation with the City of Punta Gorda and Team Punta Gorda, a grassroots citizens group, commissioned an economic development feasibility study. This study focused on ways to recruit, retain and restore business to the area. Focus of the study was targeted to arts and culture, hospitality, tourism, retail recreation, and service industries, and special niches, available for long-term growth of the City, specifically the Downtown/CRA area. Completed in July 2007, this study has been incorporated into the city's strategic planning process.

Laishley Park Marina (Phase I)



The City of Punta Gorda CRA oversaw the completion of Phase I of the Laishley Park Marina. These improvements opened to the public on April, 2007, providing an area for citizens and visitors to enjoy a new marina with 85 total boat slips; a marina building with sailor's day room, ship's store and dock master office, and a raised performance stage area and promenade and a new venue for special events. Strategically planned by the CRA

and City Council, this two-phase project will help preserve the City's charm and character and act as a catalyst for new investment and development in the surrounding downtown area.

Trabue Woods Economic Development

This project is one of many joint partnerships between the Trabue Woods Economic Development Corporation and the Punta Gorda Community Redevelopment Agency to redevelop East Punta Gorda by increasing the stock of attainable housing. Located in the



heart of the East Side, this is the first of four projects to be constructed. The project consists of 1 two-story townhouse building with 8 units. Completion of this development and moving forward with future mixed-use developments the TWEDC will spur additional redevelopment in the CRA.

Bernice Russell CDC Mixed Use

Another example of a public/private partnership is this mixed-use development consisting of retail space and 5 affordable rental housing units. The Bernice Russell Community Development Corporation (BRCDC), composed of local community activists, partnered with the Punta Gorda CRA/City Council to construct this development with the use of both tax increment financing and grant monies.



Charlotte Housing Corporation (Helen Avenue Housing)

With land donated by the City of Punta Gorda to the Peace River Land Trust, three affordable single family homes have been constructed in the Trabue Woods neighborhood. Charlotte Housing Corporation is now in the process of qualifying buyers for the homes. This is another completed project showing the City's commitment to revitalizing the

historic Trabue Woods neighborhood.

Punta Gorda Housing Authority

The Punta Gorda Housing Authority (PGHA) had 184 publicly owned, subsidized, rental units destroyed in the 2004 hurricane season. Construction is now underway to replace those units. This development will have a variety of housing types and sizes; and green space for recreational activities providing an identity in the neighborhood as a contributing factor rather than being set apart as a low-income housing project



Charlotte County Events Center

The Charlotte Harbor Event and Conference Center replaces the “old” Charlotte County Memorial Auditorium destroyed by Hurricane Charley in August, 2004. The Event Center, approximately 43,846 square feet, is the focal point of the Punta Gorda Community Redevelopment Area and serves as part of the gateway into the City.



Charlotte County Courthouse

The renovation of the historic Charlotte County Courthouse has been completed. Located on a prominent site in downtown Punta Gorda the Courthouse is an example of the dedication the Community and the CRA has to historic preservation. Restoration of this historic structure provides additional commercial/ community space for the downtown area.

Herald Court Walkway & Future Parking Facility

This project is the construction of a three hundred (300) +/- parking garage, paving, streetscape and landscaping alleyways to enhance pedestrian access and parking accommodation in the downtown.

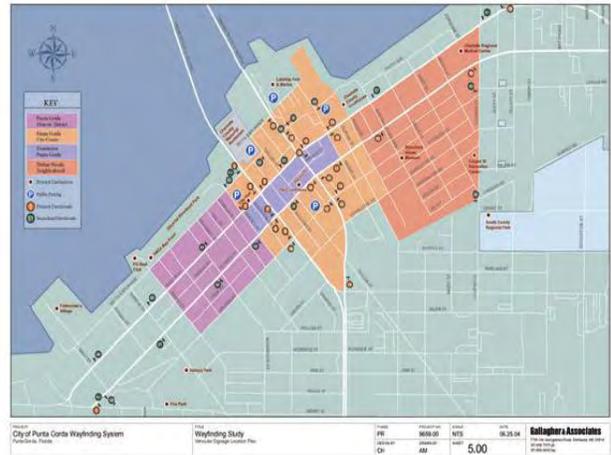
Government Center

The CRA developed a master plan for the public property behind the government complex on Harvey Street. With the construction of this site the CRA/City is provided with much needed public parking, and a plaza area linking the City Hall Annex, Historic City Hall, and the A C Freeman House. Future plans for this site include the expansion of the City Council Chambers.



Wayfinding & Bike Racks

The Wayfinding System was designed through out the CRA to promote easier access around downtown and more clearly identify destination sites. Implementation of the system includes the logo “sign” identifying the specific district and the use sidewalks and bike paths connecting these districts; In addition public/private partnerships through the CRA were developed to install bicycle racks throughout the CRA promoting pedestrian/non-vehicular lifestyle.



Hector House Plaza

The Agency purchased property at Taylor Street and Olympia Avenue in 2003/2004. The City demolished the existing building and replaced it with a twenty-six (26) space surface parking lot and a pedestrian friendly park. Known as Hector House Plaza this space will become a destination gathering spot to be used for chess events, art displays, and other special events.

Future Projects within the CRA

With the hard work and dedication of the CRA, the Revitalization Committee, City Staff and the many citizens and civic groups committed to the downtown redevelopment in Punta Gorda, the City’s future continues to look bright. Future projects within the CRA area include:

Public Works Campus

The Public Works Campus is a proposed development of one hundred and forty to one hundred and sixty (140 – 160) multifamily residential units and approximately 100,000 – 125,000 sq. ft. office building on approximately sixteen and a half (16.5) acres. The project will require a comprehensive plan amendment and rezoning of the property.

Harbor Inn-Sheraton

The Harbor Inn – Sheraton property is located along the Charlotte Harbor and is an approved mixed use development which, when completed, will provide a hotel condo development with a retail component along the bottom floor. This retail area is an important pedestrian component to the proposed pedestrian Harbor Walk project which will connect Fisherman’s Village to Laishley Park. The completion of this project is privately funded but is vital to complete a number of initiatives the CRA is working to complete.



Landscape Enhancements and Mural Program

Although not funded by the CRA, these projects provide the aesthetic quality which enhances many of the projects within the CRA area. The landscape enhancements include plantings along US 41S @ Gilchrist Bridge, and US 41S, Carmalita to Peace River gateways to and from the CRA District.

The Mural Program continues to provide artistic historic renderings throughout the downtown area that are viewed and enjoyed by residents and visitors alike.

Martin Luther King Blvd

With the 2006/2007 completion of Phase IV the City/CRA now moves ahead with construction of greenspace and streetscape between Fitzhugh Avenue and Ida Avenue (completing Phase II and III) in FY2007/2008 to further enhance and encourage reinvestment in the historic Trabue Woods neighborhood, a vital community within the CRA boundaries.

CRA Incentive Program

Through the CRA incentive program, the City assists businesses in the waterfront area by paying review, permit, and impact fees; providing additional incentives for projects to reduce the premium costs incurred by developers; and offering façade incentives to fund a portion of the cost for congruous non-structural improvements. The City has also made landscape improvements at Fishermen’s Village, and regularly provides in kind services to many of the various festivals held in the waterfront area, including fishing tournaments, arts and craft fairs, and public events

Citizen Participation

The citizens of Punta Gorda individually and through organizations like TEAM Punta Gorda (TPG) have been extremely active in establishing the long-range goals for the City through various planning studies, visioning meetings and charettes. The 2000 Eastside and Downtown Planning Study, The 2005 CRA Charette, and the 2005 Citizens Master Plan are just a few of the studies that the City and the citizens have undertaken in order to clarify a vision of a viable urban center, respectful of its history, connected to its waterfront, and sensitive to its ecological heritage. In order to demonstrate the greater visions illustrated in the various planning documents TPG, a grass roots volunteer committee of citizens has worked with the City to accomplish a variety of projects including the Economic Development Strategy Report, which outlines available economic opportunities promoting the Downtown and Waterfront Area. In addition, TPG, the City counts among its resources a multitude of organizations such as:

TEAM Punta Gorda

A citizen group comprised of over eighteen hundred (1,800) citizens, three hundred and fifty (350) financial contributors, and two hundred (200) active volunteers. TEAM Punta Gorda has as its mission uniting Punta Gorda residents for the purposes of collaborating with federal, state, county, and local political leaders in order to rebuild and revitalize post-Hurricane Charley Punta Gorda. TEAM Punta Gorda developed a 2005 Citizens Master Plan as a vision upon which to guide the development of Punta Gorda, which includes a regional master plan, a downtown master plan, traffic studies, and architectural guidelines. The City will continue to work with the group as it moves into the next planning decade.

Punta Gorda Boating Alliance

A group comprised of over four thousand (4,000) people from various organizations, with the stated goal of working with the City and TPG to improve the waterfront and marine area along the Peace River by implementing plans to promote the City as a boater's destination.

Punta Gorda Historical Society

The society preserves historic buildings in Punta Gorda, including the National Register of Historic Places district.

Punta Gorda Historical Mural Society:

The society is working to restore the interpretive murals that were destroyed by Hurricane Charley.

Charlotte Harbor Environmental Center:

The center offers environmental education, recreation, research, and preservation to residents and visitors of the Charlotte Harbor area, which includes the waterfront area.

Punta Gorda Business Alliance:

The Punta Gorda Business Alliance is a group of local business which promotes and provides information and coordination of interests between its members and the community.

Public Water Facilities and Uses

The location of Punta Gorda and the CRA is immediately connected to the Charlotte Harbor. This location and the location of the City of Punta Gorda's park infrastructure, provides numerous opportunities for water access and related activities including, public marina facilities, public boat ramps, fishing piers, mangrove boardwalks, informal paddle-craft launches, and splash beaches. The City of Punta Gorda contains a large boating community providing many residents and visitors with excellent boating opportunities in and around Charlotte Harbor. Over the past twenty-five (25) years increases in boat registrations in Charlotte County, including the City of Punta Gorda, has out paced State-wide boat registration growth. Table 2.7, below, provides a summary of projected boating registration trends for Charlotte County through the year 2010.

Table 2.7 Boat Registration for All Size of Pleasure and Commercial Craft for Recreation

Year	1991	1995	2000	2006	2010
# of Boats	13,876	17,349	18,505	22,680	43,103

Source: Florida Dept. of Highway Safety & Motor Vehicles 2006

Public Water Access

The City's waterfront access can be divided into two categories: lateral access to the waterfront from inland, and access to the shore from the water. In terms of lateral access to the waterfront, the City's plan is to complete a linear walkway along the entire proposed waterfront area. The Harbor Walk is an eight (8) foot wide continuous pedestrian and multi-use path that begins at the intersection of Aderian Street and Marion Ave and travels west along Patty Avenue around the Harbor Walk Condominiums ending in Laishley Park. This path system currently provides the East side Trabue neighborhood access to the waterfront and the open space of Laishley Park. Phase II, currently under construction, will continue from the fishing pier around the marina and travel west under the Route 41 bridges and terminate at Gilchrist Park. The City faces two major impediments in realizing this goal, funding for infrastructure and obtaining access rights in two key privately held parcels situated on the waterfront. Phase two is partly funded by Metropolitan Planning Organization Enhancement Funds, Charlotte County, the City of Punta Gorda, and a private developer.



With regards to water access to the shoreline, the marina at Fishermen's Village (pictured), is operated by a private corporation on a land-lease from the City, facilitates the west water to shore access. It contains one hundred and eleven (111) slips but does not have a boat ramp. Additionally, Ponce de Leon Park provides another west water to shore access point with one boat ramp and with twenty (20) parking spaces.

The second water to shore access occurs at the Lashley Park Marina. Completed in 2007, the facility contains a two (2) lane boat ramp, eighty-six (86) Parking Spaces, and eighty-five (85) boat slips. The City's future goal is to increase water access by permitting and constructing two mooring fields, one on either side of highway U.S. 41 water ward of existing marina facilities and City park land.

The City's downtown waterfront area contains a historic district designated by the National Register of Historic Places. The City lost a number of historical structures with the impacts from Hurricane Charley and is working to restore the structures. In its rebuilding efforts, the City faces the challenge of balancing the ability to maintain the historical integrity of certain structures with FEMA building standards and hazard mitigation strategies. Both are discussed later in this element.

Fishing Facilities

Fishing continues to be a popular past time and sport in the City. Fishing piers have expanded and been reconstructed to continue to accommodate the current needs of the residents. Events center around fishing tournaments which bring in additional revenues to the downtown businesses.

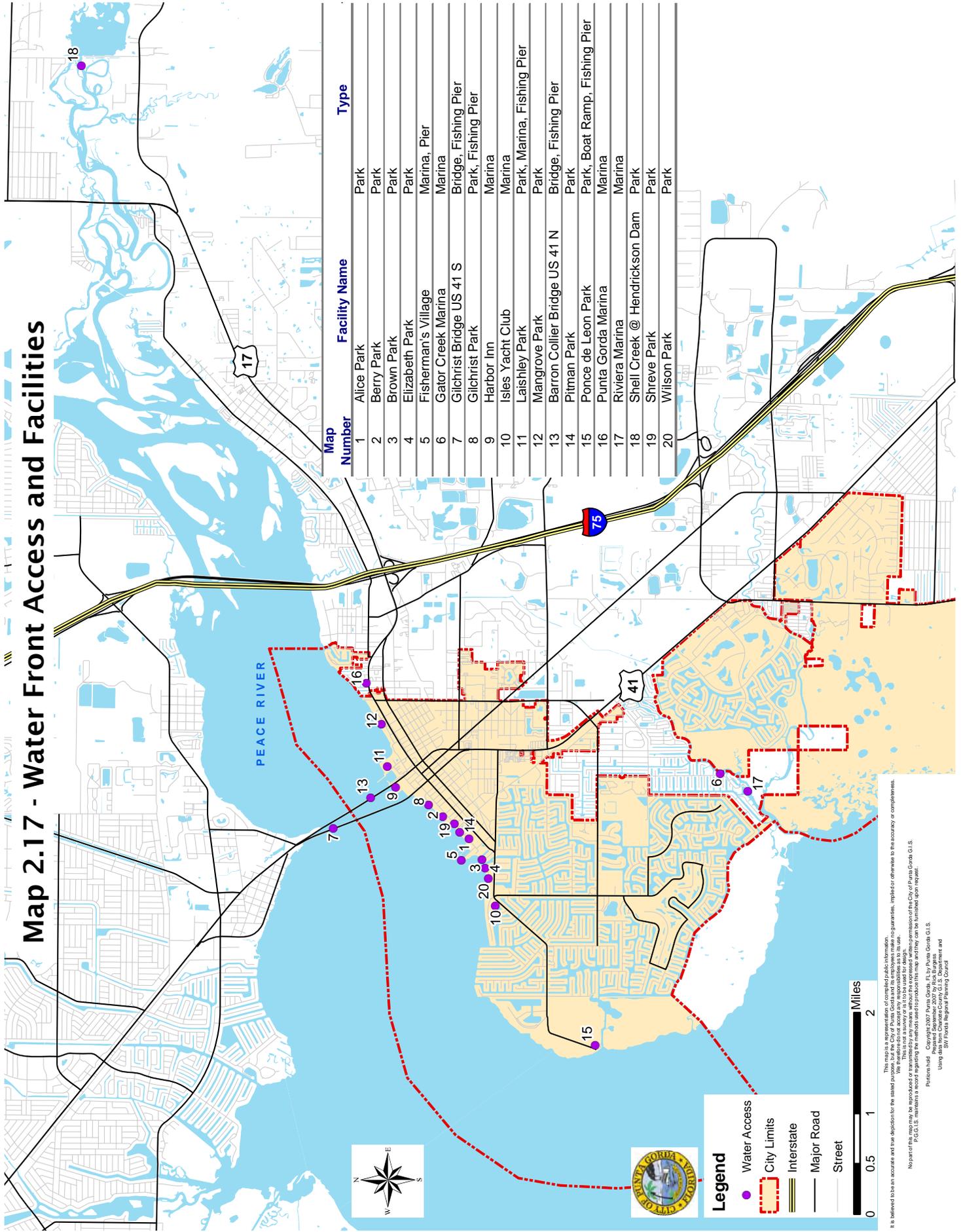
Existing water access areas and facilities are illustrated on Map 2.17 and listed in Table 2.8 below.

Table 2.8 - Water Access Areas and Facilities

Marinas/Private Facilities	Fisherman’s Village	111 slips, no boat ramp
	Best Western	In permitting to expand facility. Proposing 62 plus weather dependent slips
	Laishley Marina	80 slips
	Harbor Inn	Approved for 82 slips
	Isles Yacht Club	36 slips
Public Boat Ramps	Ponce De Leon Park	2 Lane, 20 Parking Spaces
	Laishley Park	2 Lane, 86 Parking Spaces
	Peace River (Laishley Park) Fishing Pier	420 feet long, served by parking spaces in Laishley Park)
	Gilchrist Pier	served by parking at Gilchrist Park
	Ponce De Leon Pier	served by parking at Ponce de Leon Park
Artificial Fishing Reefs	Charlotte Harbor Reef	Materials are concrete culverts as a depth of 12 feet
	Novak Reef	Materials are concrete bridge sections at a depth of 30 feet
Traditional Fishing Areas	Ponce De Leon Park	Shoreline
	Shell Creek at the Hendrickson Dam	Shoreline

Sources: Charlotte County 2003 EAR and Urban Design 2007

Map 2.17 - Water Front Access and Facilities



Map Number	Facility Name	Type
1	Alice Park	Park
2	Berry Park	Park
3	Brown Park	Park
4	Elizabeth Park	Park
5	Fisherman's Village	Marina, Pier
6	Gator Creek Marina	Marina
7	Gilchrist Bridge US 41 S	Bridge, Fishing Pier
8	Gilchrist Park	Park, Fishing Pier
9	Harbor Inn	Marina
10	Isles Yacht Club	Marina
11	Lashley Park	Park, Marina, Fishing Pier
12	Mangrove Park	Park
13	Barron Collier Bridge US 41 N	Bridge, Fishing Pier
14	Pitman Park	Park
15	Ponce de Leon Park	Park, Boat Ramp, Fishing Pier
16	Punta Gorda Marina	Marina
17	Riviera Marina	Marina
18	Shell Creek @ Hendrickson Dam	Park
19	Shreve Park	Park
20	Wilson Park	Park

Legend

- Water Access
- City Limits
- Interstate
- Major Road
- Street



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Future Need for Public Access Facilities

The majority of the City's existing boats are stored behind individual residences located on the extensive canal systems that have navigable access to Charlotte Harbor. The most of the remaining boats are either kept at marinas or are transported by trailer to public or private boat ramps. As the demand for boating increases and the cost of water-front property continues to rise the City of Punta Gorda expects greater public interest in the provision of public marinas, mooring fields, boat ramps and dry storage facilities over the course of the planning horizon.

The City of Punta Gorda's Charlotte Harbor waterfront area is naturally divided into two discernible areas. The eastern side is largely undeveloped, with a significant mangrove fringe, a vital ecological connection to the waterfront. In order to further strengthen the ecological connection, the City has recently purchased two (2) acres of undeveloped land along the eastern waterfront area, for preservation. The western side of the area contains developed parcels including the seawalled Gilchrist Park. Charlotte Harbor west of the US 41 bridges is designated as an aquatic preserve under the Charlotte Harbor National Estuary Program. The City is also working to eliminate invasive exotics from the eastern waterfront and restore the mangrove stands that were damaged during Hurricane Charley.

While the City has taken steps to ensure the protection of its waterfront environmental resources, the City does not employ an environmental or water resources expert. Punta Gorda would greatly benefit from the environmental technical expertise from the Waterfronts Florida Program. The City applied previously for this program and will apply again in 2008.

Historic Structures

The City's downtown waterfront area contains numerous historic structures and efforts to protect these structures began in 1987 with the historical survey which inventoried two hundred and fifty-two (252) structures in the downtown area. Subsequently a historic district was designated by the National Register of Historic Places in 1988. In 2003 protection efforts continued when the City hired a consultant to complete the *Historic District Design Guidelines*, which encompasses a wider scope than the 1987 survey. The report includes all properties located within and around the the existing historic district which turned fifty (50) years old since the last survey. An additional one hundred (100) structures were added to the list.

Post-Hurricane Charley, the City has lost a number of historical structures, as well as murals depicting historical events. The City has been working to restore the structures as well as the murals. In its rebuilding effort, the City faces the challenge of balancing the ability to maintain the historical integrity of certain structures, with FEMA building standards and hazard mitigation strategies. A

complete list of the historic structures can be located on Appendix 4.1 – Florida Master Site File.

Coastal Planning Area and Coastal High Hazard Area (CHHA)

The City of Punta Gorda is located within a low lying area and subject to a variety of tidal and natural occurring storm events. Coastal planning strategies are reviewed/employed to minimize future development impacts. Coastal Planning Areas, required under Chapter 9J-5 FAC, must encompass hurricane vulnerability zones, estuarine and coastal waters, including adjacent shorelines; beaches; wetlands; living marine resources; water dependent and water related facilities and lands whose development would impact the quality of these waters. As land development activities within the basins drain into the Charlotte Harbor Estuary and can potentially impact the environmental quality of coastal and estuarine waters, the designated Coastal Planning Area should include all lands within such basins. The Coastal Planning Area includes all of the City land.

The Coastal High Hazard Area (CHHA), illustrated on Map 2.18, occurs within the Coastal Planning Area and encompasses those areas which would require evacuation in the event of a Category I Hurricane, as designated by the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model, and as established in the regional hurricane evacuation study applicable to local government as defined by State Statute 163.3178(2)(h), 9J-5.003(17). This definition of CHHA was changed during the 2006 Legislative Session and covers a larger area than the previous definition which centered on storm surge, waves, erosions and velocity zones designated by the FEMA's Flood Insurance Rate Maps (FIRM). These areas have high vulnerability to hurricane and storm damage.

The City utilizes the Southwest Florida Regional Planning Council's Hurricane Evacuation Study to assist in the development and hurricane planning. The 2001 Hurricane Evacuation Study utilizes the SLOSH model. SLOSH is a computerized model run by the National Weather Service to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes. The model creates its estimates by assessing the pressure, size, forward speed, track, and wind data from a storm. Graphical output from the model displays color-coded storm surge heights for a particular area, as shown on Map 2.19. The calculations are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads, and other physical features.

The storm surge map reflects the worst case hurricane storm surge inundation, regardless of the point of where the center of the hurricane (or tropical storm) makes landfall. No single hurricane will necessarily cause all of the flooding represented on the maps. These maps reflect still-water saltwater flooding and do not take into account the effects of pounding waves that ride on top of the storm

surge in locations exposed to wave action. The maps further delineate storm surge zones which indicate areas subject to flooding from different categories of hurricanes. Evacuation zones are areas, typically located within or in close proximity to storm surge zones. The City of Punta Gorda coordinates with the emergency management officials who use evacuation zone information to determine who needs to evacuate before a hurricane makes landfall.

The City adopted the FEMA's FIRM for use in floodplain regulations. The City's policy has not regulated land uses specifically by hazard area, but by the underlying zoning districts whose regulations address indirect hazard mitigation measures. Policies addressing the prioritizing of development within the CHHA are necessary to allow for water dependent and water related uses as well as appropriate density within the CHHA.

For those land uses in the different hazard areas, local governments may adopt special requirements governing construction which reasonably protect against hazards in each area. The City of Punta Gorda regulates development in floodplains through Article 14 Flood Hazard Areas of the City's Land Development Regulations. The City's Stormwater Management and Control of Erosion, Sedimentation and Runoff regulations also address measures which protect against storm hazards through design standards for stormwater management systems described in the City's Land Development Regulations.

Current regulations, which limit coastal development, exist within areas most concerned with environmental impacts. It is important to keep in mind within the CHHA all of the Future Land Use designations that exist with the City occur. This range of Future Land Use designations represent the historic and traditional pattern of development in Punta Gorda from its founding in the 1880's.

The vast majority of Commercial areas occur within the CHHA, careful planning and innovative urban development strategies must be employed to encourage growth of the business and downtown area if economic viability is to continue. Limiting development within the economic engine of the City could result in a downward spiral for businesses reinstalling the blight conditions that the CRA has worked do hard to eliminate.

The redevelopment of the City's Public Works Campus and the City Market Place Property, both damaged or destroyed by Hurricane Charley, hotels and mixed use facilities are being proposed in the downtown and CRA area. Issues such as possible density increases, development of a fuller range of mixed use land use designations, hurricane evacuation, and sheltering availability are coastal planning issues that the City will be reviewing as the City moves into the next planning decade. The City plans to follow the Department of Community Affairs (DCA) *Coastal High Hazard Mitigation Report* and demonstrate the following for density increases to occur:

- clearance times are acceptable; shelter space is provided; and higher building code standards,
- Infrastructure exists within and redevelopment of the urban core; and
- environmental protection occurs

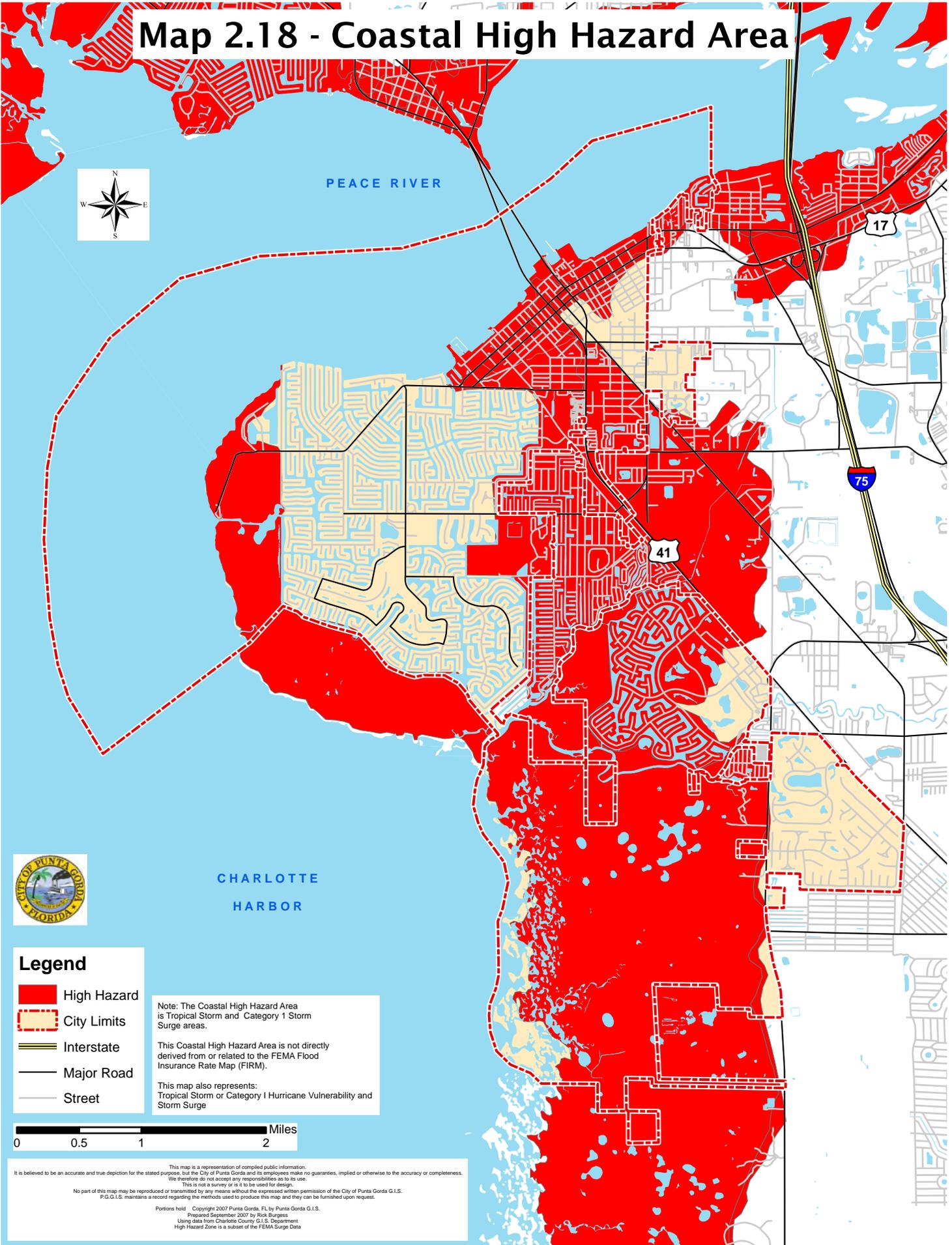
The DCA's Coastal High Hazard Study Committee recognizes the need for development to occur within urban areas which lie within the CHHA. This need is especially true as the City continues to recover from the 2004 hurricane season and the City will continue to work with the DCA to move forward in their development and redevelopment efforts within the CHHA.

Special Flood Hazard Areas (SFHA)

Flooding, typical in the City of Punta Gorda, occurs when an expanse of water overflows and submerges a land area. This land area covered by floodwaters is referred to as the Special Flood Hazard Area (SFHA) also known as the 100 year floodplain. This area is used by most Federal and State agencies as a standard for floodplain management and is used to determine the need for flood insurance.

Most of the City lies within the SFHA as shown on map 2.20. In understanding the Coastal High Hazard Area (CHHA), it is important to look at the 100-Year Floodplain Map (SFHA). Compared to the CHHA, Map 2.18, the SFHA or 100 year floodplain actually covers a greater proportion of the City's geographic area including all harbor access canal centered communities which are not all included in the CHHA. The harbor access canal centered communities of the City occur within the 100 year floodplain but not the current CHHA. The recent 2004 and 2005 hurricane seasons resulted in the harbor access canal centered community's seawalls failing during the rain and storm surge events.

Map 2.18 - Coastal High Hazard Area



PEACE RIVER

17

75

41



CHARLOTTE HARBOR

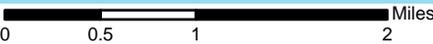
Legend

- High Hazard
- City Limits
- Interstate
- Major Road
- Street

Note: The Coastal High Hazard Area is Tropical Storm and Category 1 Storm Surge areas.

This Coastal High Hazard Area is not directly derived from or related to the FEMA Flood Insurance Rate Map (FIRM).

This map also represents: Tropical Storm or Category I Hurricane Vulnerability and Storm Surge

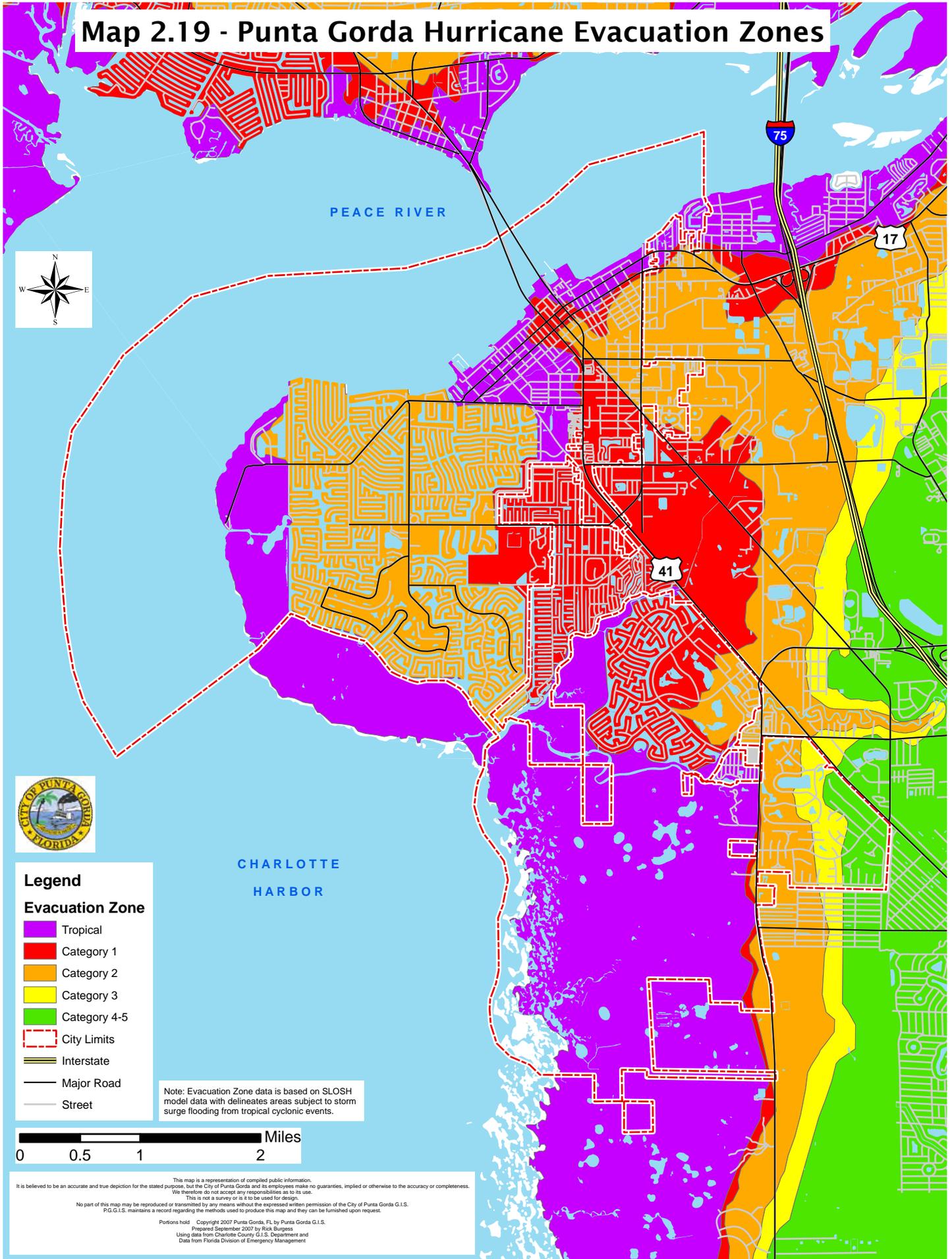


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Map 2.19 - Punta Gorda Hurricane Evacuation Zones

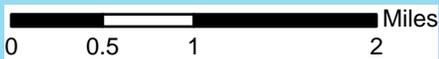


Legend

Evacuation Zone

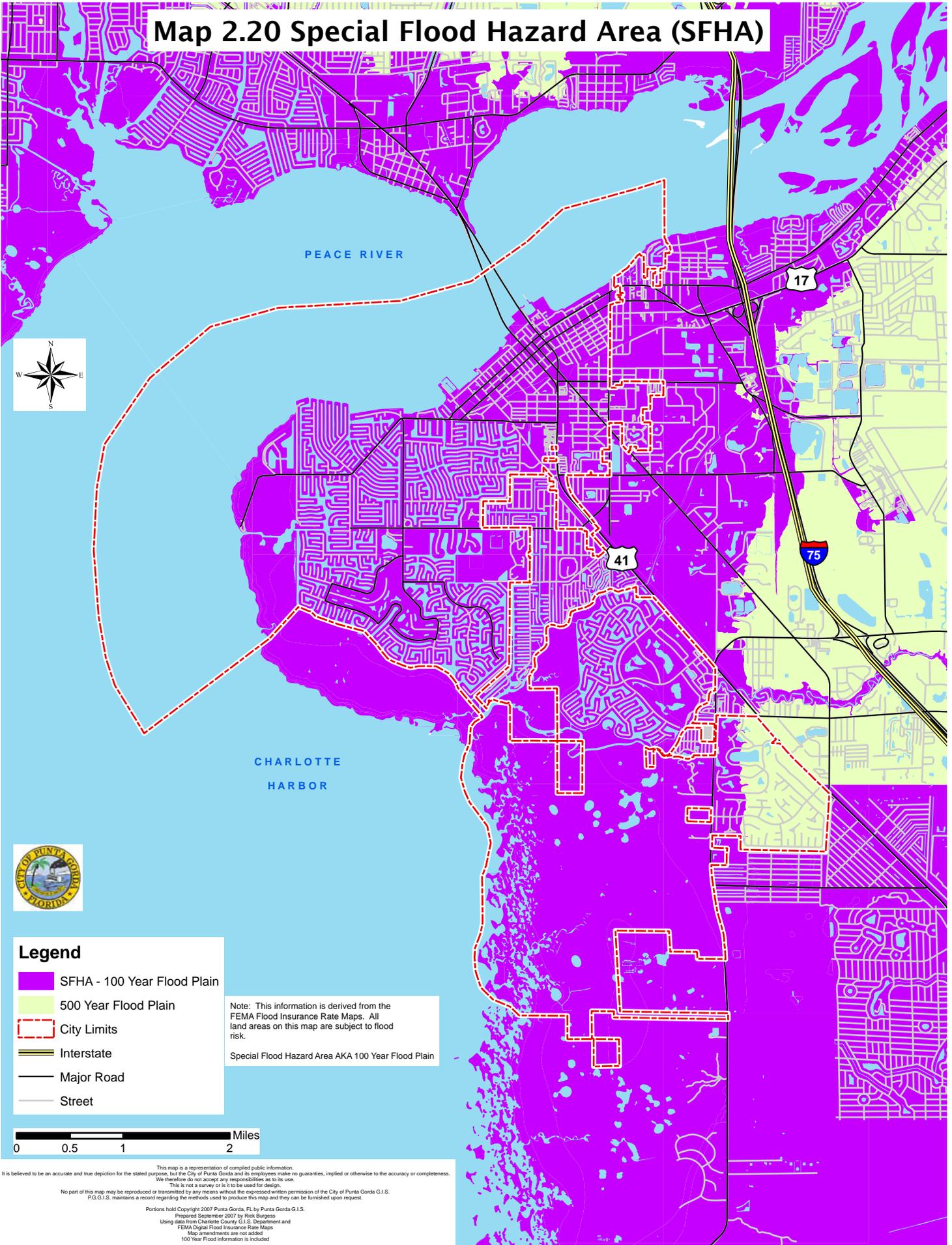
- Tropical
- Category 1
- Category 2
- Category 3
- Category 4-5
- City Limits
- Interstate
- Major Road
- Street

Note: Evacuation Zone data is based on SLOSH model data with delineates areas subject to storm surge flooding from tropical cyclonic events.



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Map 2.20 Special Flood Hazard Area (SFHA)



Legend

- SFHA - 100 Year Flood Plain
- 500 Year Flood Plain
- City Limits
- Interstate
- Major Road
- Street

Note: This information is derived from the FEMA Flood Insurance Rate Maps. All land areas on this map are subject to flood risk.
Special Flood Hazard Area AKA 100 Year Flood Plain

0 0.5 1 2 Miles

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Map amendments are not added
100 Year Flood information is included

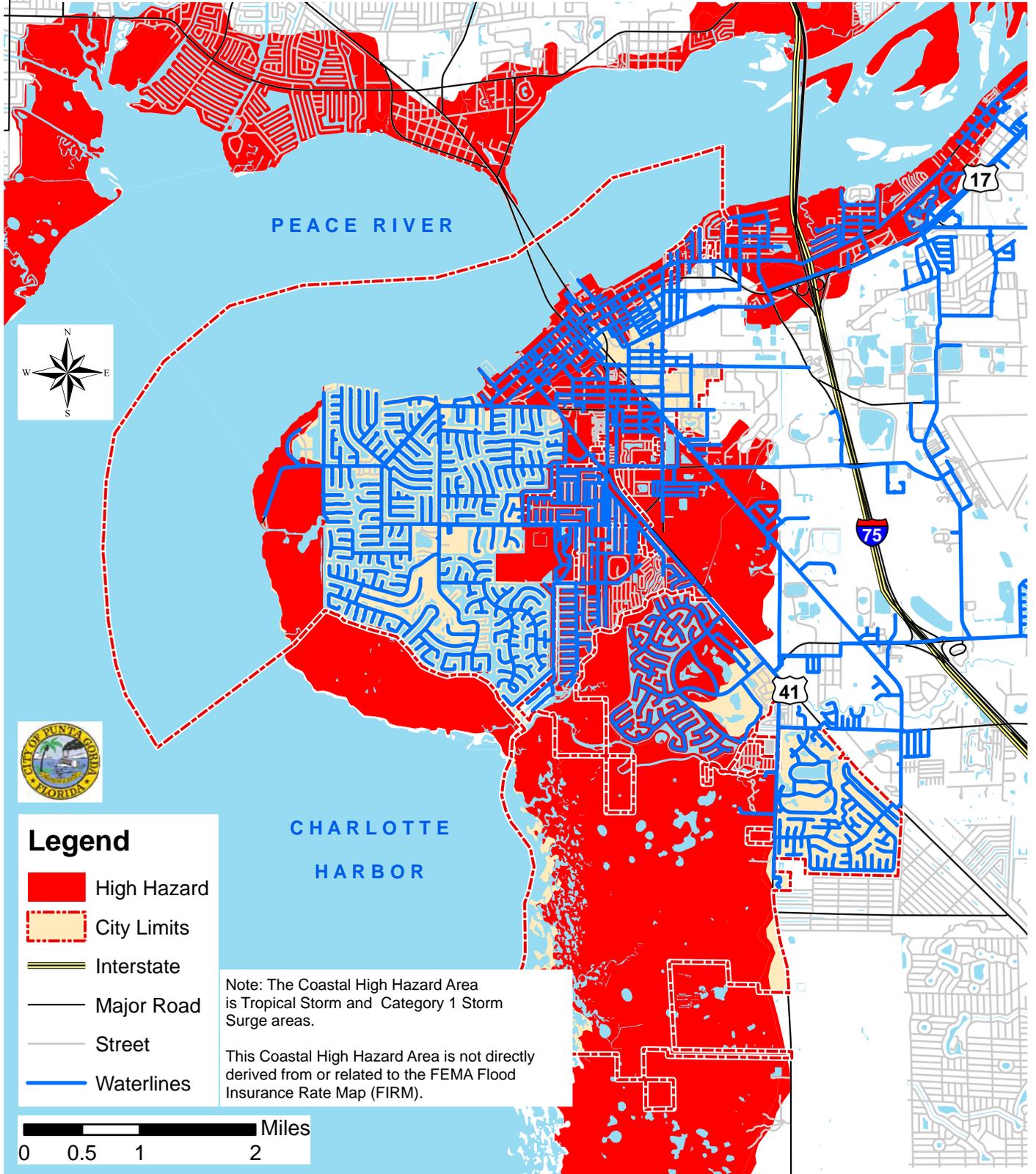
VII. **INFRASTRUCTURE - COASTAL HIGH HAZARD AREA**

The entire City lies within the coastal planning area as defined by the state, with a large portion of City's existing infrastructure network of roads and bridges, water lines, and sewer lines occurring within the Coastal High Hazard Area (CHHA). This is consistent with the City's historical development and platting patterns which tended to locate communities near the coastline and major surface water bodies (a practice in common with the earliest natives.) Because of this, most of the City's other forms of infrastructure, such as schools, fire stations, libraries, government buildings, and hospitals, also occur in this area. Maps 2.21, 2.22, 2.23 illustrate the location of such infrastructure relative to the hurricane vulnerability zones established by the Southwest Florida Regional Planning Council. Analysis of infrastructure capacities and minimum level of service standards are established within the specific elements.

As the downtown area developed within the CHHA, a fairly dense interconnected urban infrastructure was provided and currently exists. Detailed discussion of the available infrastructure occurs in the *Infrastructure Element*, *Transportation Element*, *Recreation and Open Space Element* and the *Capital Improvements Element*. Since there are no options for the City to relocate these infrastructure elements, the City remains committed to improving and maintaining the level of service and implementing the best building, management and technological principles when improvements are required.

The City's entire waterfront area is flood prone. Much of the City's infrastructure is in place and serving a population center. Improving the existing and future infrastructure will be reviewed as the City progresses. Locating all existing infrastructure into the City's geographic information system (GIS) program is vital to ensuring data is available to recovery operators in post disaster operations. The City will consider other criteria when reviewing infrastructure placement or replacement. In addition to the development review for clearance times and available shelter space, the City will consider higher building code standards, redevelopment of the urban core, urban design standards, and environmental protection review.

Map 2.21 - Potable Water in Coastal High Hazard Area



Legend

- High Hazard
- City Limits
- Interstate
- Major Road
- Street
- Waterlines

Note: The Coastal High Hazard Area is Tropical Storm and Category 1 Storm Surge areas.

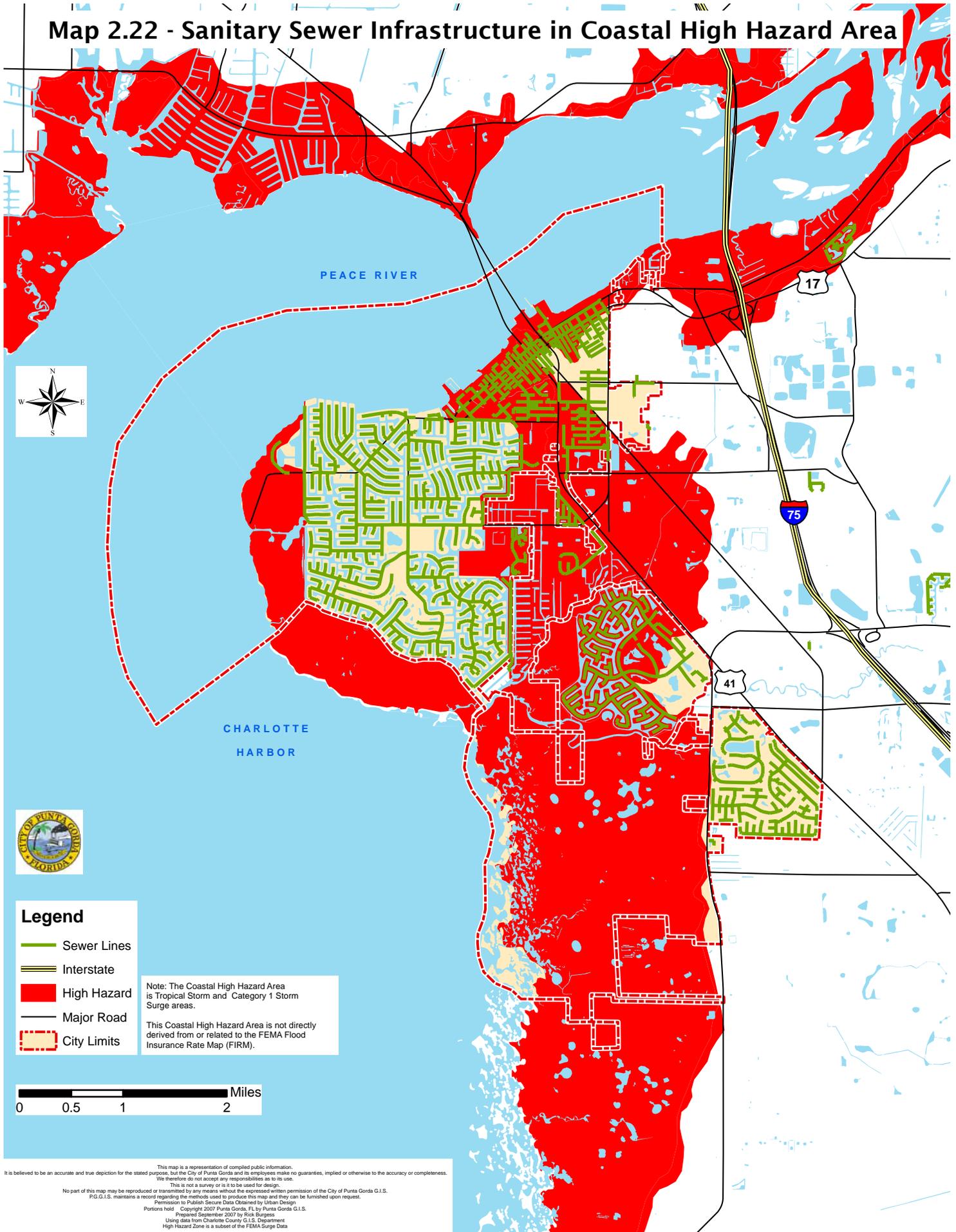
This Coastal High Hazard Area is not directly derived from or related to the FEMA Flood Insurance Rate Map (FIRM).

0 0.5 1 2 Miles

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Map 2.22 - Sanitary Sewer Infrastructure in Coastal High Hazard Area



Legend

-  Sewer Lines
-  Interstate
-  High Hazard
-  Major Road
-  City Limits

Note: The Coastal High Hazard Area is Tropical Storm and Category 1 Storm Surge areas.

This Coastal High Hazard Area is not directly derived from or related to the FEMA Flood Insurance Rate Map (FIRM).

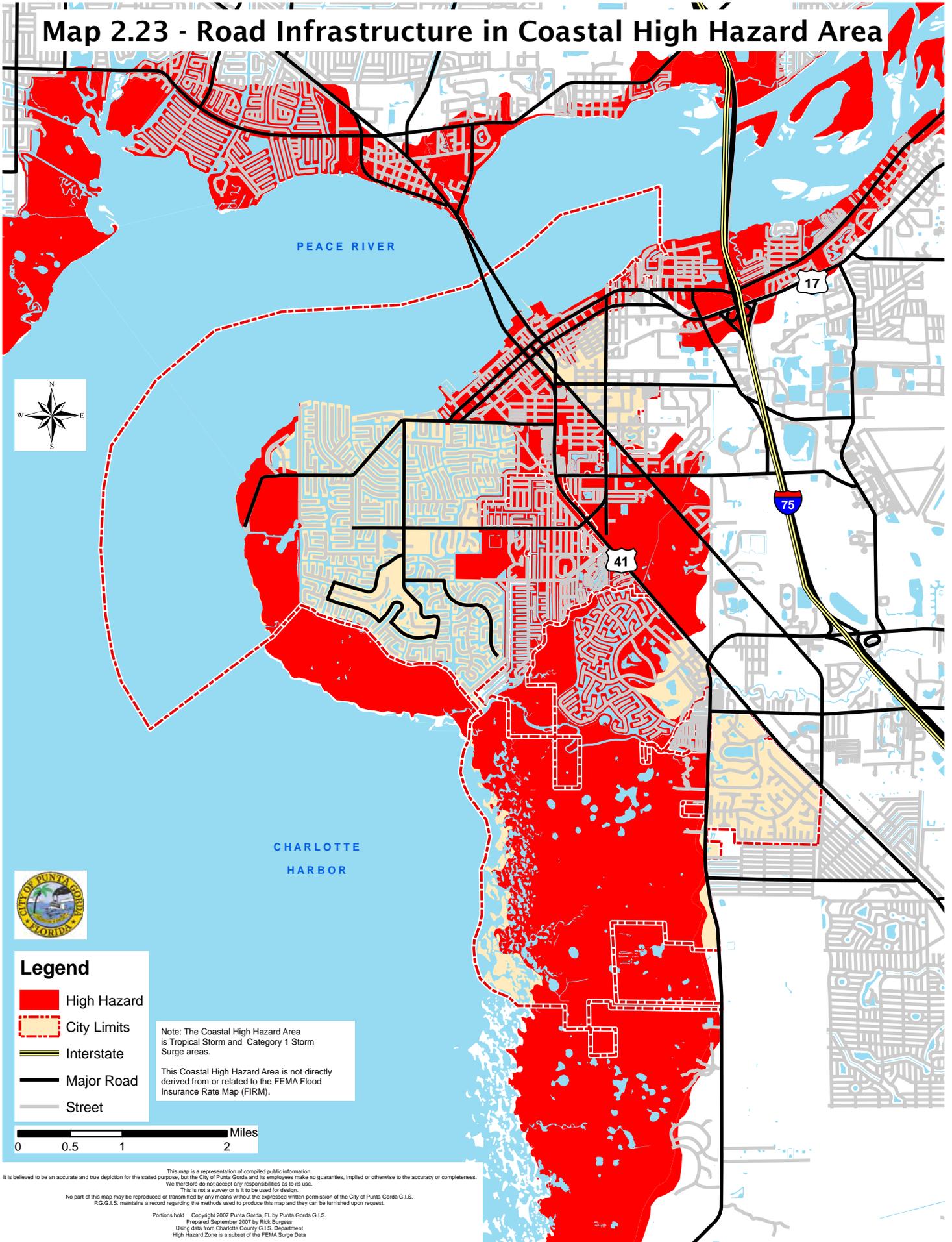
0 0.5 1 2 Miles

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Map 2.23 - Road Infrastructure in Coastal High Hazard Area



Legend

- High Hazard
- City Limits
- Interstate
- Major Road
- Street

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The City is also working with an engineering consultant to complete an on-going Water System Master Plan and hydraulic water system model. This project is expected to be complete in early 2008. The primary goal of the project is to provide hydraulic modeling analyses to determine pipeline infrastructure requirements for existing areas without water service and to serve new development. The Water System Master Plan will also document existing conditions in the distribution system and make recommendations to improve system efficiency and to eliminate hydraulic bottlenecks.

Studies, programs, and efforts for additional conservation of water are on-going, as discussed in conservation practices and regulation section of the *Infrastructure Element*. In addition to the conservation programs listed in that section, the City is completing a Reuse Feasibility Study to investigate the feasibility of implementing a reuse system to treat and deliver reuse water for beneficial use as landscape irrigation water. A reuse water system would help to optimize the management of water resources by offsetting a portion of potable water use, which would reduce demand on the region's potable water supply.

The City's master planning efforts for both water supply and water distribution system infrastructure will allow the City to coordinate, plan, and meet the needs of new development in an effective manner.

To mitigate the flood prone areas, the City is pursuing two strategies. First pursuant to a FEMA hazard mitigation grant, the City is currently conducting a drainage study, which will result in a comprehensive program for stormwater management. Second, the City seeks to purchase lands in the highest risk velocity areas to preserve those lands from development. Toward this second goal the City has recently purchased two acres of undeveloped land along the waterfront on the east side of the City.

Challenges for the City are associated with the impact of development on the stormwater management system and the future annexation of vacant lands. The development review process, permit issuance, and level of service standards assist the City in offsetting the impact of development on the stormwater management system.

The development of stormwater management facilities in the City is relatively difficult and expensive due to the City's low elevation, engineering and real estate constraints. The primary concerns relating to stormwater management facilities mainly relate to capacity and design life.

The quality of discharge needs to be consistent with the recommendations being developed by the Charlotte Harbor National Estuary Program (CHNEP) and the requirements of State Water Policy. Establishment of level of service standards for the quality and quantity of discharge must account for various storm events and acceptable levels of flooding. Level of service criteria for storm water quality

should at a minimum maintain water quality consistent with the final pollutant load reduction goals established by the local State and Federal water quality programs. Pollutant load reduction goals will be implemented according to a schedule provided in the Southwest Florida Water Management District's Water Management Plan. These levels of service standards were based on providing varying degrees of flood protection based on the nature of the facility and the acceptability for potential flooding.

Natural Disaster and Evacuation Planning

Planning for natural disasters are regional and local issues which affecting not just the City but also the surrounding counties.

The concept of compact urban growth within the City boundaries promotes higher densities and economic development as well as increases in tourism, recreation and commerce. Although this growth management concept competes with the application of the state's statutory and rule provisions, which discourage increased density in these areas, the state does allow for flexibility where there is no increase in evacuation times, where adequate shelter capacity exists. These issues are vital in preparing for natural disaster and evacuation planning. Each is addressed below.

Affected Population

The number of people affected by a storm event depends on the severity of the event. Typical events include heavy rainfall or hurricanes. *The City of Punta Gorda Demographic and Housing Characteristics 2006-2030* identifies the City's total population as 17,595 residents with a median age of 63.6 years. The seasonal population produces significant increase to the population base. The seasonal population for the Region is estimated to be to be as much as 22%. The conditions for Punta Gorda are similar to the Region and Charlotte County. The 2001 Hazard Management Group, Inc survey referenced in the *2001 Southwest Florida Regional Planning Councils Hurricane Evacuation Study* showed 20% of the evacuees will seek public shelter in a parallel storm.

Table 2.9 lists all the housing units of the City, including the mobile home and recreational vehicle parks, and the number of units within those parks by landfalling evacuation zone in Punta Gorda. These numbers are based on the entire County as reported in the Southwest Florida Regional Hurricane Evacuation Study 2001 by the Southwest Florida Regional Planning Council which used the Charlotte County GIS Property Appraiser information. The count for recreational vehicles and mobile homes was checked against the Department of Health and Rehabilitation Services, Health Program Office document titled "Mobile Home Park and Recreational Vehicle Park Registration and from the Southwest Florida Regional Planning Council data from recent aerial photographs.

Table 2.9 - 2001 Punta Gorda Housing Units Landfalling Storm

Storm Category	Evacuation Zone	Single Family	Mobile Home	Rec. Vehicles	Multi family	Duplex	Hotel / Motel	Total
1	Punta Gorda*	1,669	2,484	269	1,222	98	455	6,197
2	Punta Gorda*	587	339	136	428	17	201	1,708
2	Punta Gorda Isles	4,361	70	0	1,337	23	0	5,791
Total	Zone 1 & 2	6,617	2,893	405	2,987	138	656	13,696

Source: Southwest Florida Regional Hurricane Evacuation Study 2001

Evacuation Routes

The *2001 Southwest Florida Regional Planning Councils Hurricane Evacuation Study* provides a transportation analysis which calculates, among other things, the clearance times based upon:

- the regional evacuation roadway network;
- storm intensity;
- evacuation population; and
- behavioral response.

The Regional Planning Council is currently revising the evacuation study after Hurricane Charley, including new LIDAR, a remote sensing system used to collect topographical data, and a new SLOSH model. The information obtained from this system will provide more detailed information for evacuation planning. Evaluations made for this element are based upon the latest accepted Hurricane Evacuation Study, dated 2001.

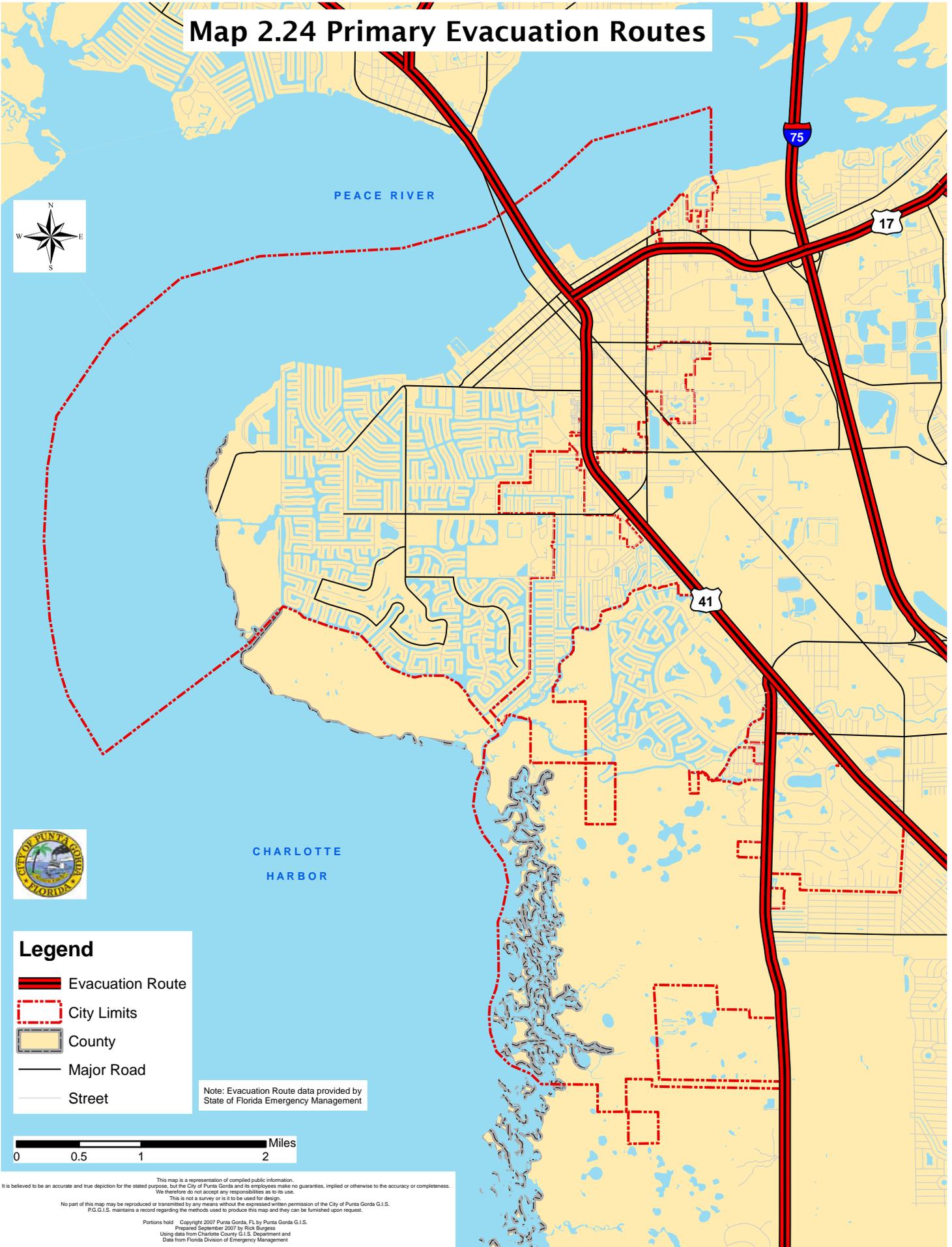
Roads

Arterial roadways are the backbone of any hurricane evacuation effort. The capacities of these roadways are determined by characteristics as defined by the Charlotte County MPO, except for interstate or rural highway volumes which are from the Florida Levels of Service Tables and Standards Handbook, 1998, by the Florida Department of Transportation. Many of the routes for evacuation in Charlotte County, regardless of their LOS, are low lying coastal roads and are subject to flooding, and of course in a storm event, wind. These factors contribute greatly to varying loads on evacuation routes depending on the nature of the storm. The primary evacuation routes are identified on Map 2.24

US 41 and US 17 are the two major highway facilities which serve the City of Punta Gorda. US 41 services traffic flowing a north-south nature while US 17 services

traffic flowing east-west with both facilities providing linkage to the local street system. The primary focus regarding the roadway systems is the level of service analysis which determines the facilities that are now or projected to be operating at a deficient level. It is the City's goal to develop, construct and maintain a roadway network which serves the community in a manner consistent with the existing and future land use patterns. These patterns currently and within the context of existing code will strengthen the viability of alternative modes.

Map 2.24 Primary Evacuation Routes



Legend

-  Evacuation Route
-  City Limits
-  County
-  Major Road
-  Street

Note: Evacuation Route data provided by State of Florida Emergency Management



This map is a representation of compiled public information. It is believed to be an accurate and true depiction for the stated purpose, but the City of Punta Gorda and its employees make no guarantees, implied or otherwise to the accuracy or completeness. This is not a survey or is to be used for design. No part of this map may be reproduced or transmitted by any means without the expressed written permission of the City of Punta Gorda G.I.S. P.G.G.I.S. maintains a record regarding the methods used to produce this map and they can be furnished upon request. Portions held Copyright 2007 Punta Gorda, FL by Punta Gorda G.I.S. Prepared September 2007 by Rick Burgess Using data from Charlotte County G.I.S. Department and Data from Florida Division of Emergency Management

Clearance Times

An assessment calculating the time it will take to evacuate a community is determined a 'clearance time'. This time is ultimately effected by certain routes that act as constricting zones and will impact evacuation for more than one zone. Taking this into account, the Central County Zones (Mayakka and the Peace Rivers) now have the highest times for evacuation. In Punta Gorda the restricting points are US 17, CR 74, and US 41, with a slow October evacuation, that is; choosing the potential peak month with the heaviest population and the slowest evacuation time estimate, it would take 3.6 hours to clear the city (not including Punta Gorda Isles). Punta Gorda Isles has the same 3.6 hour estimate to clear its region as well, under the same conditions.

Roadway improvements (from the Charlotte County MPO's 5 year transportation improvement program) show improvements to some evacuation routes, but while these improvements prevent dramatic increases in evacuation times, they do not help the zones with the highest evacuation time. This evaluation shows, uniformly across Charlotte County, there are not enough forms of shelter.

Inter-county loading occurs because of the regional nature of hurricanes. As a slow moving storm event, it is likely that there will already be 'background' or 'normal' traffic in interstates and highways. It is also likely that more than one county will be evacuated. This makes for common routes used by people from many areas, seeking to leave a large region. There is also the option of 'one way only' evacuation orders. The need to evacuate larger regions proportional to the category storm approaching indicates that there should be as few artificial restrictions on inter county roadways as possible.

Transportation plays a major role in an effective evacuation. The 2001 Evacuation study shows that evacuation times are too lengthy in regional areas to be accepted. While recognizing evacuation needs, funding for improvements based on an infrequent event is not a reasonable approach. It is therefore determined by the study that an approach to keep evacuees local may be a better public investment approach, rather than recommending roadway capacity improvements. An increase in shelter would indicate a decrease in evacuation times as fewer persons would be exiting the region. Sheltering evacuees safely in a local area would reduce traffic and congestion, and therefore reduce the unusual demands placed on road networks in an evacuation scenario.

Most roads currently exist within the City boundaries and the South County Planning District and are expected to meet the transportation needs of the area for the next several years. Improvements to manage traffic impacts from increased population and to assist in hurricane evacuation for the City and South County are occurring. These improvements include the widening project for U.S. 17 which serves as a major evacuation route for the City as well as South County.

The City's primary evacuation routes, previously illustrated on Map 2.24, are U.S.

41 and Interstate 75 which serve as primary evacuation routes for other counties. The number of vehicles exiting other counties will increase the number of vehicles calculated for Charlotte County. The County has reviewed alternate routes such as US 17 and County Road 74, for evacuees to use to complete a successful evacuation plan.

In addition to storm surge, evacuation routes are susceptible to factors such as high winds or inundating rainfall and non-surge flooding that can render evacuation routes non-functional. The City's geographic location places many of the major roads and evacuation routes within the Special Flood Hazard Area.

Since 1997, the City of Punta Gorda in association with the Metropolitan Planning Organization (MPO) and Charlotte County has completed a number of road improvement projects to enhance evacuation routes. These projects include the widening of US 17, Kings Highway, and Toledo Blade, and the addition of lanes to the I-75 bridge.

Evacuation Times and Trends

Evacuation time is the sum of the greatest clearance time and the greatest travel time from the evacuation zone to the nearest shelter or out of the County. Even with increasing population and vehicle loads, a comparison of evacuation times between the 1995 and 2001 Hurricane Evacuation Studies illustrates that times have generally improved during the last planning period. This can be attributed to several factors such as road improvements, improved traffic management strategies, better hurricane tracking and movement forecasting technology. Combined, these efforts give emergency managers better data and longer preparation times as a storm approaches.

In the event of a storm, the progress to get the City's evacuees out of harm's way will be greatly affected by conditions in neighboring counties, particularly Lee, DeSoto, and Glades. Even if Charlotte County's arterial and other important roads provide adequate evacuation capacities, bottlenecked or flooded roads along any of the routes through neighboring counties could effectively negate any road improvements. From a regional standpoint, it is essential that Southwest Florida's coastal counties cooperate in road improvement planning and construction in order to ensure that hurricane evacuation issues are addressed.

While it is important that the City and County continue to work to maintain a level of service that will provide improvements to facilitate evacuation, education to the public to evacuate early is critical to a successful evacuation. The City continues to work with the Charlotte County Emergency Management Office and MPO in times of preparedness planning and evacuation events.

Residents requiring evacuation assistance because of special needs of the elderly, handicapped, hospitalized, or other special needs of the existing are required to

make contact with the Charlotte County Emergency Management Office. Staff coordinates the early pick up of the special needs group and provide evacuation services.

The Southwest Florida Regional Planning Council (SWFRPC) has created county wide evacuation zones which assess the timing and shelter needs of the existing and future populations during both land falling and exiting storms. This detailed analysis used Geographic Information System (GIS) data from the Property Appraiser’s records to determine the number of units by type in each of the evacuation zones that would need to evacuate during each category storm event. The overall occupancy of each unit type County wide, is provided in Table 2.11 below

Table - 2.11 Total Evacuation Time Existing Storm (Hours)							
Storm Surge Category	Evacuation Speeds	Evacuation Time 1995		Evacuation Time 2001		Evacuation Time 2005	
		July	November	July	October	July	October
1	Slow	3.7	4.1	2.3	2.4	2.6	2.6
	Intermediate	3.0	3.3	2.1	2.3	2.4	2.6
	Quick	2.8	3.1	2.0	2.2	2.3	2.5
2	Slow	12.8	14.2	7.8	8.4	8.6	9.3
	Intermediate	10.4	11.5	7.2	7.8	8.0	8.6
	Quick	9.6	10.7	7.0	7.6	7.7	6.3
3	Slow	13.8	15.2	8.0	8.8	9.3	10.2
	Intermediate	11.2	12.3	8.0	8.8	9.3	10.2
	Quick	10.4	11.4	8.0	8.8	9.3	10.2
4/5	Slow	13.8	15.2	12.9	14.3	15	16.6
	Intermediate	11.2	12.3	12.9	14.3	15	16.6
	Quick	10.4	11.4	12.9	14.3	15	16.6

Source: Hurricane Evacuation Study, 1995 and 2001 Southwest Florida Regional Planning Council

Refuges/ Shelter Capacity

The primary refuges for both the City and the County are school facilities which are located close to the population centers. (see Chapter 163.3177(6)(a), FS) This is consistent with state, regional, and local policies which encourage, if not mandate, the joint use of public facilities. Primary and secondary refuges being located close to the City’s existing population centers place these schools and nearly all public facilities which could serve as refuges within the Category 1 or less storm surge evacuation zones. The remaining County refuges are located within a Category 3 or less hurricane vulnerability zones. Because of their locations within the Category 3 or less zones, none of the City’s or the County’s

refuges meet the certification requirements of the American Red Cross (ARC Rule 4496) which considers all evacuation shelters to be located outside of a Category 4 storm surge zone. Since the state has adopted ARC 4496 as part of its criteria for "safe" hurricane refuges, none of the City or the County's refuges meets the state requirements to be designated shelters. Table 2.12 identifies those primary and secondary refuges within the City boundaries and the County's South County Planning District.

Table 2.12 Charlotte County's Primary & Secondary Refuges Affecting the City	
Primary Refuges	Secondary Refuges
Charlotte Harbor School	Victoria Estates
Charlotte High School*	Maple Leaf Estates Clubhouse
Charlotte Vo-Tech School	Pilgrim United Church of Christ
Deep Creek Elementary School	Port Charlotte United Methodist Church
East Elementary School*	St. James Episcopal Church
LA Ainger Middle	First Presbyterian Church
Lemon Bay High School	Liberty Elementary Cafeteria
Liberty Elementary School	Port Charlotte Middle School Cafeteria
Meadow Park Elementary School	Ventura lakes Clubhouse*
Murdock Middle School	Friendship United Methodist Church*
Myakka River Elementary School	Friendside Oaks Clubhouse Building*
Neil Armstrong Elementary School	
Peace River Elementary School	
Port Charlotte High School	
Port Charlotte Middle School	
Punta Gorda Middle School*	
Sallie Jones Elementary School*	
Vineland Elementary	

Source: Southwest Florida Regional Planning Council

* Located within the City and South County Planning District

The Regional Planning Council's evacuation information states the capacity of public shelters (at 20 square feet per person) is 9,800 persons. The County's shelter capacity can host 23.9% of the evacuees of a Category 1 storm in July, but only 17.7% in October. Shelter is predicted to grow in proportion to population, despite construction of new schools and facilities. The population growth that is projected with the increase in development of resources will absorb any additional capacity created. The shelters, known as refuges, which affect the City of Punta Gorda are identified on Map 2.25.

There are, however, alternative options of hazard shelter available to the residents. These include both hotels/motels and friends/families. Of the 2,455 estimated hotel/motel rooms available in the County, reported in the *2001 Southwest Florida Regional Planning Council's Hurricane Evacuation Study*, 1,094 units would be available for a Category 1 storm and three hundred and nineteen (319) units available for a Category 2 storm. The remaining one thousand and sixty-one (1,361) rooms are located along the shoreline within the Category 1 flood zone and are not counted.

Map 2.25 - Hurricane Refuge Sites

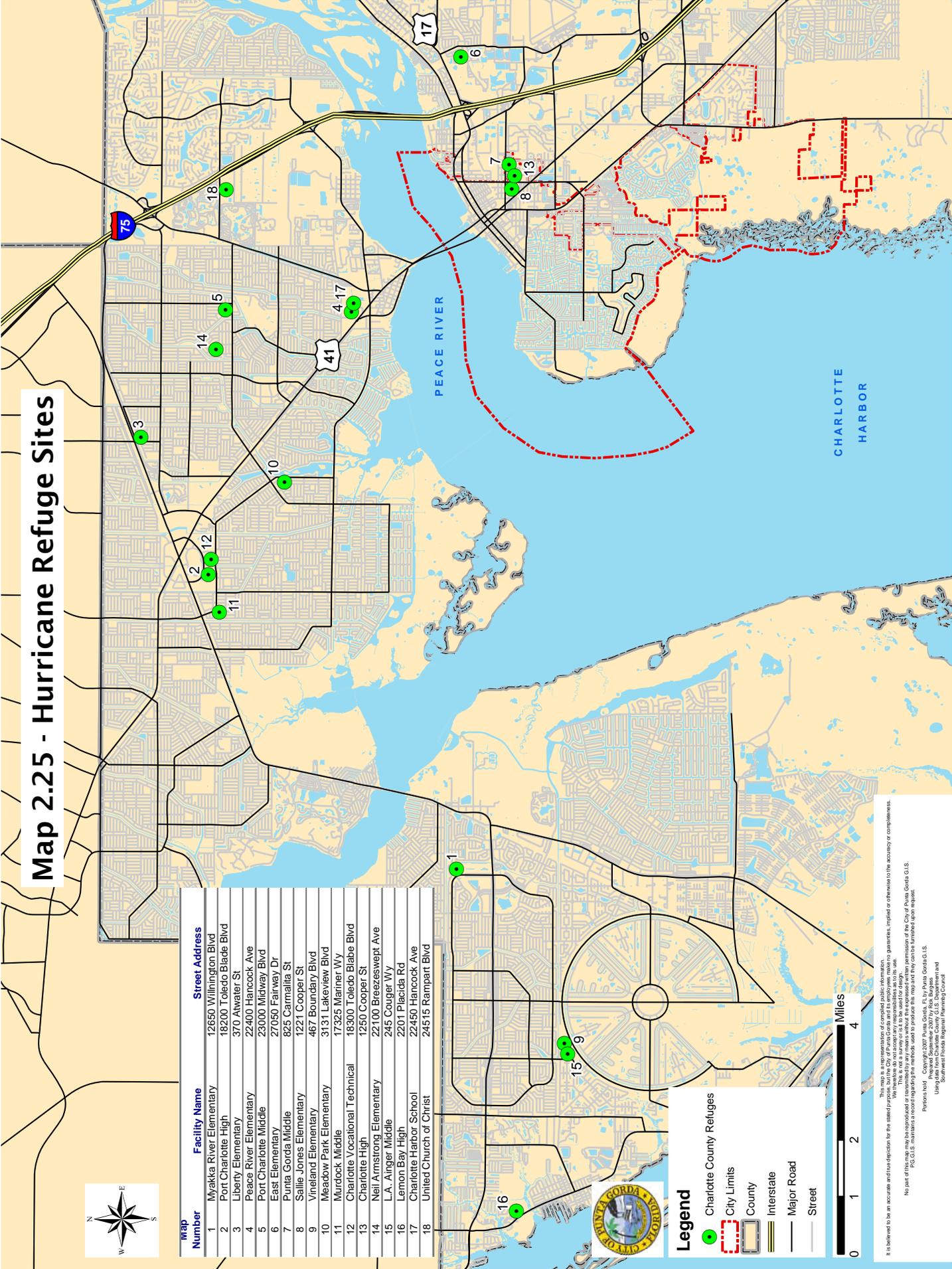


Number	Facility Name	Street Address
1	Myakka River Elementary	12650 Wellington Blvd
2	Port Charlotte High	18200 Toledo Blade Blvd
3	Liberty Elementary	370 Atwater St
4	Peace River Elementary	22400 Hancock Ave
5	Port Charlotte Middle	23000 Midway Blvd
6	East Elementary	27050 Fairway Dr
7	Punta Gorda Middle	825 Carmallita St
8	Sallie Jones Elementary	1221 Cooper St
9	Vineyard Elementary	467 Boundary Blvd
10	Meadow Park Elementary	3131 Lakeview Wy
11	Murdock Middle	17325 Mariner Wy
12	Charlotte Vocational Technical	18300 Toledo Blabe Blvd
13	Charlotte High	1250 Cooper St
14	Neil Armstrong Elementary	22100 Breezeswept Ave
15	L.A. Ainger Middle	245 Couger Wy
16	Lenon Bay High	2201 Placida Rd
17	Charlotte Harbor School	22450 Hancock Ave
18	United Church of Christ	24515 Rampart Blvd



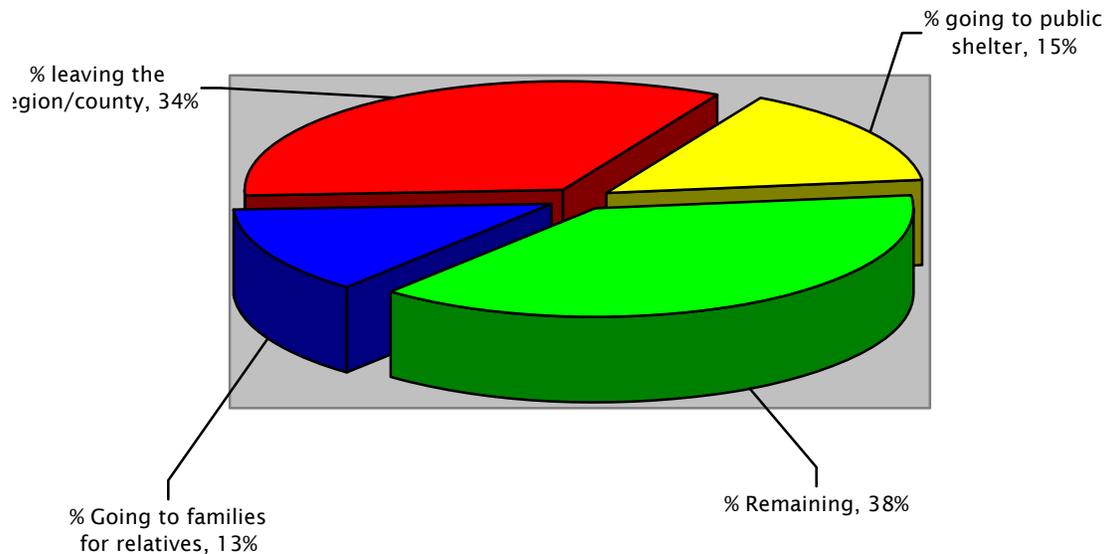
Legend

- Charlotte County Refuges
- City Limits
- County
- Interstate
- Major Road
- Street



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The consultants for the *Transportation Element* assume the evacuating percentage to be 100% for study purposes breaking out into the following:



Source : (abbreviated from evacuation REFERENCE study)

The 2001 Hurricane Evacuation Study (HES) also states that although limited, the friends and family option provides additional shelter capacity which diminishes as the ratio of evacuees to those not affected increases. The HES further points out that if an assumption is made “that ratios of 1:1 or better (0.8:1, for example), will enable those seeking shelter with friends will find them. This constitutes 13% of the population. Ratios of worse than 1:1 (2:1, for example), will diminish the likelihood in proportion to the ratio. Given that assumption, all of those evacuees from a Category 1 storm wishing to stay with friends will be able to do so. However, during a Category 2 evacuation, only 6.2% in July and 5.6% in October, of the evacuees will be able to stay with friends. Therefore, out-of-County evacuation loading will be reduced by only approximately these percentages or less by sheltering with a friend for a Category 2 evacuation.

Even with the inclusion of secondary shelters, refuges, and keeping them open during the category storm in which zone the shelters occur (i.e., keeping Category three (3) shelters open during a Category 3 storm), the City and County still has a substantial deficit in shelter capacity for anything greater than a Category 1 Hurricane.

Future Sheltering

The City needs to continue to work with the County as well as other Counties to identify areas that may be conducive to shelter capacity during times of need. This may occur in a variety of options for the City, none of which are currently implemented.

- Coordinate the evaluation of the County's property to determine whether any parcels occur outside of the Category 3 Hurricane Vulnerability Zone which might be suitable for development as an evacuation shelter.
- Initiate discussions with other governmental agencies to determine whether any other properties under public ownership within, or within a reasonable distance of, the City might be available for such use.
- If feasible, the Council may want to pursue intergovernmental agreements or memoranda of understanding with the properties' controlling entities to cooperatively develop evacuation shelters, or to ensure that any development on such properties would include shelter capacity.
- Review sheltering evacuees safely in a local area to reduce traffic and congestion
- The City will continue to work with the SWFRPC on evacuation issues. Once the Hurricane Evacuation Study is completed the City will reevaluate shelter capacity and evacuation requirements of the existing community to better plan for and accommodate future growth.

Hazard Mitigation

The City has recognized the importance of hazard mitigation to preserve the undeveloped quality of the eastern side of its waterfront area. Toward this end, the City has purchased two (2) acres of undeveloped land on the waterfront for preservation. Although the City lost significant portions of mangrove stands during Hurricane Charley, the mangroves that were lost shielded the developed inland areas from destruction. The City therefore sees the restoration of mangroves along the eastern side of its waterfront as a priority.

The City's entire waterfront area is flood prone. To mitigate this, the City is pursuing two strategies. First, pursuant to a FEMA hazard mitigation grant, the City is currently conducting a drainage study, which will result in a comprehensive program for stormwater management. Second, the City seeks to purchase lands in the highest risk velocity zone areas as designated by FEMA to preserve those lands from development. Toward this second goal, the City has recently purchased two acres of the undeveloped east side of the waterfront area.

Coastal areas are extremely vulnerable to hurricanes and other storm events. The City recognizes the need exists to reduce damage to future development by minimizing vulnerability to these hazards. In an ideal world, no future development would be allowed within the CHHA. However, with the City's current development, redevelopment projects infrastructure investment and citizen's plans, the City will continue to grow and develop. Therefore, hazard mitigation should not be used to limit development within the City, But should be to control the location and structural integrity of the development ensuring the development is built to withstand hurricanes and other storm events. Toward this end, the City has utilized growth management strategies to aid in the preservation of the natural resources.

Growth Management Strategies in the Coastal High Hazard Area

This section reviews the tools that are available for implementation by local governments for development and redevelopment in the coastal high hazard areas. These tools are being discussed so as to assist local governments in protecting and managing its coastal resources for environmental protection, recreation, tourism, commerce and economic development. In addition, land use decisions must also include protected private property rights and the need for redevelopment to ensure the long term viability of the coastal community. It will include those practices employed by the City. The growth management strategies used by the City include:

Building Codes

Building codes protect the health, safety, and general welfare of the public as it relates to the construction and occupancy of buildings and structures. The codes govern the design and construction practices of residential and other development. An adequate building code which is properly administered and enforced can help mitigate potential hurricane damage. Building codes are required by the State Legislature. All local governments in Southwest Florida have adopted the Standard Building Code (formerly the Southern Standard Building Code) developed by the Southern Standard Building Code Conference. Many building codes contain hurricane-proofing provisions.

Subdivision Regulations

Subdivision regulation is a very commonly used development control device. These regulations guide the division of large parcels of land into smaller lots for sale or development. Subdivision regulations can be an effective means for local governments to supplement hurricane hazard protection by incorporating specific measures into these regulations.

In general, subdivision regulations can reduce hurricane hazard losses by the following methods:

- Prohibiting the subdivision of lands subject to hurricane hazards unless hazards are overcome;
- Requiring the designation of hurricane hazard areas on subdivision plats and the insertion of restrictions in purchase deeds to control land unsuitable for residential or other uses;
- Prohibiting encroachment in hurricane hazard areas by fill or structures;
- Requiring that a portion of each lot be filled or otherwise protected to provide a safe building site with adequate areas for sewage disposal (i.e., septic tank drainfield), if on-site facilities are used, at an elevation above flood heights, and,
- Requiring the installation of streets, sewers, water and other facilities which are hazard-proofed, elevated or otherwise protected against the hazards of a hurricane.

All local governments in the coastal areas of Southwest Florida have adopted subdivision regulations.

Conventional Zoning and Land Use Planning

A functioning community needs to provide the capability for virtually all types of development. The manner in which this development may locate is commonly accomplished through the zoning-land use planning process.

Zoning is a commonly employed development control device. It is used to regulate the use of buildings and land, the area of a lot which may be developed, the density of development, and the height and bulk of buildings or other structures. Zoning is one of the most effective means of protecting residents and their property from hurricane or flood damage. Zoning regulates the height of structures, the use of structures and land, and the size of lots and density of use. One important aspect of zoning is the ability to specifically regulate flood hazard area land uses.

Comprehensive plans are also an effective means of protecting persons and property from potential hurricane impacts by designing general land uses in specific areas. The allocation of land uses to areas that can accommodate those uses can mitigate potential hurricane damage.

If communities incorporate disaster preparedness considerations into their overall planning and zoning process, then the threat to a great deal of future development may be avoided. The uses to be directed away from hazardous areas include moderate to high density residential development, population-related intense commercial development, most forms of industrial development, and population-related institutional uses (schools) and utility development. The uses which would be permitted or encouraged in hazard areas are the water dependent

commercial and industrial development (marinas, canneries, ports), water oriented tourist development, recreation, agriculture, and estate housing.

Zoning ordinances are used by the Region's local governments, and comprehensive land use plans have been adopted for all counties and municipalities in Southwest Florida.

Fiscal Policies

The use of fiscal policy in hazard areas is somewhat related to the provision of public improvement but has one major difference, which is to make it more expensive to develop hazard areas. The rationale for the imposition of additional costs is that the cost of services for hazard areas, regardless of the cost of normal services, is greater than normal due to several factors, including the need for shelters and for adequate traffic flow on evacuation routes. Fiscal policy may take several forms, such as exactions, fees, and special taxes. Each type of policy may apply during different times in the life of a development. Fiscal policies do not necessarily inhibit the development of hazard areas. The development that does occur, however, is more costly, and some users will be crowded out by economic market conditions.

Public Improvements

Growth is influenced by the location of specific public facilities and services. The location of infrastructure will have an impact on a community's development patterns. One benefit is that it can be used to direct growth away from areas prone to adverse hurricane impacts. Public improvements include both the location of facilities to influence growth (such as roads, sewer, water and other essential support facilities), and access to existing facilities (such as the permit to tap into a sewer or water line, etc.).

The uses of lands which are most endangered by hurricane flooding are urban uses. These uses are dependent upon services and facilities normally provided by public agencies. Both the location of facilities and access to these facilities can be used to limit development in hazard areas by not providing services or expanding services in such areas. Most local governments and state government in Florida do not directly prohibit private agencies from providing services in such areas. Consequently, the approach of public improvement limitations is not of great value by itself. When used in coordination with other approaches, however, public improvement limitations have greater utility.

The provision of public improvements is the core of the City's Growth Management Strategy. Realizing that development tends to follow roads and water lines and to a lesser extent sewer lines, the Growth Management Strategy seeks to control the location and timing of such improvements, thereby controlling the location and timing of growth.

Development Rights Transfer of Density Units

One method of reducing/removing density and the associated impacts from other areas less appropriate for development to more suitable areas development in the flood zone is the Transfer of Density Unit (TDU) Development Rights (TDR) process. In this process, which is described in Chapter 8 of the City's Code of Ordinances, residential development rights, normally contained in the zoning ordinance, are severed from one parcel of land and transferred to another.

The intent of the Transfer of Density Units ordinance is to protect ecologically valuable, historic and archeological resources, direct growth to areas better suited for development, promote creative and compact development, and reduce substandard lots.

The TDU ordinance enacted land use controls on properties within the most vulnerable areas which are designated as the Coastal High Hazard Area (CHHA), encompasses all the areas which would be evacuated in the event of a landfalling Category I Hurricane. In these areas, the City has limited the density of new plats to no more than 3.5 units per acre; however this restriction does not apply to multifamily development. In addition, density can be moved within the CHHA. Since its adoption the use of the ordinance within the City has not been utilized by any development. The City will be reviewing the effectiveness of this ordinance over the next planning period.

Environmental Controls

These controls have emerged to protect natural processes such as flooding, stormwater runoff, groundwater recharge, or to prevent development in sensitive resource areas such as flood plains, stream valleys, wetlands, and shorelands, where problems could occur with development. Much of the area subject to a high degree of hurricane hazard also has recognized environmental values. Examples of such areas are beaches, dunes and salt and fresh water wetlands. Protection of these areas allows for endless possibilities for public access, educational parks etc.

Floodplains and Drainage Ways

There are other environmental areas which have less recognition and less regulatory protection. These are floodplains and drainage ways for stormwater runoff. Such areas, which may be expected to be flooded by hurricanes, contain only moderate developmental controls, which are identified primarily by performance standards. Typical examples of such performance standards include the requirement of minimum building elevations in flood zones and storage capacities in drainage ways. Consequently, many environmental controls that have been enacted have limited utility in preventing hurricane flood zone development.

Land Development Regulations

The City has adopted a number of land development regulations, including a Stormwater Ordinance and a number of others which, while intended to address

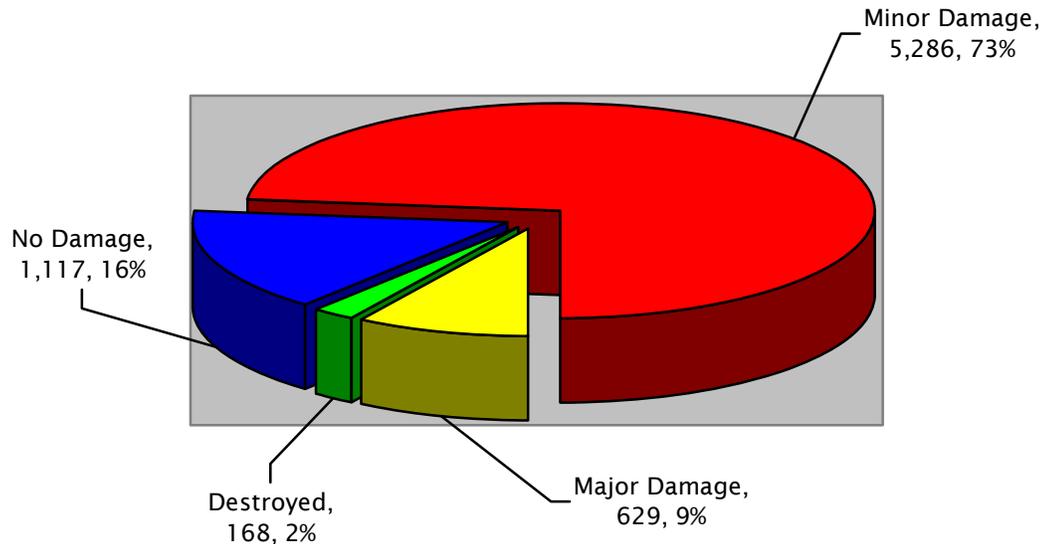
specific environmental concerns, have an overall affect of limiting development in certain areas, and in particular on small parcels. By establishing minimum lot sizes, setback requirements, and building height restrictions, the Zoning Regulations have a similar influence on development, as well.

Land Acquisition

Land Acquisition is another tool used by the City as an environmental control. The City has embarked on a land acquisition program which emphasizes properties which benefit a number of City priorities (protection of environmentally sensitive areas, reduction of platted lots, recreational opportunities, etc.).

Redevelopment and Post Disaster Redevelopment in the Coastal High Hazard Area

Under 9J-5. F.A.C. redevelopment and post disaster redevelopment within the CHHA. According to the City of Punta Gorda's Demographic and Housing Characteristics 2006-2030, of the total 7,200 structures within the City's boundaries, one hundred and sixty-eight (168) buildings were destroyed. A closer look at the numbers is identified in Chart 2.3 below.

Chart 2.3 - City of Punta Gorda's Building Damage Assessment

Source: Summary Report on Building Performance, 2004 FEMA

Many of the existing structures within the CHHA were built prior to the City's participation in the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program. As such, many structures do not meet the current standards for ground floor elevations specifically formulated to protect against the loss of life and property from flooding. The *Housing Element* provides a detailed discussion of dwelling units by age for Punta Gorda through 2006.

The requirements of the FEMA regulations, which are incorporated into the City Code as Land Development Regulations, specify that substantial improvements of existing structures shall have the lowest habitable floor of such structure elevated to or above the applicable level of the one hundred year flood as shown on the Flood Insurance Rate Maps. "Substantial improvement" means any enlargement of a structure, the area of which equals or exceeds fifty percent of the existing enclosed area of the structure. This does not include projects for improvement of a structure to comply with existing state or local health, sanitary or safety codes, or alteration of a structure listed on the National Register or Historic Places or a State Inventory of Historic Places.

In August 2004, the City of Punta Gorda was hit with a Category IV Hurricane. The impacts from Hurricane Charley changed much of the downtown area. Many of the older units were damaged or destroyed not by flooding but by wind. A

discussion of these properties is found in the *Housing Element*.

The Coastal High Hazard Area incorporates the "V" (velocity) zones depicted on the FEMA's Flood Insurance Rate Maps (FIRM), which, according to the SWFRPC, would require evacuation in the event of a Category 1 Hurricane. Redevelopment of these areas, including assistance programs, strategies for directing higher density growth, and prioritizing of redevelopment concerns were discussed as early as 1987 by South Florida's RPC'S Hurricane Loss Study.

With regard to land use in "High hazard" areas, there is a basic perceived conflict between the duty of government to protect the health, safety and welfare of its citizens and the rights of property owners to the use and disposition of their property. One way, perhaps the best way, to resolve this issue is for government to acquire properties deemed as having high hazards with regard to hurricane flooding, in accord with Constitutional Law. The acquisition program is perceived to be particularly necessary when the protection role of government removes most commonly agreed upon reasonable uses from land which would normally be suitable for such use. The City acquires these properties as opportunities and monies are provided.

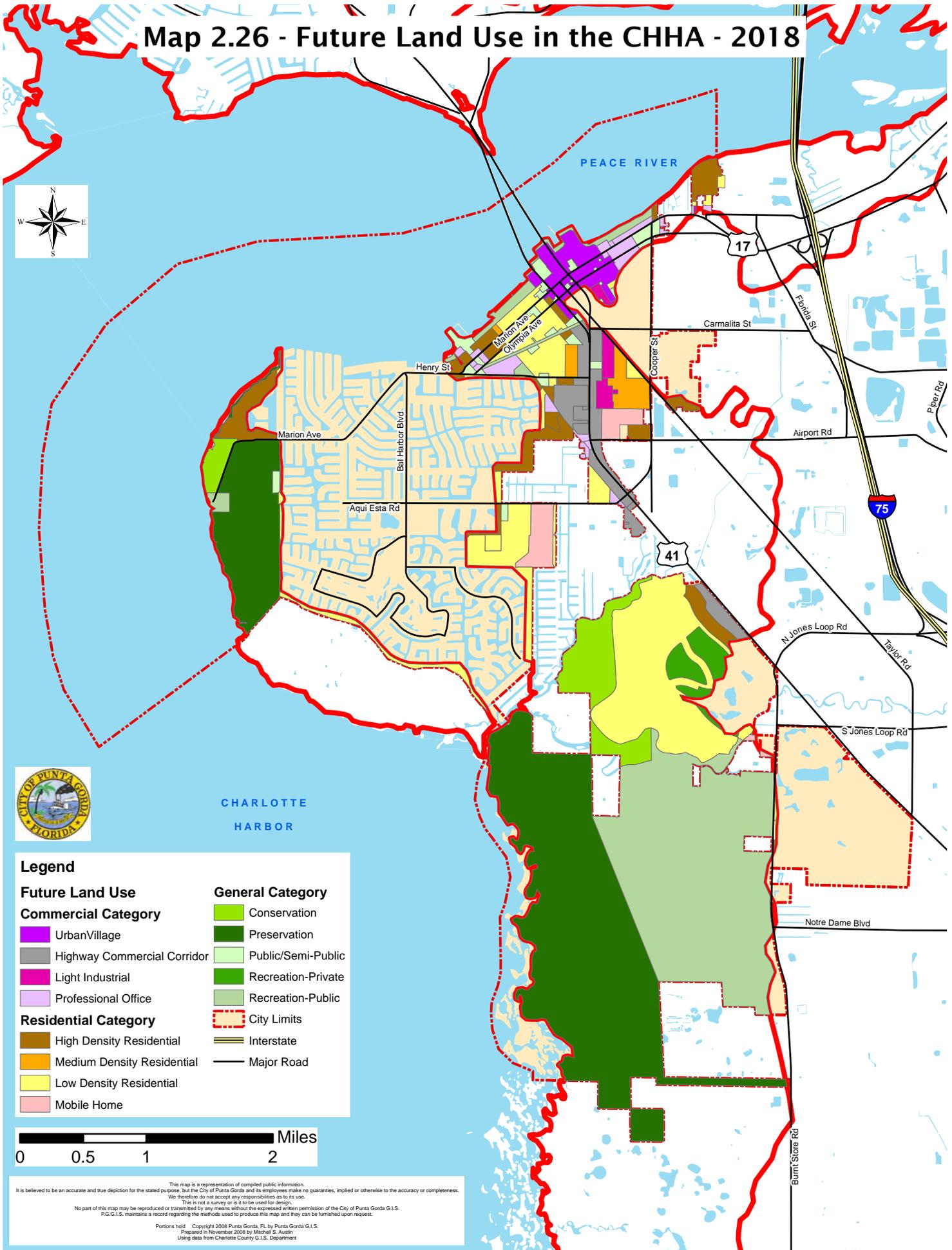
There is no doubt that redevelopment will continue to occur in the CHHA following any natural disaster. The question facing the City and other cities and counties with coastal high hazard areas, is what will be the nature of the redevelopment? It is a generally accepted theory of land use and zoning law that, if a property is lawfully developed in accordance with all existing regulations in force and effect at the time of development, and then those regulations change, the development which took place prior to the change is considered a lawful non-conformity. In the City lawful non-conformities are typically allowed to remain in existence - including regular maintenance as long as they are not enlarged or expanded - provided they are not destroyed by more than 50% of their value, at which time they have to be brought into compliance with existing codes. It remains to be seen whether this would be applied in such a way as to preclude re-development of a previously existing structure following a natural disaster due to density restrictions. In such instances, the City would have to give careful consideration to any vested rights which may apply to the property and circumstances. According to the data, nearly all of the City's dwelling units would be affected by a Category 2 or less storm. Discouraging density, while trying to promote compact and contiguous growth, may be considered an oxymoron. It is critical for Cities such as Punta Gorda to have some flexibility in future planning. The Department of Community Planning recognized this need for flexibility and has provided statutory regulation which allows for an increase in density provided there is no increase in evacuation times and adequate shelter capacity exists as cited in Chapter 163.31789(a) or (b)

The uncertainty surrounding what vested rights may exist for post-disaster redevelopment is complicated by the 1997 Comprehensive Plan which does not

provide specific policies to reduce densities in the wake of a disaster, but instead focuses on ameliorating the scale of future potential disasters. It does this by limiting the density of future plats within the CHHA to 3.5 units per acre, and by seeking to direct future growth away from the most vulnerable areas through the land acquisition and transfer of development rights programs. Because this policy guidance is limited to future platting but is silent in regard to construction not requiring platting, an applicant would be able to rebuild in accordance with the property's underlying zoning and future land use designations. Again, whether this would restrict the redevelopment of previously existing structures (where such would mean exceeding the density allowed under the FLUM) has not yet been tested and would require a careful examination of vested rights issues.

Map 2.26 identifies the City's Future Land Use Map the CHHA. The City continues to review, develop and redevelop those areas damaged or destroyed by Hurricane Charley in 2004.

Map 2.26 - Future Land Use in the CHHA - 2018



Legend

Future Land Use		General Category	
Urban Village	Conservation	Preservation	Public/Semi-Public
Highway Commercial Corridor	Recreation-Private	Recreation-Public	City Limits
Light Industrial	Recreation-Public	Interstate	Major Road
Professional Office			
Residential Category			
High Density Residential			
Medium Density Residential			
Low Density Residential			
Mobile Home			



This map is a representation of compiled public information. It is believed to be an accurate and true depiction for the stated purpose, but the City of Punta Gorda and its employees make no guarantees, implied or otherwise to the accuracy or completeness. We therefore do not accept any responsibilities as to its use. This is not a survey or as it to be used for design. No part of this map may be reproduced or transmitted in any form or by any means without the expressed written permission of the City of Punta Gorda G.I.S. P.G. G.I.S. maintains a record regarding the methods used to produce this map and they can be furnished upon request.

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Disaster Assistance Programs

There are numerous disaster-related programs administered by various agencies which provide assistance in the form of either grants or loans. The greatest single source of federal disaster assistance is provided under the authority of the Disaster Relief Act of 1974 (P.L. 93-288), implemented by the FEMA. Federal resources are made directly available to disaster stricken areas through provision of services, supplies, equipment, manpower, and by the expenditure of congressionally authorized funds for relief, rehabilitation and construction purposes.

Four classifications of disaster exist, indicating the extent of federal involvement. These include:

- Major disasters declared by the President of the United States
- Disasters declared by the Small Business Association (SBA)
- Disasters declared by The Federal Emergency Management Agency (FEMA)
- Disasters in which no formal declaration is made.

The types and amounts of aid vary according to the above disaster classifications. Disaster aid comes in a variety of ways. The can come in the form of grants that do not have to be paid back, while others may come in the form of low interest loans from the Small Business Association (SBA). The Federal Emergency Management Agency (FEMA) provides initial grants which cover basic housing needs. These types of grants only cover a percentage of the total loss. The SBA loans can provide the funding for more complete recovery. Grants from the Individual and Family Grant Program (IFG) are administered by the State. These grants may address the unmet needs not covered by other programs.

Other programs include Food Stamp Program Emergency issue, Food Distribution Program Emergency Assistance and legal services (specifically low income persons).

VIII. CONCLUSION

The City will continue to plan, promote and manage the conservation and protection of the City's natural resources through the implementation of the strategies detailed throughout the document. The goals, objectives, and policies of the *Conservation and Coastal Management Element* will direction necessary to address urban developments occurring within the coastal area. As the City has adequate lands placed in Preservation and Conservation, the City will address development and redevelopment by continuing to:

- Limit the platting of new residential subdivisions to a maximum of 3.5 units per acre in the Tropical Storm and Category 1 Vulnerability Zones unless such subdivisions provide reasonable provisions for mitigating hurricane risks including but not limited to maintaining evacuation times and increasing shelter capacity under the provisions of the State Statutes.
- Implement the 50 % Rule.
- Utilize the Flood Insurance Rate Maps (FIRM) from the Federal Emergency Management Agency (FEMA) and Floodplain Management of DCA. (In addition to the FIRM maps identifying those areas susceptible to flooding because it lies within the 100 - year and 500 - year floodplains, the maps also designate areas which are located within coastal floodplains with velocity.)
- Ensure through the development review process, that new structures meet the minimum floor elevation standards established by FEMA and that special construction procedures are followed within velocity zones such as elevation with pilings or columns, breakaway walls, and other techniques.
- Coordinate with the County in developing a post-disaster redevelopment plan in cooperation with the SWFRPC.
- Acquire undeveloped land on the waterfront for preservation.

The City will coordinate and communicate with the City's stakeholders as the plans for future developments continue. Organizational and technical assistance in consensus building among the competing interests of waterfront users, including the city, investors, business owners, residents, and visitors for the development of the waterfront area, and preservation of public access, will be provided by staff through citizen participation sessions. The City is committed to implementing strategies that will balance growth, including residential and commercial development and the associated infrastructure, through innovative and creative approaches that will least impact the natural systems.

IX Goals, Objectives and Policies

Goal 2.1: The City's coastal and conservation programs are directed toward the long-term conservation and protection of its natural resources, the protection of human life from natural disasters, and the elimination of unnecessary public expenditure of funds for improvements outside the Downtown Redevelopment Area which are subject to destruction by natural disasters.

Objective 2.1.1: Punta Gorda will protect the quality of its air by promoting a compact development pattern which limits the need for automobile trips and their related emissions, and by adopting standards for industrial development.

Policy 2.1.1.1: Punta Gorda will enable the reduction of automobile vehicle miles traveled by controlling the pattern of land uses and maintaining a compact urban form (through the FLUM and utility extension policies) to potentially shorten and consolidate trips, and by construction of sidewalks and bikepaths to facilitate alternative non-polluting modes.

Measurement: Building permits issued for existing platted lots served by water and sewer as of July 1, 1997 and number of miles of sidewalk and bikepath constructed.

Policy 2.1.1.2: Punta Gorda will adopt and maintain Land Development Regulations in accordance with the Future Land Use Element which will enable mixed use development, including residential uses.

Measurement: Review and revision of LDR's and permits issued for mixed use development pursuant thereto.

Policy 2.1.1.3: By concentrating major trip attractors (e.g., shopping, government services, health care) in distinct nodes, Punta Gorda will facilitate the feasibility of alternative modes of transportation which may reduce pollutants.

Measurement: Proportion of permits for new non-residential development located adjacent to existing development of a like land use classification and proportion of development permits requiring a FLUM amendment.

Policy 2.1.1.4: Punta Gorda will continue to evaluate and revise its standards for industrial development affecting air quality through emissions from industrial processes and related activities (e.g., warehousing, transportation). Such standards will seek to mitigate smoke, dust, gases, particulate matter, vapors, fumes, etc.

Measurement: Review and modification of Land Development Standards for air emissions.

Policy 2.1.1.5: Punta Gorda will require landscaping of parking lots and heavily traveled roadways, in order to reduce airborne pollutants.

Measurement: Number of DRC approvals for parking lot and roadway landscaping.

Objective 2.1.2: Punta Gorda will cooperate in the strategic protection of natural resources in and around the City, including coastal and estuarine resources, with such protection strategy including the relationships of resources to larger environmental systems including fisheries, wildlife habitat, native vegetative communities and soils; and including environmentally sensitive land use and development practices.

Policy 2.1.2.1: Punta Gorda will protect existing publicly owned environmentally sensitive land in the City through the “Preservation” FLUM classification described in Policy 1.14.8 in the Future Land Use Element.

Measurement:

Policy 2.1.2.2: Punta Gorda will pursue the acquisition of coastal wetlands and/or other environmentally sensitive lands within its jurisdiction through federal, state, local and non profit environmental land acquisition and other appropriate funding sources.

Measurement: Acreage of environmentally sensitive lands acquired.

Policy 2.1.2.3: Punta Gorda will protect privately owned environmentally sensitive areas through the “Conservation” FLUM classification described in Policy 1.1.14.9 in the Future Land Use Element (includes one unit per ten acres density limit).

Policy 2.1.2.4: Punta Gorda will enact regulations that guide development in conservation areas that mitigate impacts of environmentally sensitive lands.

Measurement: Existence of “Conservation” areas on the FLUM. Existence of restrictive land development regulations. Number of development permits issued with environmental protections accomplished through Transfer of Density Rights (TDR’s), Planned Development’s (PD’s), or other techniques.

Policy 2.1.2.5: Punta Gorda will undertake public education activities involving a variety of environmental issues where alteration of public behavior can have important environmental benefits (e.g., judicious use of fertilizers, operation of boats in appropriate channels at appropriate speeds, use of native plants and other water conservation measures, etc.).

Measurement: Number of environmental education activities completed annually.

Policy 2.1.2.6: Punta Gorda will support the implementation of the 1993 *Charlotte Harbor Surface Water Improvement and Management (SWIM) Plan* by assisting in the collection of environmental data concerning Charlotte Harbor and its environs in Punta Gorda, by undertaking activities to maintain or improve the quality of stormwater runoff, and by adopting and maintaining Land Development Regulations (LDR’s) which protect environmentally sensitive lands.

Measurement: Record of activities implemented.

Policy 2.1.2.7: Punta Gorda will support the recommendations of the Charlotte Harbor National Estuary Program’s Comprehensive Conservation and Management Plan (CCMP)

Measurement: Report evaluating CCMP and making recommendations for City implementation.

Policy 2.1.2.8: Punta Gorda will protect wetlands and their natural functions by educating citizens concerning stormwater quality, and by carrying out stormwater quality actions described in Policies 3.7.1.1 through 3.7.3.3.

Measurement: Public education activities concerning stormwater quality (presentations given, messages or brochures distributed), and measures for other policies specifically cited.

Policy 2.1.2.9: Punta Gorda will protect the natural functions of creeks, rivers, and estuaries in its jurisdiction through the protections referenced in Policies 2.1.2.8 and 2.1.3.4 in the *Conservation and Coastal Management Element*.

Measurement: Measurements for policies specifically cited.

Policy 2.1.2.10: Punta Gorda will protect endangered and threatened species by:

- a. Requiring developers of projects proposed for undisturbed lands to provide an environmental survey, including identification of any endangered or threatened species present.
- b. Requiring developers of projects proposed for undisturbed lands to obtain permits through FDEP's Environmental Resource Permit process, which may include conditions related to endangered or threatened species.
- c. Maintaining a public contact point (Growth Management) for the public who have questions about endangered or threatened species, or who may observe an imminent threat to a member of such species. In the latter case, the Growth Management Department will investigate and/or contact officials of the responsible agency (e.g., the Florida Game and Freshwater Fish Commission).

Measurement: Environmental surveys done, Environmental Resource Permits, and other contacts by Environmental Manager concerning threatened or endangered species.

Policy 2.1.2.11: Punta Gorda will protect wetlands, habitat, native vegetative communities, and endangered and threatened species by maintaining or increasing the acreage in its "Conservation" or "Preservation" FLUM categories as described in Policies 1.1.14.8 and 1.1.14.9 7 of the Future Land Use Element.

Measurement: Acreage maintained or increased in "Conservation" or "Preservation."

Policy 2.1.2.12: Punta Gorda will protect native vegetative communities by engaging in the removal of invasive exotic vegetation (e.g., Brazilian pepper), by including native species in the plants allowed under the landscaping ordinance, and by including native plants in public planting areas.

Measurement: Invasive exotic removal activities, landscape plant list, plantings of native plants in public areas.

Objective 2.1.3: Punta Gorda will protect and conserve its potable water source by protecting the Shell and Prairie Creek watershed, by limiting the level of water withdrawals, and by allocating water supply in ways that sustain quality of life and environmental quality.

Policy 2.1.3.1: Punta Gorda will actively participate with Charlotte County and DeSoto County to encourage their adoption and in the enforcement of an appropriate Special Surface Water Protection Overlay District which controls land use and development practices within the Shell Creek and Prairie Creek watershed.

Measurement: Adoption of legislation protecting Shell and Prairie Creeks and number of development authorizations reviewed by City staff.

Policy 2.1.3.2: Punta Gorda will actively enforce the provisions of Laws of Florida as they relate to the protection of the Shell Creek and Prairie Creek watershed.

Measurement: Number of development proposals reviewed by City staff.

Policy 2.1.3.3: Punta Gorda will maintain surface water withdrawal within the parameters of its Water Use Permit conditions for Shell Creek as agreed upon by the City of Punta Gorda and the Southwest Florida Water Management District.

Measurement: Compliance reporting documents.

Policy 2.1.3.4: Punta Gorda will manage water use and wastewater treatment as an integrated system; using appropriate technology and best management practices to achieve optimal feasible efficiencies in the use of potable water

Measurement: Water and wastewater operation monitoring documents.

Policy 2.1.3.5: The City will continue to utilize Shell Creek as a water source and construct an off-line reservoir to incorporate elements to be considered an alternative water supply project.

Measurement: Construction of the off-line reservoir and implementation of the current SWFWMD Regional Water Supply Plan alternative water supply projects.

Policy 2.1.3.6: The City will continue to promote conservation of individual potable water consumption through implementation of education and outreach programs encouraging water conservation and Florida friendly landscaping.

Measurement: The inclusion of the water conservation provisions and Florida friendly landscaping requirements into the Land Development Regulations.

Objective 2.1.4: Punta Gorda will continue a development pattern which is characterized by the location of water dependent and water related uses in its waterfront areas.

Policy 2.1.4.1: Structures and uses in waterways, waterward of the mean high water line or bulkhead line, will be limited to water-oriented uses and structures which support water-oriented uses, and such uses and structures may be further regulated or restricted depending upon adjacent upland land uses, consistent with the Comprehensive Plan and zoning.

Measurement: Review and revision of the Land Development Regulations.

Policy 2.1.4.2: Punta Gorda's waterfront will be characterized by water-dependent uses (e.g., boat ramps, marinas, dock facilities, fishing piers, etc.) and by other water-related uses such as waterfront parks, boardwalks, hotels, shopping and restaurant uses, waterfront residential uses, etc.

Measurement: New waterfront development permit applications reviewed.

Policy 2.1.4.3: The siting of boating related facilities in Punta Gorda will be consistent with the Comprehensive Plan and Land Development Regulations and will incorporate developmental and environmental criteria: vacant adjoining parcels, acreage, land use, landside infrastructure (water, sewer, road), aquatic preserve, wetland, seagrass, water depth adjacent to parcel, and boat access.

Measurement: New boating-related development permit applications reviewed.

Objective 2.1.5: Punta Gorda will protect existing and potential populations in coastal high hazard areas by establishing constraints on public infrastructure, by implementing restraints on population growth in such areas; and by implementing protective controls on development in such areas.

Policy 2.1.5.1: The City will implement this objective through the implementation of Policies 1.1.1.1; 1.1.4.1; 1.1.7.1- 1.1.7.5; 1.1.8.1; 1.1.9.2; 1.1.9.4; 1.1.14.1-1.1.14.3 as contained in the Future Land Use Element.

Measurement: Implementation of stated policies.

Objective 2.1.6: Punta Gorda will maintain or reduce hurricane evacuation times by implementing appropriate transportation improvements to hurricane evacuation routes identified in the transportation element.

Policy 2.1.6.1: Punta Gorda will support, as a top priority, the timely completion of hurricane evacuation route improvements proposed in the Transportation Element of this plan through its participation in the MPO and the City's Capital Improvements Element and Capital Improvements Program.

Measurement: Inclusion of these projects in the Capital Improvements Element and Capital Improvements Program.

Policy 2.1.6.2: : The City shall promote joint ventures, development or redevelopment of projects which support design standards that promote or improve sheltering evacuees safely in a local area which would reduce traffic and congestion and therefore reduce the demands on road networks in an evacuation scenario.

Measurement: Number of development or redevelopment permit applications reviewed.

Objective 2.1.7: Punta Gorda will participate in the preparation of post-disaster redevelopment plans to reduce or eliminate exposure of human life and property to natural hazards.

Policy 2.1.7.1: Punta Gorda will take steps to fulfill support roles to be identified in the Charlotte County Comprehensive Emergency Management Plan when that plan is completed.

Measurement: Number of completed support role steps.

Policy 2.1.7.2: Punta Gorda will participate in the production and implementation of Interagency Hazard Mitigation Reports issued pursuant to any future Presidential Disaster Declaration affecting Punta Gorda.

Measurement: Number of Hazard Mitigation Reports prepared affecting Punta Gorda.

Policy 2.1.7.3: Punta Gorda's post-disaster redevelopment policy is to seek the repair and replacement of utilities, roads, bridges, and other facilities and infrastructure in the same general locations in which they existed at the time of the disaster event, with consideration given to issues such as the possibility of introducing functional improvements, preservation of economic base and other community resources, accommodations in land use necessitated by disaster related changes in such things as sedimentation or drainage, etc.

Measurement: Implementation of a post-disaster redevelopment program reflecting the priorities of Policy 3.1.7.3 should such a program be necessitated by a disaster.

Goal 2.2: Public Access: To promote the City of Punta Gorda as a "Boaters' Destination" by enhancing public access between the land and the waters of the State of Florida for all residents and visitors of the City of Punta Gorda based upon current and projected demand.

Objective 2.2.1: Improve access from the waters of the Peace River and the Charlotte Harbor to the City of Punta Gorda by improving the number and quality of boat slips, moorings and shore side support facilities for cruising boaters.

Policy 2.2.1.1: The City shall promote joint ventures, development or redevelopment of projects which support design standards that promote or improve public access from the Peace River to the City.

Measurement: Number of development or redevelopment permit applications reviewed.

Policy 2.2.1.2: The City shall identify areas in the City that are appropriate for the construction of boat ramps, through the Parks Master Plan, to provide increased public boat access within the City of Punta Gorda.

Measurement: The completion of the City's Park Master Plan.

Policy 2.2.1.3: The City shall continue to work with appropriate agencies to develop a feasible mooring field program.

Measurement: The development of a feasible mooring field.

Policy 2.2.1.4: As part of their long-term plans the City shall continue to acquire and protect lands which are adjacent to public waterways to provide adequate public access to coastal resources.

Measurement: Numbers of acres acquired annually.

Objective 2.2.2: Develop strategies to improve the marketability and visibility of Punta Gorda to cruising boaters on Florida's Intracoastal Waterway.

Policy 2.2.2.1: Work with the Economic Tourism Director and other groups to produce publications, technical assistance and special extension programming activities that will inform and educate the local citizenry and visitors of nature-based tourism activities available in the area.

Measurement: Completion and distribution of publications.

Policy 2.2.2.2: The City will work with Economic Tourism Director to develop a boating and anchoring guide to (1) enhance the experiences of local and transient boaters, (2) promote safe navigation and responsible boating and anchoring behaviors of the Charlotte Harbor, and (3) provide boaters with information on area resources and amenities.

Measurement: Completion and distribution of the guide.

Objective 2.2.3: Complete construction of the linear walkway along the entire waterfront area.

Policy 2.2.3.1: Where public access is hindered, the City shall seek to acquire in fee or in interest private easements to improve public access along the waterfront area when development or redevelopment activities are proposed.

Measurement: Number of linear feet.

Objective 2.2.4: Improve the connectivity of the downtown area to the waterfront.

Policy 2.2.4.1: Improve existing signs to facilitate access from the waterfront to downtown, and ensure that walkways provide convenient paths between downtown and the waterfront through the implementation of such programs as the Wayfinding System.

Measurement: Implementation of the Wayfinding System and other programs.

Policy 2.2.4.2: The City shall continue to develop opportunities and implement improvements of pedestrian and bicycle connections from downtown to the waterfront.

Measurement: Number of developed pedestrian and bikepath connections.

Objective 2.2.5: Maintain visual access along the waterfront through use of design guidelines.

Policy 2.2.5.1: The City will implement design standards which contain site planning, landscaping and architectural standards to reinforce, frame, and define water views.

Measurement: Number of building permits completed along the waterfront.

Goal 2.3: Environmental and Cultural Resource Protection: To ensure the protection of the City of Punta Gorda's environmental and cultural resources in accordance with federal and state law, and to enhance the cultural heritage and physical character of the City by directing development in a manner that maintains the working waterfront identity of the City.

Objective 2.3.1: Provide for a sustainable development and redevelopment pattern throughout the City of Punta Gorda.

Policy 2.3.1.1: The City of Punta Gorda shall recognize the natural division of Punta Gorda's waterfront area as 1) western side of the waterfront containing developed parcels, and including the sea-walled Gilchrist Park; and 2) the eastern side of the waterfront containing largely undeveloped parcels and including the City's ecological connection to the waterfront.

Measurement: Implementation of existing plans.

Policy 2.3.1.2: The City shall continue to pursue acquisition of undeveloped land along the eastern waterfront area for preservation.

Measurement: Number of acquisitions along the eastern waterfront area.

Policy 2.3.1.3 The City shall continue to review, and where necessary, modify local development regulations to ensure that development and redevelopment projects utilize best available management construction techniques for minimizing water quality impacts.

Measurement: Number of Development Review Committee applications reviewed per the Land Development Regulations.

Objective 2.3.2: Restore the landscaping of native species and removal of exotics.

Policy 2.3.2.1: Seek matching grant funding opportunities for exotic species removal and native species restoration stands citywide.

Measurement: Number of grants received.

Policy 2.3.2.2: Implementation and enforcement of land development regulations which require exotic species removal and require native species plantings in conjunction with development projects.

Measurement: Number of Land Development Regulations (LDR) and Code Enforcement Violations.

Objective 2.3.3: Ensure the protection of cultural and historical sites throughout the City.

Policy 2.3.3.1: The City shall encourage the restoration and creation of murals depicting historical events.

Measurement: Number of Murals completed.

Policy 2.3.3.2: The City shall maintain an updated list of historic properties within the downtown and waterfront areas.

Measurement: Updated list of historic properties.

Policy 2.3.3.3: The City shall through the permitting process ensure the architectural integrity of historic structures while respecting FEMA building standard and hazard mitigation strategies.

Measurement: Approved building permits that respect architectural character.

Goal 2.4: Hazard Mitigation: To ensure the implementation of strategies to preserve the City of Punta Gorda's infrastructure and resources, and to mitigate potential future hurricane damage to the City's coastal high hazard area.

Objective 2.4.1: Improve storm water management.

Policy 2.4.1.1: The City will continue to pursue grant funding opportunities to improve storm water management systems.

Measurement: Implementation of new systems.

Policy 2.4.1.2: The City will review and update stormwater management regulations to ensure best practices are utilized for all development and redevelopment activities.

Measurement: Periodic review of the Stormwater Management Regulations and implemented projects.

Objective 2.4.2: Address the impact of sea level rise, and seek strategies to combat its effects on the shoreline of the City.

Policy 2.4.2.1: The City will work with the Southwest Florida Regional Planning Council to determine the potential sea level rise impacts on the Coastal Planning Area.

Measurement: Completion and implementation of developed coastal studies or development of model scenarios.

Objective 2.4.3: Ensure protection and explore restoration opportunities of mangrove stands to enhance shoreline protection.

Policy 2.4.3.1: Strategically restore mangrove stands along waterfront properties that are at risk of adverse impacts from tidal activity.

Measurement: Monitoring of completed restoration projects.

Objective 2.4.4: Mitigate the risk of storm-related flooding in the City of Punta Gorda.

Policy 2.4.4.1: The City shall continue to pursue FEMA hazard mitigation and other grant opportunities.

Measurement: Number of FEMA hazard mitigation and other grant applications submitted.

Policy 2.4.4.2: The City shall continue to pursue acquisition of lands in the highest risk areas to mitigate hazard risks.

Measurement: Number of acreage acquired annually in the designated high risk areas.

Goal 2.5: Enhancement of the Viable Traditional Economy: To enhance economic development opportunities within the City of Punta Gorda that more fully connects the community to its waterfront.

Objective 2.5.1: The City shall maintain and enhance its traditional economy in the areas of boating, fishing and tourism.

Policy 2.5.1.1: The City shall promote sport fishing events and other similar activities.

Measurement: Number of sport fishing events and similar activities approved annually.

Policy 2.5.1.2: The City shall encourage the construction of an open air market at Park to facilitate the sales of locally produced goods which will benefit residents, local business', commercial fishermen and visitors.

Measurement: The completion of the open air market at Park and the sales of the vendors.

Policy 2.5.1.3: The City shall explore collaborative marketing strategies to encourage and facilitate the further development of waterfront dependent economic activities.

Measurement: Number of implemented strategies.

Policy 2.5.1.4 The City shall explore marketing strategies that would enhance its viability as a boater's destination.

Measurement: Number of boats visiting City Parks and open air market.