COMPREHENSIVE PLAN
EVALUATION AND APPRAISAL REPORT BASED AMENDMENTS

PART II SUPPORT DOCUMENTS

DATA & ANALYSIS OF FUTURE GROWTH AND COMMUNITY IMPROVEMENT

CITY OF MIRAMAR COMMISSION:

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BARBARA SHARIEF, VICE MAYOR

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ASSISTANT CITY MANAGERS

Wazir Ishmael, Ph.D, Development Services
Don Waldron, AICP, Administrative Services
Vernon Hargray, Operational Services

CITY ATTORNEY: WEISS SEROTA HELFMAN PASTORIZA COLE & BONISKE, P.L.

The City of Miramar Comprehensive Plan was prepared by

Community Development Department
Harold C. Zombek, AICP, Director
Lorri Hall, Senior Planner

Michael Alpert, AICP, Senior Planner
Tekisha Ivy Jordan, Planner
Neil Newton, AICP, Planner
Iliana Saraiva, GIS Analyst

With the assistance of
HBI Planning Services, Incorporated
Kimley-Horn and Associates, Incorporated
Pappas and Associates, Incorporated

The following departments also contributed to this document
Economic Development & Revitalization Department
Community Services Department
Finance Department
Fire Department
Police Department
Public Works Department
Utilities Department

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Contents

Contents (continued)

List of Figures

List of Tables

I. Future Land Use Element

Introduction

Authority for municipalities to do land use planning in Florida emanates from Chapter 163, Florida Statutes.

The Broward County Charter was adopted in 1974, creating the Broward County Planning Council. The Planning Council is the designated local planning agency charged with the responsibility of preparing and maintaining Broward County's land use plan. Municipalities of Broward County are required by the Charter to prepare local land use plans that are in "substantial conformity" with the County Land Use Plan developed by the Planning Council.

In 1985 the state legislature amended Chapter 163 in adopting the Local Government Comprehensive Planning and Land Development Regulation Act. Although Broward County already required local land use plans and mandated that local governments adopt land development regulations to implement the policies of the local land use plan, this act mandated these requirements for the entire State of Florida.

This critical element of the City's Comprehensive Plan will provide the data and analysis showing future land use conditions and opportunities. It will also form the basis for the development of goals, objectives and policies, contained in Part I of the Plan, to prudently and strategically guide the future growth of Miramar. The density, intensity and distribution of land uses on the adopted Future Land Use Map (FLUM) drives the quality-of-life and provision of services over the short- and long-term future of the City.

The City approached the millennium in "high gear" with respect to growth and development. Building permits issued from 1996-2005 were at all time highs. During the past 4 years the economy has halted growth and development across the nation. This factor makes the importance of this element even greater. The goal of the data and analysis provided here is to enable City leaders and residents to evaluate the development trends and be sure the future land use pattern adopted is the best possible configuration to optimize tax base growth, neighborhood integrity, efficient service provision and quality-of-life of the City that is "the Center of Everything" in southeast Florida.

A. Existing Conditions

Miramar is a linear city 14 miles in length from east to west and 1.5 to 2.5 miles in width, comprising approximately 31 square miles. The boundaries of the City are delineated by Pembroke Road to the north, U.S. 441 to the east, the Broward County line to the south, and they also extend 1/2 mile west of U.S. 27 into Everglades Water Conservation Area 3A. The City's development pattern has occurred from east to west with approximately one-third of the land area currently developed. The predominate land use is low density residential.

Population Growth

Table 1–1 shows the resident population growth of Miramar since 1980 with comparison to Broward County. The City has grown by 177% over the past 18 years and by 55% since 2000. Growth accelerated in Miramar in 1998 and maintained a high rate of growth through 2005. Between 2000 and 2005 the City's population grew by 49% or approximately 9.8% annually. This type of high, short-term growth puts a strain on local revenues and pressure on the City to keep up with public service and facility needs such as roads and potable water capacity.

The seasonal component of Miramar's population base is relatively small, estimated to be in the range of 350 persons. Thus, the total 2008 peak season population of the City was approximately 112,666 persons.

Table 1–1

Historical Population Growth
City Of Miramar Versus Broward County

Year	Broward County	Miramar	Miramar % of County
1980 *	1,018,257	32,318	3.22
1985 **	1,364,168	44,412	3.26
1990 *	1,255,531	40,663	3.24
2000 *	1,623,018	72,739	4.48
2001***	1,649,925	78,813	4.47
2002***	1,669,153	87,537	5.24
2003***	1,698,425	95,921	5.65
2004***	1,723,131	101,813	5.90
2005***	1,740,987	108,387	6.22
2006***	1,753,162	110,322	6.29
2007***	1,765,707	111,705	6.32
2008***	1,758,494	112,666	6.41

Footnotes: * – *U.S. Census*
** – *University of Florida, Bureau of Economic and Business Research (BEBR)*
*** *Broward County*

Existing Land Use Trends

Table 1–2 presents the current existing land use acreages for Miramar. Several important trends can be identified by the acreages. Most obvious is the fact that 7.0% of City lands are vacant, Based on the current vacant land inventory, the City is approaching build-out and will soon be focusing on redevelopment activity within the City. The City experienced an extreme growth spurt from 1998 to 2005. After 2005 the national economy contributed to a virtual halt in the population growth. In the past 4 years the city has experience virtually no increase in new development.

Figure 1–1 shows the distribution of existing uses in the City.

Adjacent Uses

The adjacent jurisdictions to Miramar are predominately comprised of land uses that are compatible or vacant. The location of adjacent land uses can be seen in Figure 1–1. Each jurisdiction is discussed in more detail below:

Pembroke Pines — Along Pembroke Road in 1990, the City of Pembroke Pines was mostly vacant. Since that time a substantial amount of development has occurred along Miramar's border with Pembroke Pines. Low density residential and low intensity commercial predominate. One development, Silver Lakes, which is built out, is located in both cities. Two golf courses are presently adjacent to Miramar in Pembroke Pines. The North Perry Airport is the only incompatible use along Pembroke Road. The existing uses in Miramar abutting the general aviation airport are primarily multi-family and single-family residential.
Hollywood — The City of Hollywood abuts Miramar to the northeast. Its low density residential and strip commercial uses are compatible with Miramar.

Unincorporated Broward County — Miramar's land along its western boundary with Everglades Water Conservation Area 3A is vacant.

Unincorporated Miami-Dade County — The northern portion of the County, adjacent to Miramar's southern boundary, has not experienced a substantial amount of development activity since 1989. A large Class III Landfill, highly-visible from the Homestead Extension of Florida's Turnpike, is operational between NW 47 Avenue (Palm Avenue) and NW 57 Avenue Red Road adjacent to Miramar. To the south is a mobile home park. Proceeding west, from NW 57 Avenue (Red Road), there is mainly single-family development extending to the Homestead Extension of the Florida Turnpike. Continuing west there are large tracts of vacant land or rockpits. Adjacent to U.S. Highway 27 is the Opa Locka West Airport.

West Park –A recent incorporated city which is adjacent to Miramar on the east side of U.S. 441. Its commercial strip development is compatible with similar development in Miramar along this corridor. To further redevelopment, West Park along with the City of Miramar have designated this corridor with a Transit Oriented Corridor Land Use designation.

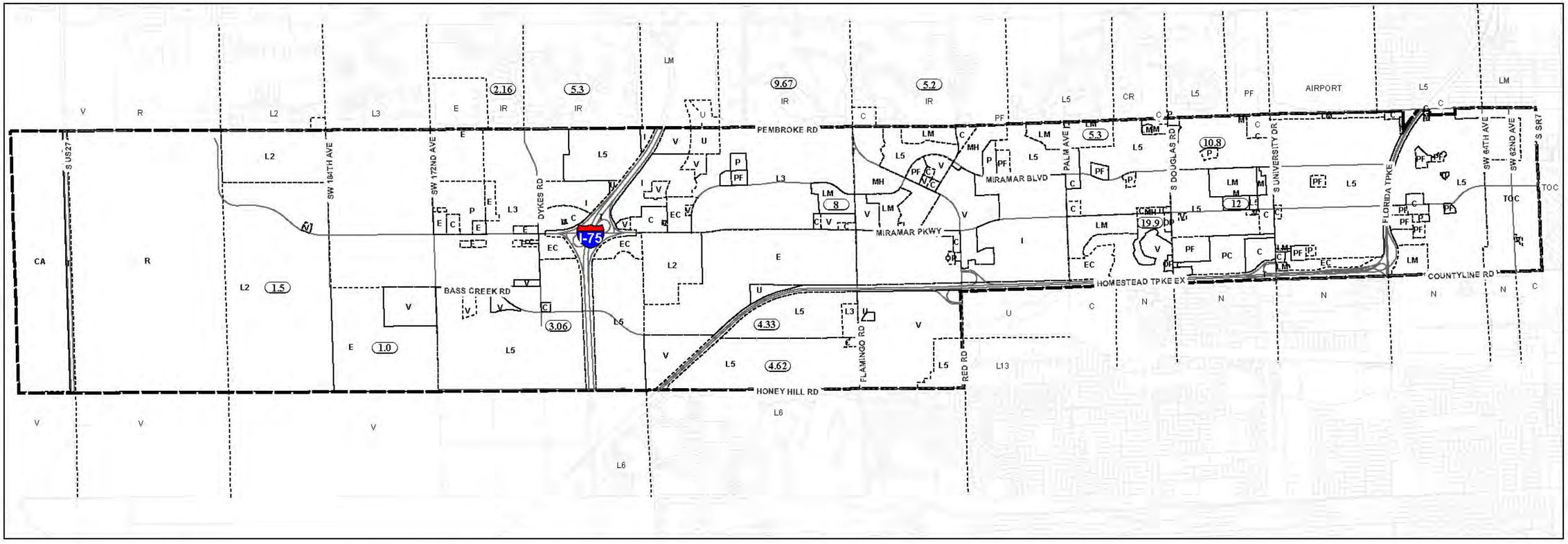
Miami Gardens – A recent incorporated City in Miami-Dade County, adjacent to Miramar on the south side. From U.S Highway 441 to the Florida Turnpike there is a mixture of commercial, multi-family and some vacant land. From the Florida Turnpike to NW 27 Avenue (University Drive) is the Calder Race Track property. From NW 27 Avenue (University Drive) to NW 47 Avenue (Palm Avenue) there is a mixture of single-family, multi-family and vacant land. The western City limits is at NW47 Avenue (Palm Avenue)

Table 1-2
City of Miramar
2009 Existing Land Uses

Land Use Category		Acreage	
Residential — Total		13,454.84	
Low Density	(0–5 DU/AC)	12,679.68	
Medium Density	(6–10 DU/AC)	415.04	
High Density	(11–25 DU/AC)	360.12	
Regional Activity Center — Total		1,619.94	
Residential		684.88	
Commercial		43.17	
Office		4.81	
Industrial		821.21	
Public Facilities		65.87	
Office Park		13.82	
Employment Center		255.28	
Commercial		399.11	
Industrial		290.28	
Commercial Recreational		0.00	
Parks		177.90	
Conservation		776.46	
Expressway		761.47	
City Areas of Particular Concern		104.57	
Institutional & Public Facilities		186.60	
Transit Oriented Corridor		443.05	
Utilities		81.97	
Vacant		1,402.01	
Total Existing Land Use		**19,967**	**acres**

Source: HBI Planning Services, Inc. and City staff, based on City zoning/building records, August 2009

Figure 1-1: Existing Land Use Map



LEGEND

R	RURAL RESIDENTIAL	C	COMMERCIAL	P	RECREATION & OPEN SPACE		CITY LIMITS
E	ESTATE RESIDENTIAL	CR	COMMERCIAL RECREATION	CA	CONSERVATION		LAND USE
L2	LOW 2 RESIDENTIAL	I	INDUSTRIAL	U	UTILITIES	5.3	MAXIMUM DENSITY
L3	LOW 3 RESIDENTIAL	EC	EMPLOYMENT CENTER	V	VACANT		
L5	LOW 5 RESIDENTIAL	OP	OFFICE PARK	N	NEIGHBORHOOD		
LM	LOW MEDIUM 10 RESIDENTIAL	RAC	REGIONAL ACTIVITY CENTER	L6	LOW 6 RESIDENTIAL		
MH	MEDIUM HIGH 25 RESIDENTIAL	PF	INSTITUTIONAL & PUBLIC FACILITY	LM13	LOW MEDIUM 13 RESIDENTIAL		
6	MAXIMUM DENSITY RESIDENTIAL	PC	CITY AREAS OF PARTICULAR CONCERN	IR	IRREGULAR RESIDENTIAL		

0 0.5 1 2 Miles

NOTE: EXISTING DEVELOPMENT AS OF 10-2009

Flexibility Units and Zones

The Broward County Land Use Plan utilizes a system of flexibility units and zones throughout the County to manage the amount and distribution of residential development throughout the County. "Flexibility units" means the difference between the number of dwelling units permitted within a flexibility zone by the Broward County Future Land Use Map (FLUM) and the number of dwelling units permitted within the same flexibility zone by Miramar's certified Future Land Use Map. The City has no flexibility units.

In addition, "reserve units" were created at adoption of Broward County's Land Use Plan in 1989 and are available for assignment by the City within flexibility zones. The "reserve units" for Miramar were set at 2% of the total number of dwelling units represented on the Broward County Land Use Plan map in each flexibility zone. The rearrangement of residential densities utilizing flexibility or reserve units is administered within flexibility zones which are shown in Figure 1-2 for Miramar. The maximum number of dwelling units within each zone cannot exceed the units permitted for that zone by the County FLUM.

Commercial flexibility acreage may also be utilized to allow up to 5% of the area designated for residential within a flexibility zone to be rezoned for neighborhood commercial or office use.

Vacant Land Analysis

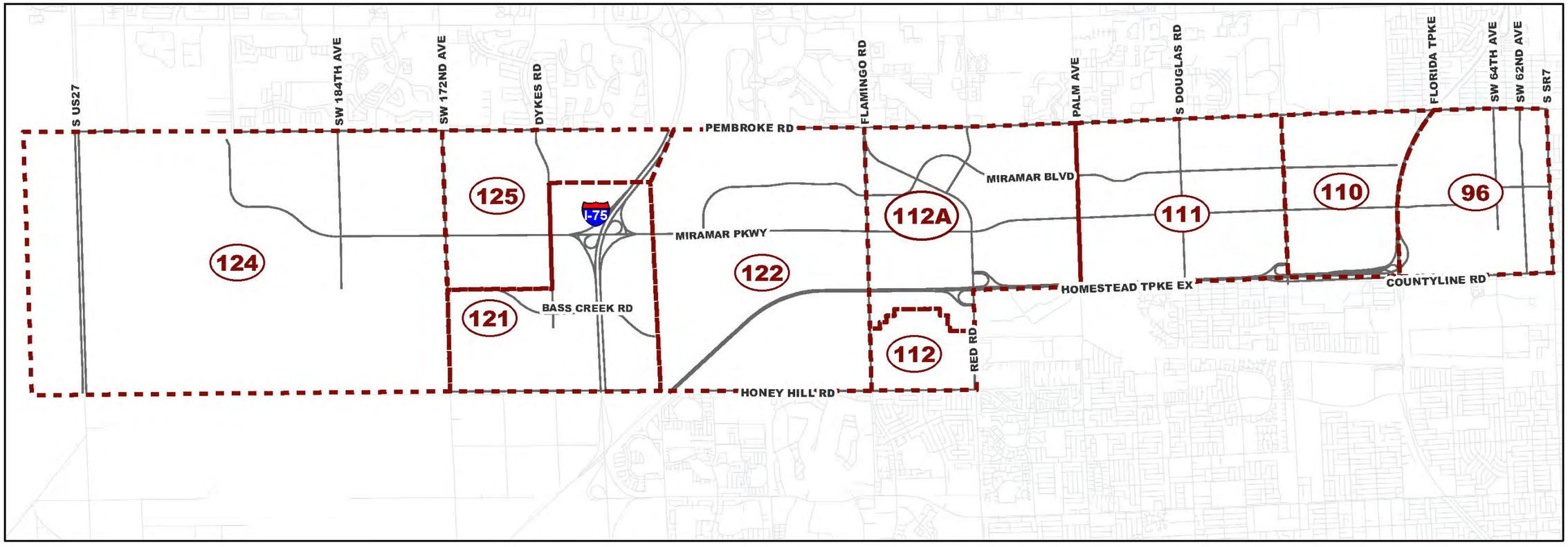
Table 1–3 provides the land use delineation of the vacant land in the City. Approximately 28% of the 1,402 acres of vacant land is designated for residential use. The largest category of vacant land is Regional Activity Center (RAC) with 485 acres or 35%.

Natural Resources

Water Bodies

Historically, Miramar was covered with shallow water during most of the year, although there were no natural lakes or rivers within Miramar. As a result of the regional canal system, urban development and quarrying activities, several manmade surface water bodies including canals and lakes now exist (refer to Figure 5–1 in Conservation Element).

Figure 1-2: Flex Zones Map



LEGEND

ZONE BOUNDARY

124 ZONE NUMBER

Miles
0 0.5 1 2

May 2010

Table 1–3

Source: HBI Planning Services, Inc. and City of Miramar

Table 1–3

Miramar Vacant Lands by Land Use Designation 2009 (in gross acres)

Residential		
Rural	118.84	
Estate 1	10.09	
Low 2	0	
Low 3	172.95	
Low 5	6.76	
Low Medium 10	80.79	
Medium 16	0	
Medium High 25	0	
Subtotal – Residential	389.43	
Commercial	34.35	
Commercial Recreation	36.41	
Transit Oriented Corridor (TOC)	8.47	
Industrial	96.54	
Employment Center	31.57	
Office Park	0	
Regional Activity Center (RAC)	484.69	
Institutional & Public Facilities	278.35	
City Areas of Particular Concern	0	
Recreational & Open Space	42.20	
Conservation	0	
Utilities	389.43	
City-Wide Total	**1,402.01**	**acres**

Flood Prone Areas

Most of the City, including all undeveloped land, is within the hundred year floodplain. Figure 4–4 (see Stormwater Management Sub-Element) displays the hundred year and five hundred year flood limits. The City has and will continue to make the necessary capital improvement investments that address periodic flooding issues throughout the City.

Wetlands

Most of the wetlands in Miramar have been so disturbed by the regional canal system and previous development that only the organic soils remain. To ensure that the remaining viable wetlands are preserved, the City requires an environmental assessment of every site proposed for development. The Department of Planning and Environmental Protection (DPEP) has designated the locations of several categories of wetlands. Figure 5–2 (see Conservation Element) shows the approximate location of these wetland designations in Miramar.

Wellfields

The County has a Wellfield Protection Ordinance in place to prevent contamination from incompatible land uses in the vicinity of wellfields. The Ordinance applies to both existing and proposed wellfields. According to groundwater models created by Broward County Office of Environmental Services, the approximate "cones of influence" for Miramar's 2 existing wellfields are shown in Figure 4.1c (see Potable Water Sub-Element). These wellfield drawdown areas are not threatened by any incompatible uses. **Soils**

Historically, most of Miramar was composed of wetlands until canals drained the area. Most of the vacant land in western Miramar is composed of organic soils (refer to Figure 5–4 in Conservation Element), which are subject to subsidence. This puts restraints on the density and intensity of development that can occur on these soils. These soils must be removed and replaced with an appropriate type of soil that will not be subject to subsidence before development can occur. Limestone is currently found and extracted in Miramar for fill.

Minerals

A current mineral survey for Miramar does not exist. However, the County has a generalized map of mineral locations in its Natural Resource series that shows mostly peat in western Miramar and mostly sand shell, marl and limestone in eastern Miramar. Figure 5–3 (see Conservation Element) shows the generalized locations of these minerals.

Historic Resources

Several archaeological sites have been identified and are protected as both Broward County Local Areas of Particular Concern and City of Miramar City Areas of Particular Concern. Figure 5–5 (see Conservation Element) shows the location of the currently designated archaeological sites in Miramar.

Developments of Regional Impact

Miramar contains six (6) Developments of Regional Impact (DRIs) as shown in Figure 1–3 These large planned developments were approved in the past 25 years, and are subject to state and regional review. The Development Orders for these projects contain master site plans, density and intensity limits and conditions requiring construction of important infrastructure including roads and public schools. Developer payments for and/or construction of roads, water and sewer

facilities under DRI Development Orders are a key component of Miramar's growth management system.

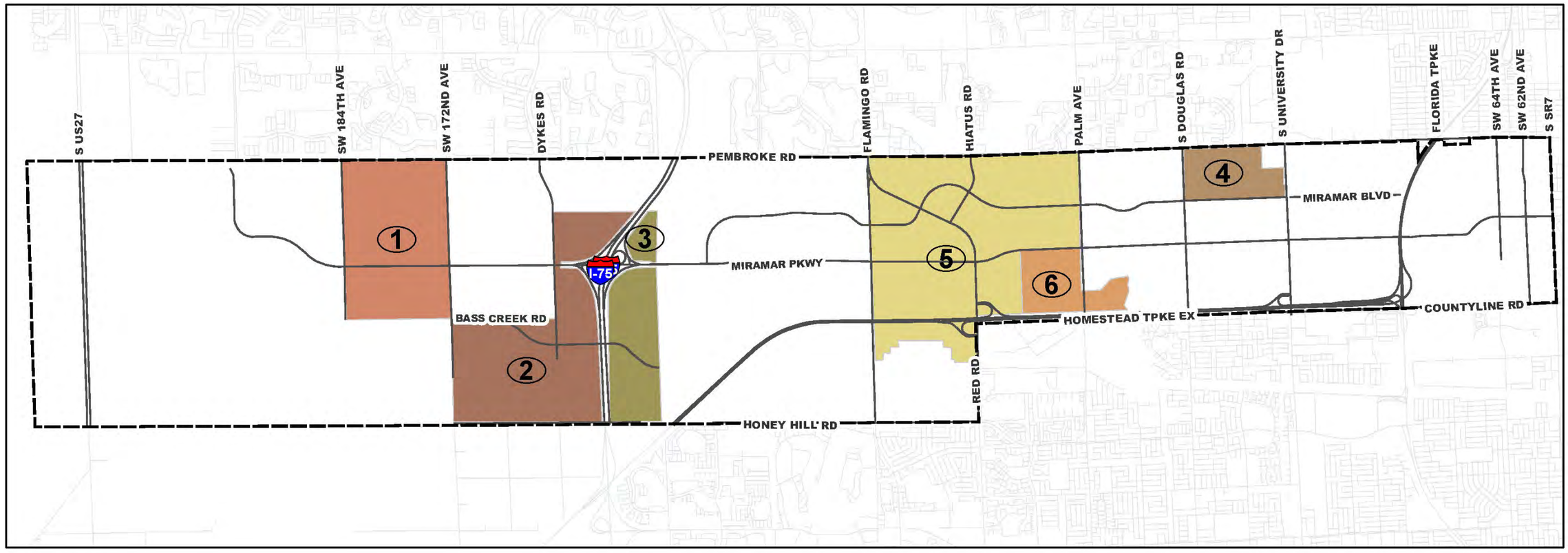
Redevelopment

Miramar is a city operating on two (2) essentially separate growth management planes. One is rapid westward expansion into "greenfield" sites already approved for development and located at the center of southeast Florida's market area. The other growth management challenge is the prudent redevelopment of the city's older eastern area generally situated between U.S. 441 and Palm Avenue. Over the past several years, the City has made a considerable investment in upgrading infrastructure in eastern Miramar.

Deteriorated social, physical and economic conditions in some parts of eastern Miramar, especially along the U.S. 441 corridor, make the area eligible for many federal and state grant programs. These include the federal Community Development Block Grant (CDBG) program, U.S. Department of Housing and Urban Development (HUD) housing programs, Economic Development Administration (EDA) programs and state programs, such as the State Housing Initiative Partnership (SHIP) program. Miramar is already utilizing many of these program opportunities, which should significantly improve the quality of life, property and investment atmosphere in eastern Miramar. The City of Miramar is committed to the redevelopment of East Miramar and has implemented numerous strategies since 2001 utilizing the Comprehensive Plan, Five-Year Capital Improvement Program, Annual Budget process, special redevelopment studies, federal, state and local grants, and strong intergovernmental coordination. The City has participated in several redevelopment efforts in including the Miramar/Westpark Charrette and the East Miramar Neighborhood Study. In 2008 the City adopted a Transit Oriented Corridor land use designation that provides for the redevelopment of the State Road 7 Corridor. The City challenge is to implement these planning tools..**Affordable Housing**

The City of Miramar is moving aggressively to tap all available federal, state and local housing grant and low-interest loan programs and make them available to very low, low and moderate income residents. The Housing Element provides an in-depth analysis of the City's current and future housing needs.

Figure 1-3: Development of Regional Impact Map



LEGEND

ID	DRI	Acres	Dwelling Units	Hotel Rooms	Industrial*	Commercial*	Office*
1	Silver Lakes FQD	930	2,790	0	0	0	0
2	Country Lakes W DRI	1,146	3,058	300	1,250,000	931,000	350,000
3	Huntington DRI	510	1,130	200	314,473	238,000	680,000
4	University Park DRI	269	3,265	0	0	0	0
5	EMA DRI	1,883	7,460	0	9,449,000	1,836,400	1,450,000
6	MPOC DRI	232	0	0	1,365,000	0	735,000
	* Square Feet						

CITY LIMITS

DRI - Development of Regional Impact
FQD - Florida Quality Development
EMA - East Miramar Areawide
MPOC - Miramar Park of Commerce

Source: City of Miramar

0 0.5 1 2 Miles

May 2010

An analysis of 2000 household income data (latest available) in relation to household income by age of householder data indicates the following housing characteristics at that time:

* Approximately 29.6% of the very-low income households in Miramar were elderly (i.e., householder aged 65 years and older); and

* Approximately 22.5% of the low income households were elderly.

The 2000 data presented above show that very-low income households consisted primarily of the elderly. Many elderly who purchase a home do so without a mortgage, therefore reducing housing costs to affordable levels; however, it is recommended that development of rental housing alternatives for the elderly be encouraged. Although the city has a number adult congregate living facilities, additional adult day care and congregate living facility alternatives should also be pursued.

It should also be noted that many professional planners at the local level feel that the substantial population shifts throughout southeast Florida caused by Hurricane Andrew in 1992, have dramatically affected the demographic mix of Miramar, including the generation of an influx of younger persons and families. The validity of this observation will be tested when the results of the Year 2010 Census are available, and, if true, may dictate future refinements to the above recommendations.

The City's responsibilities in the housing delivery process will continue to be focused upon the provision of services. These responsibilities include providing an adequate, safe potable water supply and adequate pumping and treatment of wastewater. Miramar has defined an infrastructure service area boundary, within which these services will be provided. Miramar will also continue current initiatives to provide and preserve affordable housing and seek new housing grant and loan opportunities as they arise.

B. Future Growth

Population Projections

The following observations were used as the basis for deriving the methodology for projecting Miramar's population:

1. Since 1990 (on an annual basis), the city has gained an increasingly large share (%) of the county's population; the city's share was 3.24% in 1990 and, by 2008, the share had increased to 6.41%. (See Table 1–4).

2. The city has approximately 1,402 acres of vacant land and remaining residential development potential (i.e., 169,867 residents at buildout).
3. The city has experienced rapid growth between 1998 and 2005. However, care should be exercised when using short-term growth activity as the basis to project long-term growth.

Rather, a period of history should be used as the basis to project a like period of future growth to the extent possible.

This analysis will be completed with the next EAR based on the 2010 Census.

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Table 1–4

Projected Population Growth - City Of Miramar Versus Broward County

Year	Broward County	Miramar	Miramar "City Share" (%)
2000	**1,623,018**	**72,739**	**4.5**
2005	**1,740,987**	**108,387**	**6.2**
2010	**1,753,897**	**113,109**	**6.4**
2015	**1,873,715**	**120,806**	**6.4**
2020	**1,996,794**	**127,841**	**6.4**
2025	**2,111,448**	**134,232**	**6.3**
2030	**2,210,129**	**139,742**	**6.3**
2035	**2,279,103**	**143,366**	**6.2**

Source: Broward County Environmental Protection and Growth Management Department

Availability of Facilities and Services

Miramar has sufficient infrastructure or agreements in place to accommodate its existing development. The general conditions of the individual types of infrastructure and parks are discussed below. More detailed information is provided in the individual Plan elements.

Water and Wastewater Treatment — Miramar has sufficient capacity to serve all of its existing development. Figure 4.1c Potable Water Sub-Element shows the current potable water distribution system. Figure 4–2 Sanitary Sewer Sub-Element shows the current wastewater collection system. New treatment facilities have recently been constructed for both water and wastewater in western Miramar. Miramar also has agreements for services to be provided by adjacent jurisdictions to assure appropriate levels of service for its residents.

Solid Waste Capacity — Sufficient capacity is available at the County's facilities for disposal of both processable and non-processable solid waste. The County operates waste-to-energy facilities and landfills. A contractual agreement exists between Miramar and All Service Refuse Company for hauling of all solid waste to the County facilities, and for hauling and recycling of all residential and commercial materials.

Parks — Miramar has a large number of community and local parks to serve its residents. Figure 6–1 in the Recreation Element shows the approximate location of the City's parks which total 817 acres. The City proposes an additional 97 acres for future park development.

Road Capacity — The existing Roadway conditions for 2008 are depicted in Table 2-15 of the Transportation Element, Data and Analysis.

Stormwater Management — The City has continually addressed drainage problem areas over the past ten (10) years. The Tropical Valley drainage improvements have been completed.

Land Use / Transportation Connections

The City's land use pattern is well designed for roadway and transit usage providing high density uses and employment centers near major travel corridors with trip-generating residential uses located between these corridors. It is important to note that the transportation system in and around Miramar was essentially designed for automobile and truck traffic, and only in relatively recent times has the importance of transit come to the fore. It is possible that alternative land use patterns in specific locations may increase the efficiency of the transportation system both to carry vehicles as well as provide increased transit ridership. However, this transportation alternatives analysis can only be properly performed on a regional intergovernmental basis through coordination with area municipalities and Broward County. The complexity and integrated nature of the transportation system in southwest Broward County requires regional analysis and coordination. Thus Miramar is coordinating with the County and regional municipalities to address land use alternatives to enhance roadway and transit systems, designed through compliance with the County's recently-adopted Transportation Element.

Future Trends and Opportunities

The City of Miramar has experienced a unique, high growth period from 1998-2005. With 0.7% of its land area still vacant but located at the "Center of Everything" in southeast Florida, the City is uniquely positioned to influence future growth in such a way as to facilitate tax base growth, improve neighborhood integrity and enhance the community's image as a "great place to live." The City's efforts are to continue to build out the remaining vacant land and to focus on the redevelopment of the Historic Miramar. This quality development has generate substantial tax base dollars, some of which could be funneled into eastern Miramar and used to leverage federal, state and regional grants and loan program funding for implementation of redevelopment strategies.

C. Future Land Use Map

The Future Land Use Map (FLUM) is contained in the Goals, Objectives and Policies (Part 1) of this Element. All redevelopment and new development in the City must be consistent with the applicable land use designation shown on the FLUM.

Future Land Use Acreages

The future land use acreage breakdown is presented in Table 1–5.

Source: HBI Planning Services, Inc. and City staff,.

Table 1–5
Miramar Future Land Use Designation
(in gross acres)

Residential	
Rural	2,768.17
Estate 1	1,500.80
Low 1.5	1,273.82
Low 2	218.58
Low 3	2,594.69
Low 3.06	1,339.83
Low 4.33	258.18
Low 4.62	492.79
Low 5	2,580.83
Low-Medium 5.3	66.78
Low-Medium 8	58.29
Low-Medium 10	370.43
Medium 10.8	255.64
Medium 12	21.76
Medium 16	29.78
Medium-High 19.9	52.95
Mixed Use	
Regional Activity Center (RAC)	2,111.94
Transit Oriented Corridor (TOC)	443.05
Non-Residential	
Conservation	776.46
Commercial	494.25
Office Park	13.82
Industrial	420.36
Employment Center	196.56
Commercial Recreation	35.97
Recreation & Open Space	177.90
Utilities	70.15
Institutional & Public Facilities	467.05
City Areas of Particular Concern	104.57
City-Wide Total	**19,967.00**

Source: City Staff

II. Transportation Element

Introduction

The purpose of the Transportation Element (TE) is to plan for a multimodal transportation system that places emphasis on public transportation. State law requires that jurisdictions within a Metropolitan Planning Organization (MPO) replace the required plan elements of: traffic circulation; mass transit; ports, aviation, and related facilities, with a TE. This TE Support Document provides the data and analysis used as the basis for the TE goal, objectives and policies.

The TE service area consists of the entire City of Miramar. The roadway grid system consists of a number of State of Florida maintained principal arterials providing primarily north-south movement, Broward County maintained minor arterials providing primarily north-south and east-west movement and City of Miramar maintained collector roads. The public transit system consists of Broward County Transit (BCt) facilities and the City's shuttle bus services. The bikeway and pedestrian networks are primarily provided along state and county maintained roadways with connections along several City collectors. Recreational transportation primarily consists of bikeways/pedestrianways along Broward County maintained collectors.

The TE planning horizons are 2015 and 2030. The objectives correspond with the 2015-planning horizon and the goal corresponds with the 2030 planning horizon.

A. Existing Conditions

Rule 9J-5.019(2), Florida Administrative Code (FAC), requires the Transportation Element (TE) be based upon the following data: general location of the transportation system features; existing functional classification and maintenance responsibilities; transit trip generators and attractors; designated transportation facilities for hurricane evacuation; the existing peak hour; peak direction of level of service for roads, public transit facilities, and corridors or routes; and capacity of significant parking facilities and duration of limitations. Part II addresses the above described rule requirements as they apply to the City's transportation system.

Transportation System

The transportation system encompasses the following networks: roadways, public transit, bikeways, pedestrianways, airport, recreational traffic, and intermodal facilities.

1. Roadway network. The roadway network includes the following features: roadway segments or links, road intersections, bridges, rights-of-way, signalization, signage, and roadway amenities.

a. Segments. A roadway segment or link is a portion of a roadway defined for the purpose of traffic analysis. The segment origination and termination points are typically signalized intersections or the point where the number of lanes on a roadway change. Segments are classified by lanes and functions.

Number of lanes. Rule 9J-5.019(2)(a), FAC, requires the number of through lanes for each roadway be identified on an existing transportation map or map series. Transportation Element

Figure 2-1C**:** ~~Roadway Functional Classifications of Existing Roads~~ Existing and Future Lane Arrangement, depicts the lane characteristics of the existing roadway network consistent with the rule require element.

Rule 9J-5.019(2)(a)(8), FAC, also requires the existing functional classification and maintenance responsibilities for all roads be shown on the existing transportation map series. Functional classification was developed for transportation planning purposes and is the grouping of roadways by the character of service they provide. Roadway functional classifications are defined in the definitions section, listed in Table 2-1, and identified on Figure 2-1A: Existing and Future Roadway Functional Classifications.

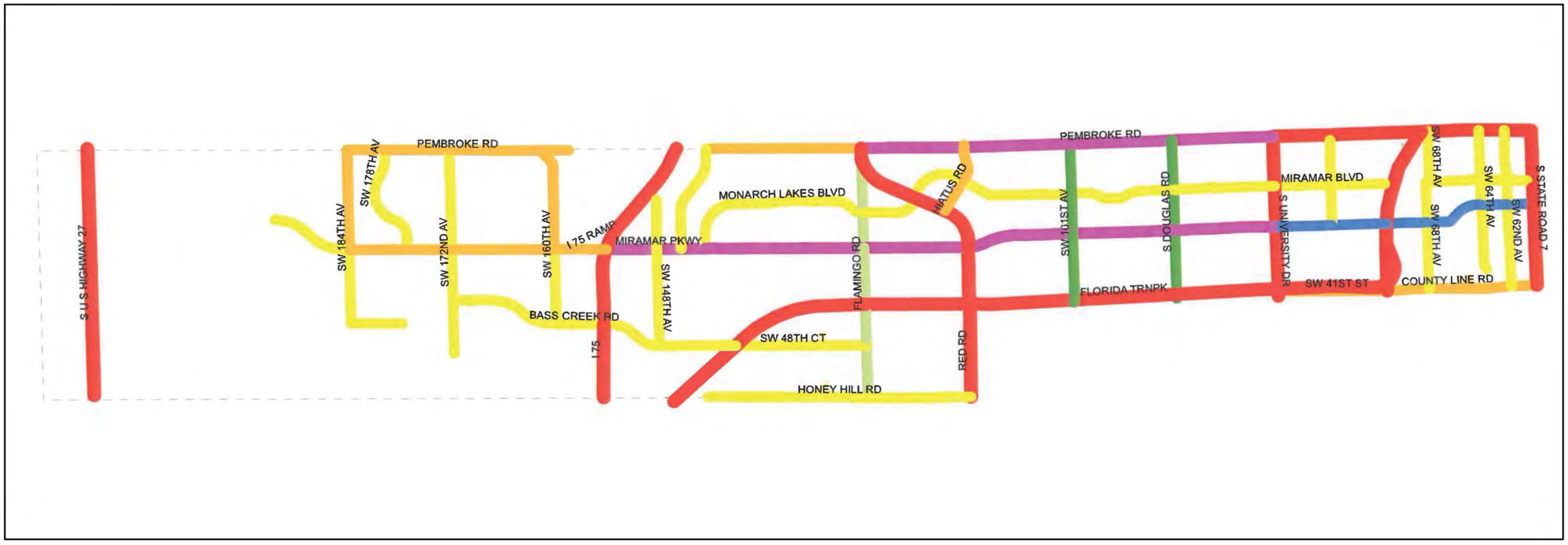
TABLE 2-1
MIRAMAR COMPREHENSIVE PLAN
EXISTING ROADWAY FUNCTIONAL CLASSIFICATION – 2009

ROADWAY AND LINK	FUNCTIONAL CLASSIFICATION
East-West Roadways	
County Line Road	
SR 7 to University Drive	City Minor Arterial
Homestead Extension Florida's Turnpike	
FL's Turnpike to South County Line	State Principal Arterial
SW 48 Court/Bass Creek Road	
SW 148 Ave to SW 172 Ave	City Collector
Miramar Parkway	
SR7 to University Dr	County Principal Arterial
University Drive to I-75	City Principal Arterial
I-75 to NW 184 Ave	City Minor Arterial
Miramar Boulevard	
University Dr to Miramar Pkwy	City Collector
Pembroke Road	
SR7 to University Dr	State Principal Arterial
University Dr to Flamingo Rd	City Principal Arterial
Flamingo Rd to I-75	City Minor Arterial
I-75 to NW 184 Ave	Committed Future Minor Arterial
North-South Roadways	

TABLE 2-1 MIRAMAR COMPREHENSIVE PLAN EXISTING ROADWAY FUNCTIONAL CLASSIFICATION – 2009	
ROADWAY AND LINK	**FUNCTIONAL CLASSIFICATION**
SR7/US 441 County Line Rd to Pembroke Rd	State Principal Arterial
SW 62 Ave South County Line to Pembroke Rd	City Collector
SW 64 Ave South County Line to Pembroke Rd	City Collector
SW 68 Ave South County Line to Pembroke Rd	City Collector
Florida's Turnpike Within City Limits	State Principal Arterial
US 27 Within City Limits	State Principal Arterial
University Drive County Line Rd to Pembroke Rd	State Principal Arterial
Douglas Rd County Line Rd to Pembroke Rd	County Minor Arterial
SW 101 Ave/Palm Ave County Line Rd to Pembroke Rd	County Minor Arterial
Red Road County Line Rd to Flamingo Rd	State Principal Arterial
Flamingo Rd County Line Rd to Pembroke Rd	County Collector
I-75 Within City Limits	State Principal Arterial
SW 148 Ave SW 48 Ct/Bass Creek Rd to Miramar Pkwy	City Collector
SW 160 Ave SW 48 Ct/Bass Creek Rd to Miramar Pkwy	City Collector
SW 172 Ave SW 48 Ct/Bass Creek Rd to Committed Future Minor Arterial (Pembroke Rd)	City Collector

TABLE 2-1 MIRAMAR COMPREHENSIVE PLAN EXISTING ROADWAY FUNCTIONAL CLASSIFICATION – 2009	
ROADWAY AND LINK	**FUNCTIONAL CLASSIFICATION**
SW 178 Ave SW 48 Ct/Bass Creek Rd to Committed Future Minor Arterial (Pembroke Rd)	City Collector
SW 184 Ave SW 48 Ct/Bass Creek Rd to Committed Future Minor Arterial (Pembroke Rd)	City Collector
Source: Broward County Highway Functional Classifications Map, June 2008	

Figure 2-1A: Existing and Future Roadway Functional Classifications



LEGEND

Existing & Future Functional Classification & Jurisdiciton/Maintenance Responsibility

- City Collector
- City Minor Arterial
- City Principal Arterial
- County Collector
- County Minor Arterial
- County Principal Arterial
- State Principal Arterial
- Miramar

Source: Broward County Highway Functional Classifications GIS 2008
Prepared: 02/17/10

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Figure 2-1B: Existing and Future Limited and Controlled Access facilities

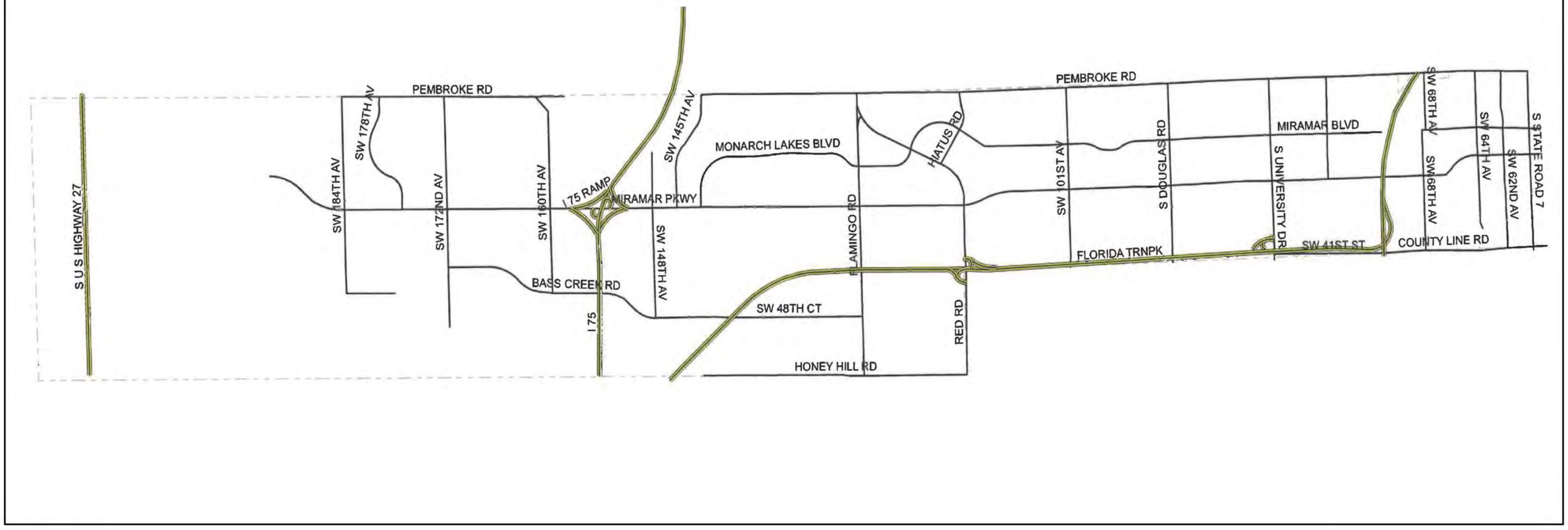
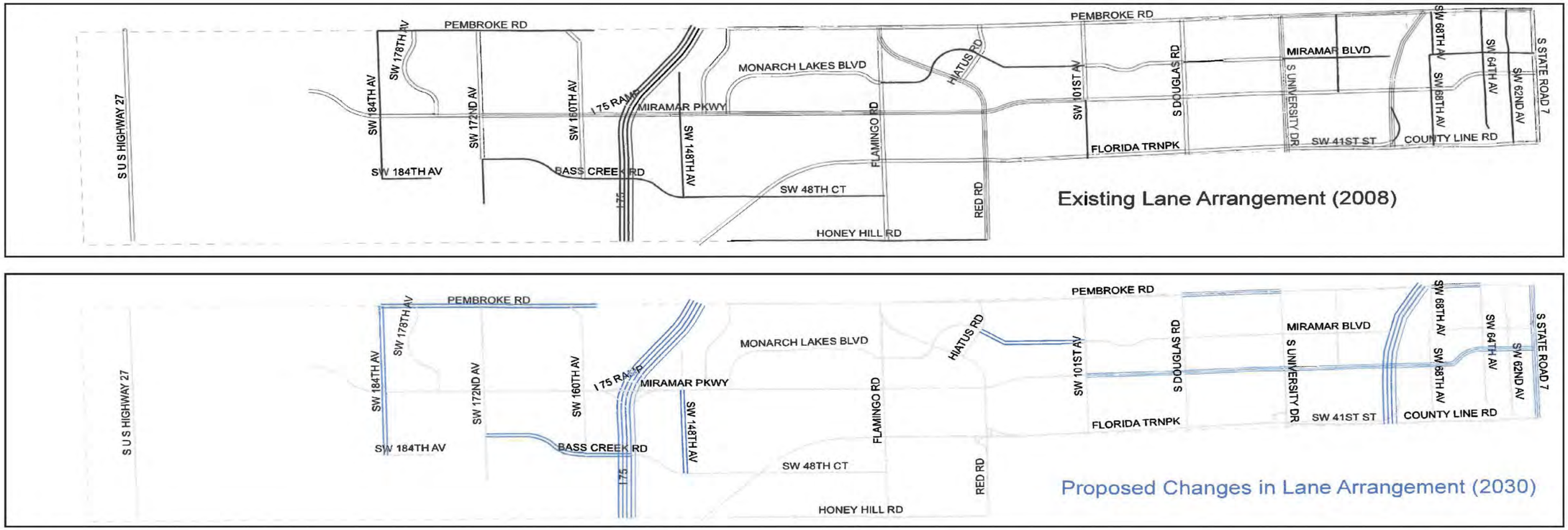


Figure 2-1C: Existing and Future Lane Arrangement



LEGEND

Lane Arrangement

No. of Lanes

2
4
6
8
10

N

Source: Broward County Highway Functional Classifications GIS 2008; Broward County MPO Roadway Capacity & LOS Analysis 2007 & 2030 (9.08)
Prepared: 02/17/10

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

The local roadway network totals approximately 173 miles (FDOT, 2008 City/County Mileage Report). In general, Broward County is responsible for the maintenance of all County roads and the State is responsible for maintaining principal arterial roads. The city is responsible for city minor arterials, collectors, and dedicated local streets. Table 2-1 identifies the existing maintenance responsibilities for roadways located within the City of Miramar.

Strategic intermodal System/Florida Intrastate Highway System (SIS/FIHS). Section 334.03, FS, defines the "Florida Intrastate Highway System" (FIHS) as a system of limited access and controlled access facilities on the State Highway System, which have the capacity to provide high-speed and high-volume traffic movements in an efficient and safe manner. Figure 2-1B depicts the Existing and Future Limited and Controlled Access Facilities located within the City. State legislation enacted in 2004 created a Strategic Intermodal System (SIS) that is a regional network of transportation facilities including the FIHS roadway component. SIS/FIHS roadways must be identified for two reasons. Rule 9J 5.019, FAC, requires the FDOT level of service standard to be applied to SIS/FIHS roads. Rule 9J-5.019, FAC also requires the establishment of strategies to facilitate local traffic use of alternatives to the SIS/FIHS.

The four roadways in the City of Miramar on the SIS/FIHS include: the Florida Turnpike from the Miami-Dade County line to Pembroke Road, the Homestead Extension of Florida's Turnpike from Miami-Dade County line to Florida Turnpike, Interstate-75 from Miami-Dade County line to Pembroke Road and U.S. 27 from Miami-Dade County line to Pembroke Road.

b. Intersections and interchanges. An intersection is defined by the Broward County Transportation Element, 2006, as the general area where two or more roadways join or cross at grade, including the roadway and roadside facilities for traffic movements within the intersection. An intersection is an important part of the roadway network because its design influences the efficiency, safety, speed, cost of operation, and capacity of roadways. Intersections are depicted on Figure 2-1A.

c. Bridges. A bridge is a structure, including supports, erected over a depression or an obstruction, such as water, a highway, or railway, which has a track or passageway for carrying traffic or other moving loads. The City owns and maintains six bridges at the following locations:

- Bass Creek Road over an unnamed drainage canal, adjacent to Southwest 148 Avenue
- Crossover tie for SR 823 and Southwest 124 Avenue, over Flamingo canal, 0.3 miles south of the Florida Turnpike
- Miramar Parkway over Flamingo Canal, Adjacent to Flamingo

d. Right-of-way. Right-of-way often is the major cost for many of the transportation improvement projects; therefore, the acquisition of the needed land should be planned far in

advance of the scheduled construction time. The City of Miramar coordinates with the Broward County Planning Council (BCPC), the administrator for the Broward County Trafficways Plan (BCTP, a roadway right-of-way preservation plan), in order to implement the BCTP. To

accommodate the impacts of new development, right-of-way is dedicated by developing parcels to provide for an adequate regional roadway network.

Every effort will be made to ensure the unrestricted availability of necessary right of ways through the development review process. This should be done to reduce costs and to minimize relocations and disruptions to the community. The preservation of right of ways should be maintained wherever possible through the use of right of ways shown in Table 2-2:

Table 2-2
Right of Way Roadway Right of Way

State Road 7	120’
Florida Turnpike	325’
University Drive	200'
Douglas Road	110’
Palm Avenue	110’
Hiatus Road	106’
Red Road	200’
Flamingo Rd.	110'/200’
Interstate-75	470’
SW 160 Avenue	110’/120’
SW 172 Avenue	110'
SW 184 Avenue	120'
SW 196 Avenue	120'
US 27	470’
Pembroke Road	110'/200’
Miramar Boulevard	100’/80’
Miramar Parkway	100’/120’
Bass Creek Road	110’
Homestead Ext. of Florida Turnpike	325’
County Line Road	106’
SW 64th Ave	80’
SW 68th Ave	80’

Source: Broward County Planning Council- Broward County Trafficways Plan (01/22/09)

The most recently adopted Miramar Capital Improvement Program indicates approximately $1.7 million to fund roadway network improvements including right-of-way acquisitions.

e. Signalization. The Broward County Traffic Engineering Division is responsible for installing and maintaining all traffic signal systems in the City and County.

f. Signage. Signing and markings are features of traffic control and operation that must be considered in the geometric layout of each facility. The FDOT, Broward County, and the municipalities create and maintain signage on their functionally assigned roadways.

g. Amenities. Landscaping is the primary highway amenity. Landscape design of completed highways serves functional, as well as aesthetic purposes. Plants can serve functions of glare reduction, acoustical control, erosion control, and traffic control, if they are well chosen and judiciously placed. Plants also can create and define spaces, by complementing and improving the attractiveness of certain land forms, while masking undesirable views. Landscape design can influence speed through control of road focal points. The City of Miramar has and will continue to participate in Highway Beautification agreements with Broward County and the State of Florida Department of Transportation.

h. Safety. A safe roadway network enhances the protection of life and property. Safety aspects include crash indicators and access management standards.

The City of Miramar is in support of a statewide road safety database that would be readily accessible to the local governments and the public. City of Miramar coordinates with Broward County in order to provide a safe transportation network.

An accident analysis was undertaken at all major signalized intersections within the City. Accident data for the time period of May 1, 1996 through January 19, 1999 was obtained from the City of Miramar Police Department. Table 2-3 provides the total number of accidents at each major intersection.

Table 2-3 Accident Analysis of Signalized Intersections				
Rank	**Roadway**	**Intersection**	**# of Accidents**	**% of Total**
1	Miramar Parkway	University Drive	43	19%
2	Miramar Parkway	Douglas Road	36	17%
3	Miramar Parkway	SR 7	24	11%
4	Miramar Parkway	SR 847	16	7%
5	Pembroke Road	SR 817	13	6%
6	Miramar Parkway	SW 62nd Avenue	13	6%
7	Miramar Parkway	Island Drive	12	6%
8	Miramar Parkway	SW 68th Avenue	10	5%
9	Pembroke Road	University Drive	10	5%
10	Miramar Parkway	SW 64th Avenue	9	4%
11	Miramar Parkway	Red Road	9	4%
12	Miramar Parkway	Tarpon Drive	8	4%
13	Pembroke Road	Douglas Road	8	4%
14	Pembroke Road	Palm Avenue	5	2%
Subtotal of 14 Highest Locations			**216**	**23%**
All Other Locations within City			**740**	**77%**
Total Accidents on City			**956**	

Source: Miramar Police Department, 1999.

Access management. The City of Miramar continues to maintain land development regulations that control the connection of access points of driveways and roads to roadways. The City of Miramar provides convenient roadway system through the use of access management techniques.

Hurricane evacuation. At the present time, the portions of US 27, I-75, Homestead Extension of the Florida Turnpike, and Florida's Turnpike located within the City of Miramar city limits are designated as Hurricane Evacuation routes per the Florida Division of Emergency Management's Broward County Evacuation Routes Map, September 2008.. Miramar is several miles from the Coastal High Hazard area and is not located in a mandatory evacuation zone. Figure 2-2D: Evacuation Routes depicts evacuation routes located within the City.

2. Public transit network. The public transit network, as used here, means those facilities and services used to transport the public. Figure 2-2A: Existing Public Transit System ~~Routes and Functional Area Coverage~~ **System**, shows Broward County Transit public transit facilities and the City's shuttle bus routes that make up the public transit facilities.

a. Public transit facilities. Public transit facilities include rights-of-way, motorized vehicles (buses and vans), transit bus stops and transit amenities.

Rights-of-way and exclusive public transit corridors. There are no public transit rights-of-way or exclusive public transit corridors currently existing within the City. Broward County

acquires additional right-of-way along major arterial roadways during the roadway widening process for bus pullout bays, also called busbays. Bus pullout bays are specialized bus stop auxiliary lanes, independent of the through traffic travel lane. The busbays are designed to minimize traffic obstruction and maximize passenger safety. The City of Miramar continues to coordinate with Broward County Mass Transit Division (BCt) in their efforts to provide accessible and adequate public transit facilities.

Public transit vehicles. The City of Miramar transit vehicle inventory consists of 21 vehicles, 17 city vehicles and 4 county vehicles, with a total seating capacity of 421, There are 16 handicapped accessible vehicles with a handicapped capacity of 32. Of this inventory, 12 are dedicated to senior services, 5 for TOPS services and 4 for shuttle services.

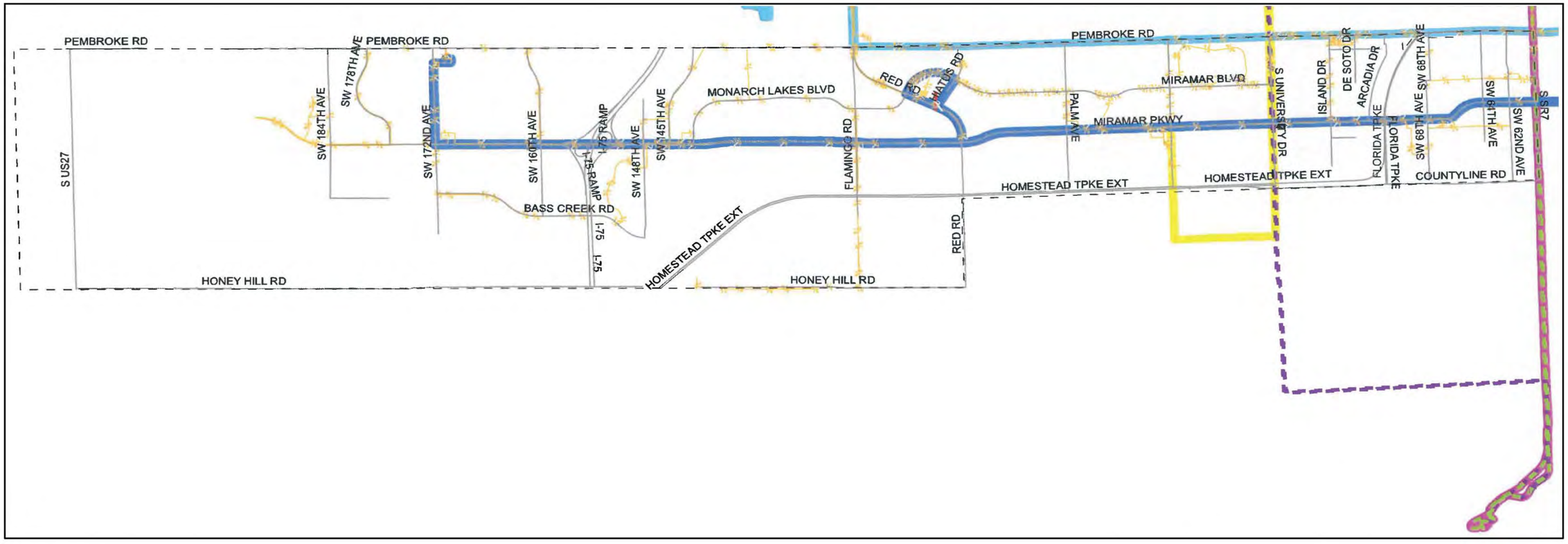
Public transit amenities. BCt maintains and updates their Bus Stop Inventory, which reports data regarding public transit amenities.

Public transit terminals or transfer stations. The city operates three transit hubs at major city facilities, Town Center, Multi Service Center and sunset Lakes Community Center. The Town Center facility known as Miramar Central Station has driver relief area, public waiting area and bike rider facilities. . Broward County Transit Route 28 and the City's Community Shuttle serve the transit center as of January 2010.

b. Public transit services. Public transit services are passenger services provided by public, private or non-profit entities. They include the following surface transit modes: fixed route bus service, express route bus service, feeder bus service, demand responsive service, municipal transit service, and other services. All BCt and City of Miramar bus routes are shown on Figure 2-2A: Existing Public Transit System. Figure 2-2C depicts the future public transit system.

Fixed-route bus service. The Broward County Mass Transit Division operates Broward County Transit (BCt), a fixed-route bus system servicing nearly all of Broward County's developed areas. It provides service on a repetitive, fixed schedule basis. Each fixed-route trip serves the same origins and designations. Fixed-route transit service is provided seven days a week, although at reduced levels on Sundays and certain holidays. Regular routes operate from as early as 4:48 a.m. until 12:30 a.m. on weekdays and 5:03 a.m. until 12:20 a.m. on Saturdays and Sundays. Regular routes primarily operate on 30-minute headways during the week and Saturday, 30-60 minutes on Sundays. Six BCt bus routes serve the City of Miramar. Table 2-4 depicts the Broward County bus route schedule.

Figure 2-2A: Existing Public Transit System ~~Routesand Functional Area Coverage~~



LEGEND

Transit Routes

Miramar Shuttle Bus Routes

Broward County Transit Route Number

02
05
18
28

University Breeze
441 Breeze
Transit Center

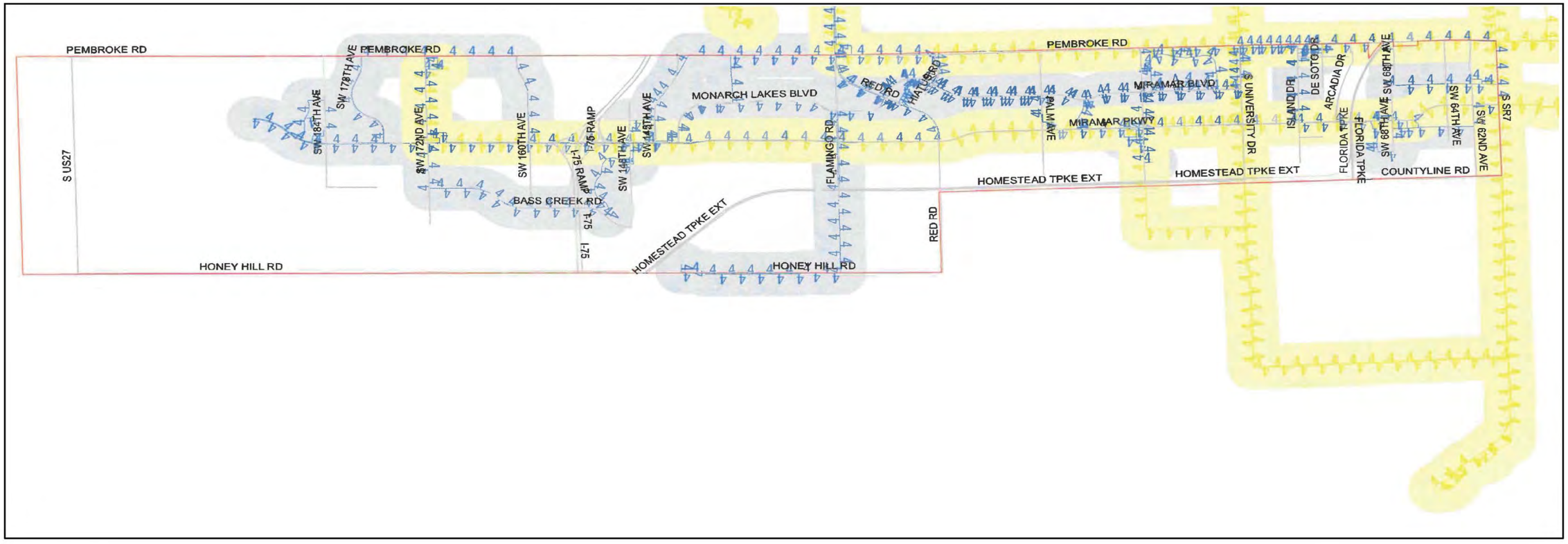
Source: Broward County Transit GIS
Prepared: 03/05/2010

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Figure 2-2B: Transit Functional Area Coverage



LEGEND

- Miramar
- City Shuttle Bus Routes
- City Shuttle Functional Area Coverage
- Broward County Transit Bus Routes
- Broward County Transit Functional Area Coverage

Note: Land located west of S.W. 196th Avenue is owned by the South Florida Water Management District and is not developable.

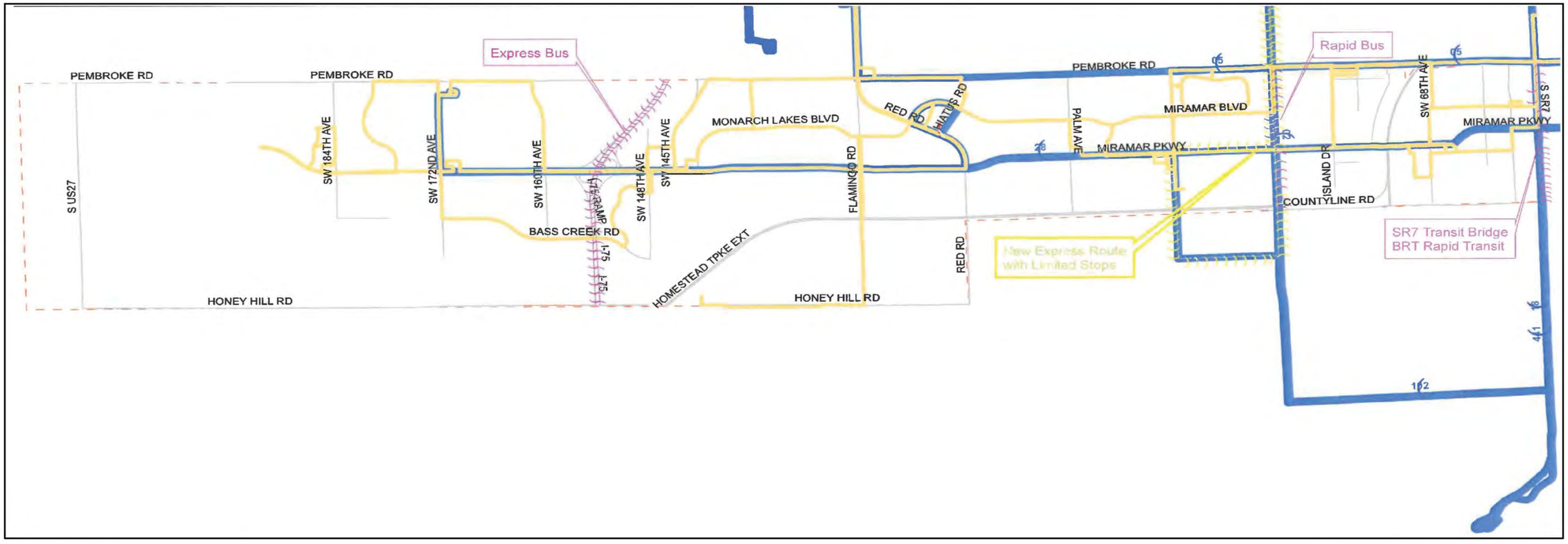
Source: Broward County Transit GIS
Prepared: 10/01/2009

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

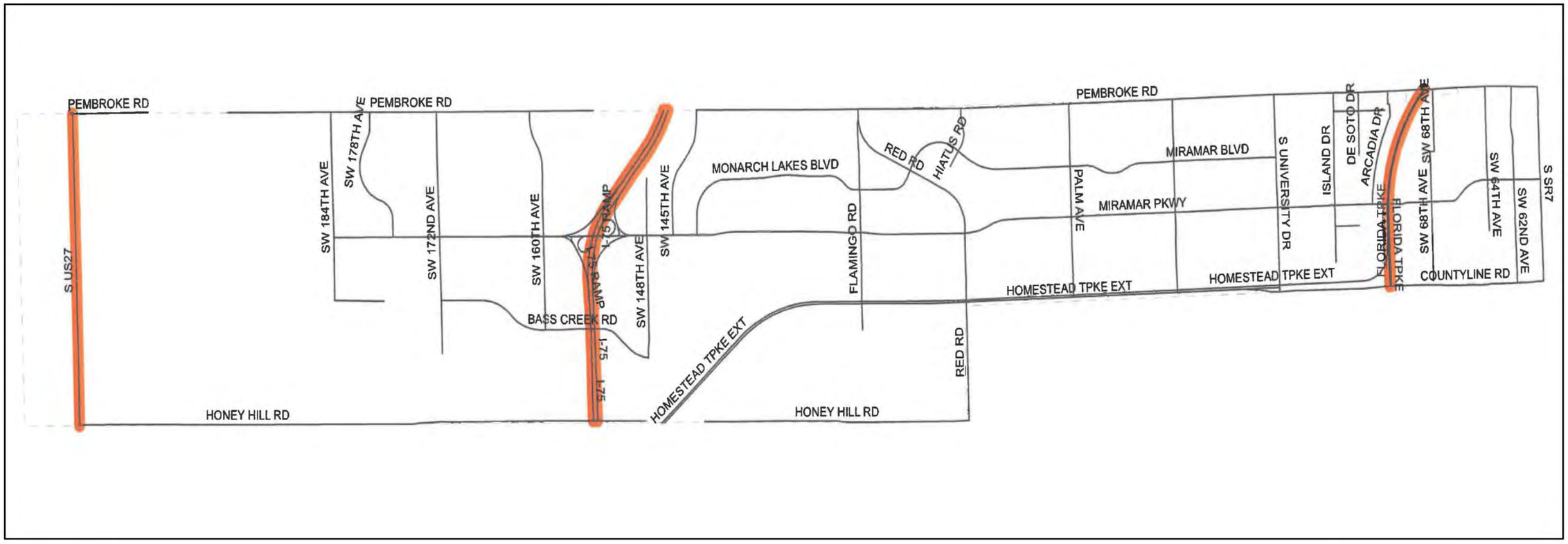
Figure 2-2C: Future Public Transit System



Source: Broward County Transit, 2030 LRTP Figure 8-3, TDP 2010 Update (Table3)
Prepared: 03/05/2010

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Figure 2-2D: Evacuation Route



LEGEND

- Evacuation Route
- Miramar City Limits

N

0 0.5 1 2 Miles

Source: Broward County Road and Facilities Map 3-1
Prepared: 03/09/2010

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808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Table 2-4 Broward County Transit Bus Route Schedule				
Route	Weekday	Saturday	Sunday	Headways
2	5:00 AM - 12:25 AM	6:00 AM – 12:20 PM	8:15 AM - 8:55 PM	M-F: 20/30 min Sat: 30 min Sun: 40 min.
5	6:00 AM - 10:00 PM	7:00 AM - 9:50 PM	8:05 AM – 8:50 PM	M-F: 30/60 min. Sat/Sun: 60 min.
18	4:40 AM - 12:38 AM	4:45 AM – 12:20 AM	6:40 AM - 10:21 PM	M-F: 15 min. Sat: 20 min. Sun: 30 min.
28	5:20 AM - 12:10 PM	5:35 AM – 12:10 AM	9:00 AM – 8:25 PM	M-F: 30 min. Sat: 30 min Sun: 45 min.
441 Breeze	5:07 AM – 7:52 PM	No Service	No Service	M-F: 30 min.
University Breeze (102)	5:30 AM – 7:20 PM	No Service	No Service	M-F: 30 min

Note: The times above refer to the first bus in operation and the last bus in operation. Not all buses begin or end service at the same time.
Source: Broward County Transit Schedules.

The routes are listed below with a brief summary of major bus stop locations including destinations outside the city limits.

Route 2: Sample Rd, and University Dr. / Coral Springs Medical Center
Atlantic Blvd. and University Dr. / Coral Square Mall
West Regional Terminal, Plantation
University Drive and Pines Boulevard
NW 207 St. and University Dr. / Miami-Dade County
SW 30 St. and University Dr. / Nova Southeastern Medical College

Route 5: Hallandale Beach City Hall
Highway 441 and Pembroke Road
Sports Authority
Pembroke Lakes Mall, Memorial Hospital West
Flamingo Plaza
Century Village
Points of Interest near to route stops include Gulfstream Park, C.B. Smith Park, Diplomat Mall, Mardi Gras Gaming, Broward South Regional Healthcare Center, and Memorial Walk-in Medical Center

Route 18: Margate Terminal

Golden Glades Park & Ride Lot Lauderhill Mall
Points of Interest near to route stops include Miami-Dade County Transit connections and Northwest Medical Center in Coral Springs.

Route 28: Memorial Hospital Miramar
Miramar Town Center
Aventura Mall
Federal Highway and Hallandale Beach Boulevard
Highway 441 and Hallandale Beach Boulevard
Points of Interest near to route stops include Diplomat Mall, Gulfstream Park, Miramar Center Corporate Park, and Wal-Mart.

441 Breeze: Golden Glades Tri-Rail/Park & Ride
County Line Road
NW 12 St. and 441/Lauderhill Mall
441 and Coconut Creek Parkway
Points of Interest near to route stops include Miami-Dade County Transit connections.

University Breeze: Golden Glades Tri-Rail/Park & Ride
University Dr. and Sheridan Street
University Dr. and SW 30 Street
University Dr and Atlantic Blvd
Points of Interest near to route stops include Memorial Pembroke Hospital, NSU/SFEC Campus, Broward Mall, University Hospital, and Coral Square Mall.

Table 2-5 below displays the ridership per route.

Table 2-5
Broward County Transit
Bus Route Ridership

Route	Route Ranking		Ridership (Passengers/Hr*)	
2	5		34.3	
5	27		22.5	
18	1		52.1	
28	15		36.8	
441 Breeze	29		32.2	
University Breeze	44		22.5	

Source: Broward County Mass Transit Division Transit Route Characteristics, May 2009
*Monday through Sunday Average

Table 2-6 depicts transit population characteristics.

Broward County Transit has implemented reduced fares ($0.575) for three categories of passengers classified as transportation disadvantaged populations: senior citizens, disabled, and students. Broward County grouped senior citizens and disabled persons together during their data collection. Therefore these two categories were combined in the following table.

Table 2-6
Broward County Transit
Ridership By Category

	Student	Senior/ Disabled	Full Fare	Day Pass	Employee Pass	Century Village	Tri-Rail	Dade/PB Transfer	No Pay Child
All Routes	5%	1.7%	11.3%	4.3%	0.3%	0.2%	0.1%	1%	3%

Source: Broward County Mass Transit, FY09

Of the three categories comprising the transportation disadvantaged population, students represent 5% of the County's bus ridership. Bus Route 28 is heavily utilized by students as it passes Miramar High School.

Miramar Community Shuttle Service. In addition to the Broward County Transit Service, the City of Miramar operates a community shuttle service. This service is provided to supplement the county's transit system by increasing the number of destinations within the city limits that can be reached on public transit. Broward County Transit and City staff work together in designing route alignments and operating characteristics. The community bus routes connect with Broward County Transit bus routes.

The shuttles operate on weekdays only, generally from 6:30 AM to 7:30 PM, depending on the route, with 60 minute headways. There is no fare required when using the community bus within the City of Miramar. Riders making the connection with BCT are expected to pay the appropriate BCT bus fare. Transfers are provided between Broward County Transit and the Miramar Community Shuttle. One of the shuttle stops, Memorial Hospital West/Pines Mall, is located outside of the City limits. Since 2000, community shuttle ridership has more than tripled. Table 2-7 illustrates the 2009 monthly ridership figures for Miramar's Community Shuttle service.

Table 2-7
Community Shuttle Ridership

Routes	FY 2009 Total	
	Miles	Passengers
Green	129,812	77,045
Red	63,004	39,586
Yellow	61,905	44,799
Orange	68,547	34,983
Total	323,268	196,413

Routes	FY 2009 Total	
	Miles	Passengers
Green 1	65,430	35,629
Green 2	64,382	41,416
Red	63,004	39,586
Yellow	61,905	44,799
Orange	68,547	34,983
Total	323,268	196,413

- BCT ridership since the start of the route through Town Center, and if there has been a change in ridership overall since that time:
- Average Daily passenger boarding for the entire route 28 is 4,500. Average Daily passenger boarding at the Miramar Transit Center is 45.
- Which routes stop at each of the 3 hubs: **Green West stops at Sunset Lakes, all routes stop at the central hub, and Yellow and Green East stop at the MMSC**
- Are all Community buses still provided by BCT as in the past: **Yes**

Source: City Staff

Express bus services. Express bus service, which has faster operating speeds and serves a limited number of origins and destinations, provides a level of service comparable to the automobile. Hence, it can be an attractive alternative for work trip commuters. BCt currently operates three express buses: US1 Breeze, 441 Breeze, and University Breeze. The 441 Breeze has three stops within the City of Miramar along 441 at County Line Road, Miramar Parkway, and Pembroke Road. The University Breeze has two stops within the City of Miramar along University Drive at Miramar Parkway and Pembroke Road. The City coordinates with BCt in the provision of express bus services.

Demand responsive service. Broward County funds and administers the Transportation Options Program (TOPS), which provides door-to-door service, upon request, to senior residents who are transportation or economically disadvantaged, for several specific trip purposes. The City coordinates with BCt in meeting the needs of the transportation disadvantaged. The City receives funding through the Federal Older Americans Act for seniors which as several specific trips purposes.

c. FDOT designated public transportation corridors. The purpose of corridor designation and subsequent planning is to relieve congestion by increasing people carrying capacity through the use of high occupancy vehicles. The two such corridors identified by FDOT are University Drive and State Road 7. Details about the two corridors, including justifications, are documented in the Public Transportation Corridor Reports by Name of Corridor, FDOT, District IV Individual Reports prepared by the FDOT. The City coordinates with Broward County, FDOT, the MPO and other entities in establishing a transit-oriented corridor overlay zoning district along FDOT designated corridors as a mean of promoting public transit use.

d. Major public transit trip generators and attractors. Major public transit generators and attractors are defined by the Broward County Transportation Element as areas of intense land use or activity, which produce or attract a significant number of local trip ends. Public transit generators are typified by residential land uses. Public transit attractors include commercial, industrial, office, commercial recreation, educational, institutional, and transportation land uses. Ideally, public transit should connect major transit generators to major transit attractors.

The City of Miramar employs Broward County's definition of a major public transit generator as one of the 40 Traffic Analysis Zones (TAZ's) with the highest population density. The number 40 was chosen because it represents approximately five (5) percent of all TAZ's within the county. The existing and future major public transit generator and attractor TAZ's are identified on Figure 2-3: Existing Transit Generators and Figure 2-4: Future Transit Generators in accordance with the Broward County Transportation Map series. According to the Broward County Transportation map series, TAZ 871 is the only existing major transit generators in the City. There are no major transit attractors indicated. This area is included within the BCt functional area coverage. The City has one future major public generator as identified by the Broward County Transportation map series, located in TAZ618. . In addition to the Broward County designated transit generators and attractors, Figures 2-3 and 2-4 also depict city-designated generators and attractors more specifically discussed below.

Figure 2-3: Existing Transit Generators

LEGEND

- Regional Activity Center (RAC)
- TAZ with Population Density at Top 5% of TAZs (Broward County Designated)
- 1 TAZ Boundary and Number
- Roadways

Miramar Designated Major Trip Generators and Attractors

- V Health Facilities with over 100 Beds
- m Schools with Enrollment over 1,000 students
- ! Major Office/Industrial Buildings (greater than 100,000 s.f.) outside of RAC

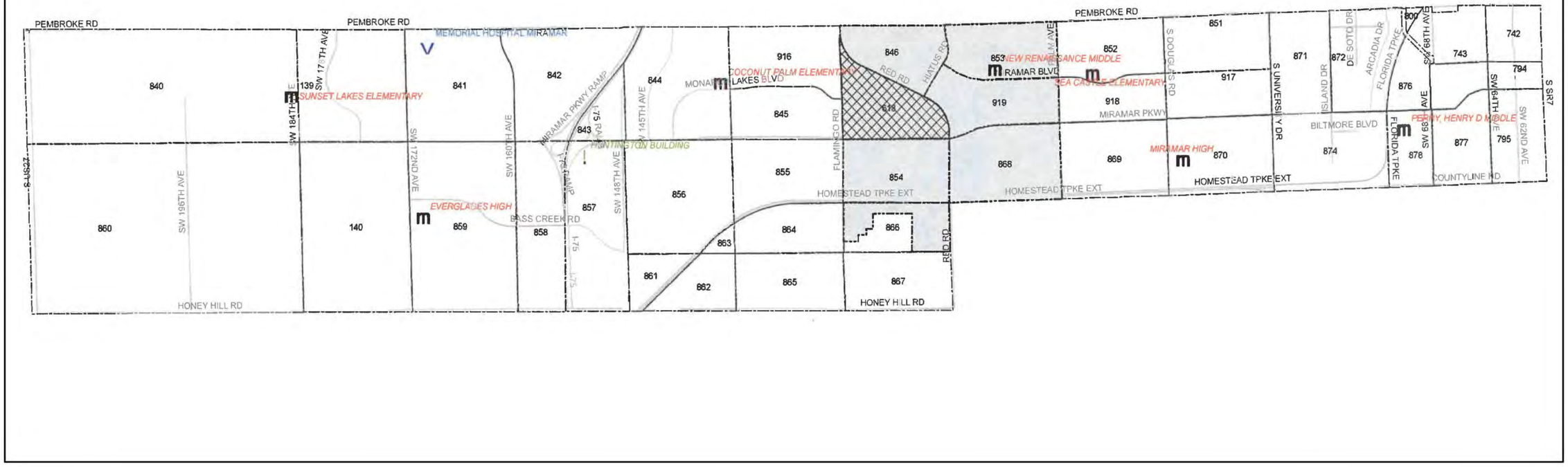
Source: Broward County GIS - TAZs, Hospitals, Schools; City of Miramar
Prepared: 08/27/2009

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Figure 2-4: Future Transit Generators



LEGEND

- Regional Activity Center (RAC)
- TAZ with Population Density at Top 5% of TAZs (Broward County Designated)
- 1 TAZ Boundary and Number
- Roadways

Miramar Designated Major Trip Generators and Attractors

- v Health Facilities with over 100 Beds
- m Schools with Enrollment over 1,000 students
- ! Major Office/Industrial Buildings (greater than 100,000 s.f.) outside of RAC

Source: Broward County GIS - TAZs, Hospitals, Schools; City of Miramar
Prepared: 08/27/2009

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

In addition to Broward County-designated generators/attractors, Miramar recognizes the following as generators/attractors provided they meet or exceed the following thresholds:

- office parks - 100,000 sq. ft. GLA (outside RAC);
- shopping centers - 500,000 sq. ft.;
- schools - 1000 students;
- major employers - 1000 employees; and
- health facilities - 100 beds (Broward County Comprehensive Plan 1989).

The list below identifies the major trip generators/attractors within the City of Miramar:

- Major Office/Industrial Buildings (greater than 100,000 square feet) Outside of RAC:
  1. Huntington Square Building

- Schools (enrollment greater than 1,000)
  3. Coconut Palm Elementary
  4. Sea Castle Elementary
  5. Sunset Lakes Elementary
  6. Henry D. Perry Middle
  7. New Renaissance Middle
  8. Miramar High
  9. Everglades High

- Health Facilities
  10. Memorial Hospital Miramar

3. Non-motorized Facilities consist of the **bicycle and pedestrianway** networks.

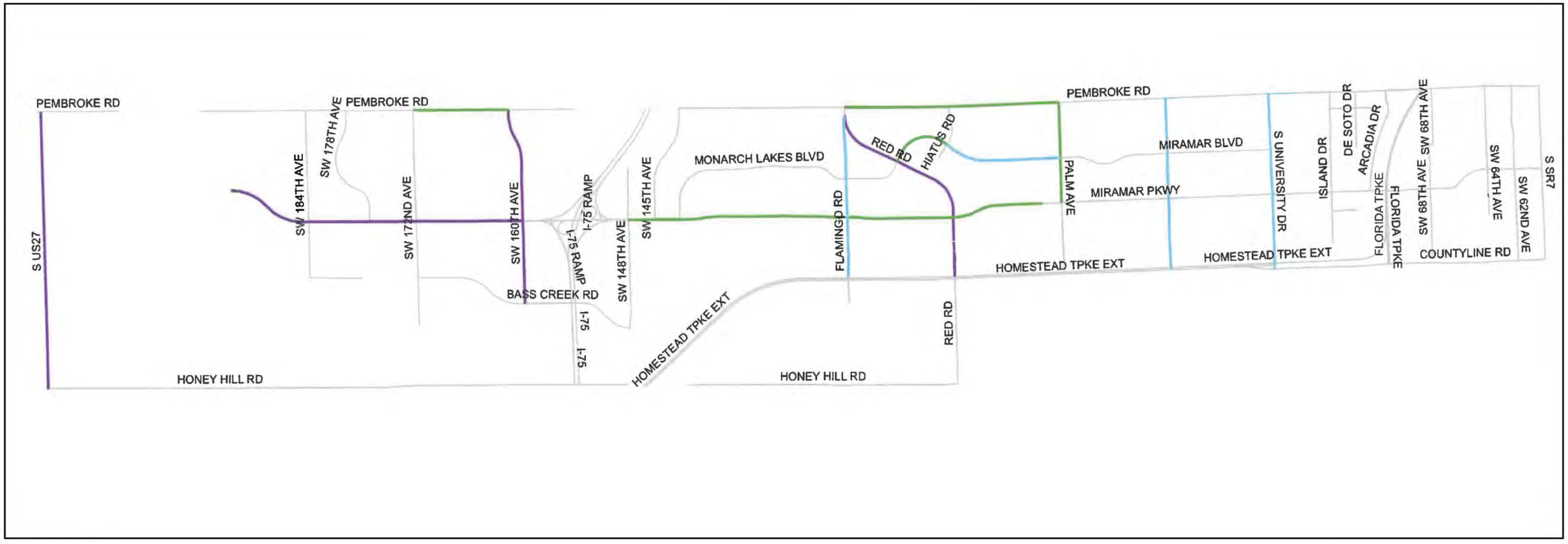
Bicycle network. The bicycle network includes bicycle facilities and services designed to enable and encourage the use of bicycles for recreational and utilitarian purposes. Recreational trips include travel for leisure, enjoyment, or pleasure and utilitarian trips include travel for work or errands.

Bicycle facilities include bikeways, bicycle parking racks and lockers, bicycle transport racks, and shower facilities.

Bikeways. A bikeway is any road, path or way, which is open to bicycle travel and from which motor vehicles are excluded. Bikeways may be located within a roadway right-of-way. The City continues to work in conjunction with the Broward County Bicycle Coordinator in the provision of educational training and a safe and energy efficient bikeways network system.

Figure 2-5: Existing Bicycle Facilities depicts the existing bicycle facilities within the City

Figure 2-5: Existing Bicycle Facilities



LEGEND

- 3' Undesignated Lane
- Marked Bike Lane
- Paved Shoulders
- Roadways

N

0 0.5 1 2 Miles

Source: Broward County Existing Bicycle Facilities Map, August 2007
Prepared: 09/28/2009

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Pedestrianways network. The pedestrianways network includes pedestrian facilities and services. Pedestrian facilities are designed to ensure safety and allow access to pedestrianways. Pedestrianways are any road, path or way open to traffic afoot and from which motor vehicles are excluded and includes such facilities as sidewalks, crosswalks, walkways, signals, median strips, curb cuts, and amenities.

Pedestrian facilities include significant pedestrianways, sidewalks, crosswalks, access facilities, and amenities. There are no significant pedestrian ways currently existing within the City.

Sidewalks. Sidewalks are located sporadically throughout the City. Most of the existing sidewalks are located east of Florida's Turnpike. Some of the existing sidewalks, especially along State Road 7, are not clearly separated from the roadway due to the absence of curbs. As a result, there is no clear indicator of where commercial driveways begin or end. Motorists can turn to access developments at any point since there are no curbs to designate driveways.

The City of Miramar is currently implementing a sidewalk construction program to improve the safety of children walking to school and residents traveling throughout the city. Programmed improvements have been identified for the next five years. Refer to the Future Improvements and Programs Section for more detailed information.

4. Airports and related facilities and services. Airports are an integral part of the County's and City's multi-modal transportation network. They provide access to local, state, national and international markets, and generate economic activity. Civil aviation activities can be subdivided into passenger air carrier, air cargo, and general aviation facilities.

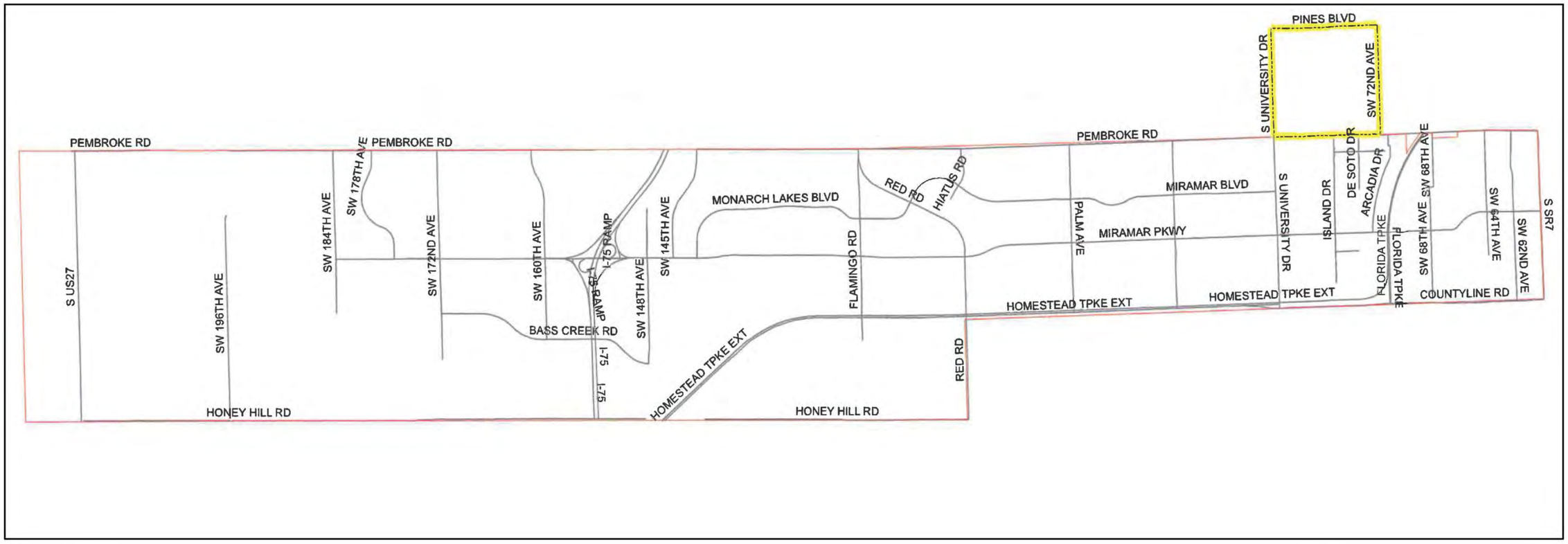
a. Airports and related facilities. Broward County owns and operates, or has jurisdiction over two airports in the county, one of which, North Perry Airport (HWO) is located outside of the City limits, north of Pembroke Road between University Drive and Southwest 72 Avenue. North Perry Airport's (HWO) primary function is to provide an alternative to FLL for small aircraft and training operations. It encompasses 528 acres of land, of which, about 293 acres are reserved for the airfield, 196 acres are used for aviation related purposes, and 39 acres are used for other purposes. HWO is accessible from Pembroke Road (State Road 820), Pines Boulevard (County Highway 824) and University Drive (State Road 817). Figure 2-6: Existing and Future Airport Facilities displays the location of the existing air facilities within and surrounding the City.

Airfield HWO provides service to aircraft with a maximum gross weight of 12,500 pounds or less, which accommodates approximately 95 percent of the general aviation fleet. The HWO airfield consists of two (2) sets of parallel runways and eight (8) taxiways.

In addition to HWO, the only other general aviation facility in the City of Miramar is the Helistop at the NBC 6 property located south of Pembroke Road, west of Southwest 148 Avenue, north of Miramar Parkway and east of Interstate-75.

Chapter 333, Florida Statutes governs airspace in municipalities where no airport zoning ordinance has been adopted. The City coordinates with the Broward County Aviation Department in order to provide safe airport facilities.

Figure 2-6: Existing and Future Airport Facilities



LEGEND

North Perry Airport (Pembroke Pines, FL)

Miramar City Limits

N

0 0.5 1 2 Miles

Prepared: 03/05/2010

Leigh Robinson Kerr & Associates, Inc.

808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

5. Railways Network. There are no rail facilities in the City of Miramar.

6. Recreational traffic network. The primary intent of the recreational traffic network is to provide travel oriented passive and active outdoor recreational opportunities. The city's recreational transportation network includes facilities and services.

a. Facilities. Facilities include greenways, equestrian trails, and the bikeways located within Broward County parks.

Greenways. The greenway concept is becoming widely recognized as a cost-effective approach to open space protection. There is not a standardized definition of a greenway, although most are linear and connective, and vegetated. Greenways typically follow physical linear features of the landscape, both natural and man-made. Natural features include rivers, ridge lines, and coastlines. Man-made features include abandoned railroad rights-of-way, utility easements, and roads. Greenways customarily provide connections between hubs, such as parks, cultural and historic sites, and developed areas. The connective aspect of greenways occasionally provides the opportunity for utilitarian use, but the primary use is recreational. Greenways commonly include vegetative buffers offering environmental benefits such as stormwater filtration and crucial wildlife habitat.

A functional greenway system consists of three components, hubs, links, and sites. Hubs represent the origin and destination points of the greenway and serve as a foundation for the system. Links are the paths and natural areas, which provide the connections between hubs. Sites are spots located along or nearby greenways, which are noteworthy for ecological, historical, cultural, or scenic value. Sites may serve as points of origin and destination; however, they often lack connections to hubs and other sites.

The City will work in conjunction with Broward County to delineate the City's greenway network that has appropriate connections with bikeways and equestrian trails. The City will coordinate with Broward County in the development of a recreational transportation network to help improve the links of the recreational network that focuses on non-motorized vehicles.

7. Intermodal terminals and access to intermodal facilities. An intermodal facility is a facility designed to relate to two or more modes of transportation using single or closely related transportation facility and service. The FDOT's Corridor Management Procedure defines it as the provision of connections between different transportation modes, such as adequate highways to ports or bus feeder services to rail transit, individual modes working together to provide the user with the best choices of services. For purposes of the Transportation Element and Support Document, intermodal facilities are categorized as passenger facilities.

a. Facilities. Intermodal facilities include intermodal facilities of state significance, terminals, connections, high-occupancy vehicle (HOV) lanes, and park-and-ride facilities.

The City of Miramar through the BCt has one connection to an intermodal facility identified in the Broward County Transportation Element (BCTE); however the City does not provide

within its jurisdiction any terminals, connections, HOV lanes, park and ride facilities or intermodal facilities of State Significance as defined by FDOT. BCt Bus service to the Tri-Rail Station on Hollywood Boulevard is available for Miramar residents; however, that facility has not been designated an intermodal facility since neither feeder or fixed bus routes directly service the passenger terminal. The City will continue to coordinate with BCt, FDOT, the MPO and other entities to investigate the need for additional intermodal facilities in the City.

8. Significant Parking Facilities. There are no significant parking facilities currently existing within the City.

Transportation Level of Service

Florida law requires transportation level of service standards be adopted for roads and public transit facilities within the local government's jurisdiction. Level of service standards for other facilities, such as bikeways and airports, are optional. The City applies transportation LOS standards through its Concurrency Management System only to roadways.

1. Roadway LOS Standards. Roadway level of service (LOS) standards has been long used in systems planning and traffic operations. The roadway level of service (LOS) standards is a qualitative assessment of the road user's perception of the quality of flow of traffic. The LOS standard is represented by letters "A" through "F", with "A" representing the most favorable conditions and "F" representing the least favorable. The LOS is measured by dividing the number of vehicular trips (i.e., volume) on the facility by the capacity on that facility. While this is the most prevalent LOS standard, LOS standards based on the number of person trips, vehicular miles traveled, vehicular miles traveled, or average speed can also be used.

- *LOS A* describes primarily free flow operations at average travel speeds usually about 90 percent of the free flow speed for the arterial class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.

- *LOS B* represents reasonably unimpeded operations at average travel speeds usually about 70 percent of the free flow speed for the arterial class. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.

- *LOS C* represents stable operations. However, ability to maneuver and change lanes in mid-block locations may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50 percent of the average free flow speed for the arterial class. Motorists will experience an appreciable tension while driving.

- *LOS D* borders on a range on which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. This may be due to adverse signal

- Progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free flow speed.

- *LOS E* is characterized by significant approach delays and average travel speeds of one-third the free flow speed or lower. Such operations are caused by some combination or adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.

- *LOS F* characterizes arterial flow at extremely low speeds below one-third to one-quarter of the free flow speed. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse progression is frequently a contributor to this condition.

a. Strategic Intermodal System***/Florida Interstate Highway System.*** *Rule 9J-5.0055(2)©, FAC, requires local* governments to adopt the LOS standard established by the Florida Department of Transportation by rule for facilities on the Strategic Intermodal System (SIS)/Florida Interstate Highway System (FIHS). It is based on a LOS "D" standard for generalized peak-hour peak-directional volumes for urbanized areas with a population over 500,000. The four facilities affected in the City include Interstate-75, U.S. 27, the Florida Turnpike and the Homestead Extension of the Florida Turnpike.

For consistency with the non-SIS/FIHS transportation facilities calculations utilized in this document, the analysis for SIS/FIHS facilities was conducted employing the generalized two-way peak hour volumes for Florida's urbanized highways. A conversion factor of 0.568 may be utilized to convert the generalized two-way peak hour volumes for Florida's urbanized highways to the generalized peak hour peak directional volumes for Florida's urbanized areas. This conversion factor can also be utilized to convert Table 2-8's generalized two-way peak hour volumes for LOS "D" to the generalized peak hour peak directional volumes for LOS "D".

b. Other non-local and non-municipal roadways. Rule 9J-5.0055(2)©, FAC, requires local governments to adopt adequate LOS standards for local roads. The City of Miramar proposes to adopt the generalized two-way peak hour volumes for Florida's Urbanized Areas at the LOS "D" standard, as shown in Table 2-8. In the 1990 Traffic Circulation Element, the roadway LOS "D" standard was measured by the average annual daily traffic (AADT) volumes; however, state law now requires the LOS standard be measured by peak hour volumes. The City of Miramar will continue to use the LOS "D" standard as the roadway concurrency standard. The two-way peak hour LOS "D" standard volumes are calculated by multiplying the AADT volumes by the statewide average of 0.093. This average is also the Planning Hour Factor or K factor (K100). According to the FDOT 1998 Level of Service Manual, it is the "100th highest demand volume hour of the year for a roadway section" or the "ratio of the 100th highest volume hour of the year to the average annual daily traffic." The City of Miramar, consistent with the Broward County Transportation Element, is using two-way peak hour volumes instead of directional peak hour volumes because FDOT also uses two-way peak hour volumes.

Table 2-8 Generalized Two-Way Peak Hour volumes for "LOS D"						
Lanes	**2-lane Undiv.**	**4-lane Div.**	**6-lane Div.**	**8-lane Div.**	**10 Div.**	**12 lanes**
State 2-way Arterials Uninterrupted Flow	1,720	5,870	8,810	---	---	---
Interrupted Flow Class I (0 to 1.99)	1,560	3,390	5,080	6,440	---	---
Interrupted Flow Class I (2.00 to 4.50)	1,460	3,110	4,680	6,060	---	---
Interrupted Flow Class III	1,200	2,750	4,240	5,580	---	---
Interrupted Flow Class IV	1,310	2,880	4,350	5,690	---	---
Freeways, Group 1	---	6,510	10,050	13,600	17,160	20,710
Freeways, Group 2	---	6,250	9,840	13,420	16,980	20,560
Non-State Roadways Major City/County Rd	1,390	2,950	4,450	---	---	---
Other Signalized Rds.	950	2,070	---	---	---	---
Source: Broward County Transportation Element 2006 Comprehensive Plan						

c. Roadway LOS standard exemptions. The Florida Statutes allow local governments to adopt a number of exceptions to the traffic concurrency requirements. The exceptions apply to geographic areas (e.g., transportation concurrency management areas (TCMAs)), to specific roadway segments (e.g., constrained roadways), and to specific developments (e.g., de minimis impacts).Section three below "Concurrency Management System" outlines roadway LOS standard exemptions.

2. Public transit LOS standard. Public transit facilities are provided by Broward County Transit.

3. Concurrency Management System. The Concurrency Management System (CMS) is implemented by Broward County's Planning Division of the Growth Management Department. Refer to Figure 2-10: Transportation Concurrency Management Areas (TCMAs) and Standard Concurrency Districts which depicts concurrency districts within the City.

The City shall be divided into two Concurrency Districts. Each District shall be one of the following types:

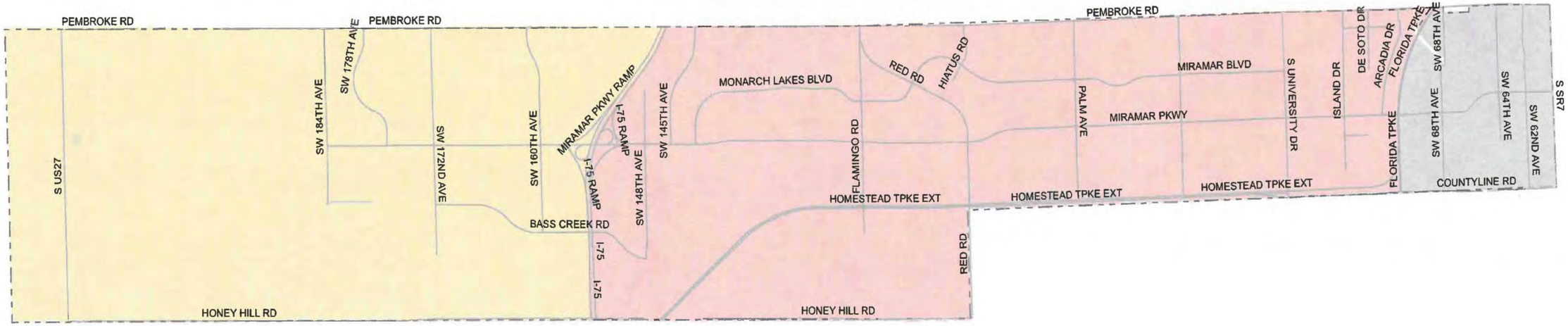
1. A Transportation Concurrency Management Area (TCMA) shall be a compact geographic area with an existing network of roads where multiple, viable alternative travel paths or modes are available for common trips. An area-wide level of service standard shall be established for this District, for the purpose of issuing development orders and permits, based on how mobility will be accomplished within the Area. The portion of the City situated between I-75 and the Florida Turnpike is located within the South Central Concurrency District TCMA. The portion of the City situated east of the Florida Turnpike is located within the Southeast Concurrency District TCMA.

2. A Standard Concurrency District shall be an area where roadway improvements are anticipated to be the dominant form of transportation enhancement. A roadway level of service standard shall be established for each such District, based on the peak-hour standard volumes contained in the Florida Department of Transportation Level of Service Manual for this District lying west of Flamingo Road**.** The portion of the City situated west of I-75 is located within the Standard Southwest Concurrency District.

3. Roadway facilities forming the boundary of a Concurrency District are part of that District.

4. If the Standard Concurrency District is converted into a TCMA, then the ~~policies regarding TCMAs will automatically apply.~~ Comprehensive Plan will be amended to recognize the change to TCMA.

Figure 2-10: Transportation Concurrency Management Areas (TCMAs) and Standard Concurrency Districts



LEGEND

- Miramar City Limits
- South West Standard District
- South East TCMA
- South Central TCMA

Source: Broward County TAZs; Broward County Transit Concurrency District Map
Prepared: 03/05/2010

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Broward County shall issue a Transportation Concurrency Satisfaction Certificate, relative to a building permit application, under any of the following circumstances:

1. If the building permit application is on property within a recorded plat that was approved by the County Commission on or after March 20, 1979; and the building permit application is consistent with the level of development under which the plat is currently approved by the County Commission; and the County Commission's finding of satisfaction of transportation concurrency for the plat has not expired; and the plat is not in violation of an agreement with Broward County with respect to transportation concurrency.

2. If the building permit application is on property for which Broward County has made a finding of vested rights with respect to transportation concurrency; and the building permit application is consistent with the level of development under which the plat was approved by the County Commission; and the plat is not in violation of an agreement with Broward County with respect to transportation concurrency.

3. If the building permit application is for property within, and for development in accordance with and as authorized by, an approved Development of Regional Impact (DRI) or a Florida Quality Development (FQD) development order which development order was either issued prior to the adoption of the 1989 Broward County Comprehensive Plan or was issued after being reviewed for, and satisfying, Broward County's transportation concurrency requirements.

4. If the building permit application is for property within a TCMA district; and the applicant has paid to Broward County a Transit Concurrency Assessment, as described in Policy 1.20, for the development proposed in the building permit application.

5. If the building permit application is for property within a transit oriented concurrency district; and the application is for an addition to, replacement of, or renovation to a residential building, and does not increase the number of dwelling units within that building nor change the type of units.

6. If the building permit application is for property within the TCMA; and the application is for an addition to, replacement of, or renovation to a non-residential building, and does not increase the number of peak-hour trips generated by the building.

7. If the building permit application is for property within a Standard Concurrency District; and the application is for property within a recorded plat that was approved by the County Commission; and a finding of satisfaction of transportation concurrency was made for that plat by the County Commission in accordance with Policy 1.7 and has not expired; and the building permit

application is consistent with the level of development under which the plat is currently approved by the County Commission; and the plat is not in violation of an agreement with Broward County with regard to transportation concurrency.

8. If the building permit application is for property within a standard concurrency district, and the property is not within a recorded plat that was approved by the County Commission on or after March 20, 1979, and the City is not requiring platting or replatting with regard to this building permit application. Broward County may require written evidence from the City that platting or replatting is not required.

9. If the building permit application is for development that promotes public transportation, which means development that directly affects the provision of public transit, including transit terminals, transit lines and routes, separate lanes for the exclusive use of public transit services, transit stops (shelters and stations), and office buildings or projects that include fixed-rail or transit terminals as part of the building.

10. Policies 1.~~6~~8 #5 and 1.~~6~~8 #6 may be modified, so that if a building permit application with the City is for property within a transit-oriented concurrency district, and said property is unplatted or platted prior to March 20, 1979, then the applicant shall be subject to a Transit Concurrency Assessment based on the total peak-hour trips generated by the use proposed in the building permit application, regardless of the prior use permitted or built on the property. This option can only be exercised by a municipality adopting such a provision in its Comprehensive Plan

11. The County Commission may, by ordinance, provide that a Transportation Concurrency Satisfaction Certificate shall be issues, relative to a building permit application, if the proposed development is a project which promotes public transportation and is located within a Regional Activity Center as described in and defined by the Broward County Comprehensive Plan, and is within an area that contains major public and private postsecondary institutions of higher learning. The impact of the proposed development on the SIS, as defined in Section 338.001, F.S., shall be considered in issuing said Certificate.

Within Standard concurrency districts, the concurrency management system shall provide that a finding of satisfaction of transportation concurrency be made, when a roadway exceeds its adopted LOS standard provided one or more of the following mitigation measures apply:

1. The proposed development does not place any trips on, or create any, overcapacity links within the impact area. The impact area is a circular area, centered on the proposed development site, with a radius determined by the scale of the proposed development.

2. There is an approved action plan to accommodate the traffic impact of the development, and implementation of the plan has been committed to in a written agreement approved by the property owner(s), the appropriate municipality, and the County Commission.

3. The necessary improvements to provide a LOS "D" are under construction at the time a permit is issued.

4. The necessary improvements to provide LOS "D" are the subject of a binding executed contract for the construction of the facilities.

5. The necessary improvements for the LOS "D" have been included in the first two (2) years of the adopted state or county five-year schedule of transportation improvements and the applicable government entity makes a determination that a binding contract for the implementation of said improvements will be executed no later than the final day of the second fiscal year of the original schedule.

6. The necessary improvements for the LOS "D" have been included in the first two 2) years of the adopted municipal five-year schedule of transportation improvements and the municipality has entered into an interlocal agreement with the County, which interlocal agreement will include assurances by the municipality, upon which the County may rely, that at the time a development permit is issued, the necessary facilities and services are the subject of a binding executed contract which provides for the commencement of the actual construction of the required facilities or the provision of services within one year of the issuance of a building permit.

7. The necessary facilities and services for LOS "D" are guaranteed in an enforceable development agreement. An enforceable development agreement may include, but is not limited to, development agreements pursuant to Section 163.3220, Florida Statutes, or an agreement or development order issued pursuant to Chapter 380, Florida Statutes; provided that road improvements required by a Development of Regional Impact (DRI) development order shall not be considered for concurrency determinations for the property outside the DRI boundaries unless conditions 3., 4., 5., or 6. above apply.

8. The proposed development is found to have vested rights with regard to any affected road segment in accordance with the provisions of Chapter 163, Part II, Florida Statutes, or a common law vested rights determination made as to that road segment in accordance with procedures set forth within the land development regulations adopted by the Board of County Commissioners. The proposed development must meet concurrency for any road segment for which a vested rights determination has not been made.

9. An impact of one single family home or duplex will constitute a de minimis impact on all roadways regardless of the level of deficiency on the roadway. Further, no impact will be de minimis if it would exceed the adopted LOS standard of any affected designated hurricane evacuation routes.

10. The proposed development is for property within, and for development in accordance with and as authorized by, an approved Development of Regional Impact (DRI) or a Florida Quality Development (FQD) development order which development order was either issued prior to the adoption of the 1989 Broward County Comprehensive Plan or was issued after being reviewed for, and satisfying, Broward County=s transportation concurrency requirements.

11. The proposed development would promote public transportation, which means development that directly affects the provision of public transit, including transit terminals, transit lines and routes, separate lanes for the exclusive use of public transit services, transit stops (shelters and stations), and office buildings or projects that include fixed-rail or transit terminals as part of the building.

    Said finding shall be made by the County Commission at the time of approval of an application for a plat, an amendment to the restrictive note on the plat, or the placement of a restrictive note on the plat, or a new finding of adequacy for a plat.

The City continues to coordinate with Broward County to address overcapacity roadway segments and roadway segments approaching capacity.

Transportation and Population Characteristics

Rule 9J-5.019, FAC, requires:

Auto availability and vehicle occupancy rates. The availability of autos per household is an additional indicator of transit demand. According to the Census, there were 18,538 owner occupied housing units in Miramar in 2000. Of these, 566 households (3%) had no auto available, and 4,837 (26%) units had one vehicle available. Of the 4,520 rental households, 625 (14%) had no auto available, and 2,124 (47%) had one auto available. The absence of an auto is closely linked to age of the householder. The City of Miramar has 16% of the households headed by a person over 65 years of age who did not have an auto; however 3.7% of the households headed by a person younger than 64 years of age lacked access to an automobile.

These statistics indicate that Miramar does not have a high level of transit dependency in the overall population. The principal demand segment appears to be the retired sector of the population. The City's shuttle bus service addresses the elderly population's restricted mobility by providing service to various facilities such as the community center and the senior center. In general, bus transit meets a relatively low level of commuter needs. When considering alternatives to the private auto work trip, carpooling has the greatest number of users, followed by working at home.

Environmental Issues

The City will continue to coordinate with the BCt, MPO, and other entities to examine and adopt transportation management strategies designed to reduce automobile use and promote public transit use.

B. Transportation Analysis

Rule 9J-5.019(3), FAC. provides for the Transportation Element (TE) to be based upon the following analysis: land use and transportation system interaction; existing and projected transportation system level of service and system needs, including existing and projected intermodal needs; maintaining the adopted transportation level of service standards; consistency between the future land use and transportation elements, and consistency with other transportation plans; and promotion and support of the public transportation system in designated public transportation corridors.

Land Use and Transportation System Interactions

This section is intended to implement various Rule 9J-5, FAC, analysis requirements. Subsection 1 addresses growth trends, population characteristics and travel patterns associated with the transportation system (i.e., the roadway and public transit networks) and is intended to fulfill the requirements of Rule 9J-5.019(3)(d), FAC. Subsection 2 focuses on the availability of the transportation system to serve existing land uses as required by Rule 9J-5.019(3)(b), FAC. Subsection 3 addresses land use compatibility around airports consistent with Rule 9J-5.019(3)(d), FAC. At the present time, the portions of US 27, I-75, Homestead Extension of the Florida Turnpike, and Florida's Turnpike located within the City of Miramar city limits are designated as Hurricane Evacuation routes per the Florida Division of Emergency Management's Broward County Evacuation Routes Map, September 2008. These roadways are not governed by the City. Therefore, an evaluation of the adequacy of the transportation system for evacuation pursuant to Rule 9J-5.019(3)(c), FAC is not included.

1. Travel patterns, population characteristics and growth trends. According to the Broward County Transportation Element (BCTE), travel patterns can be documented through origin-destination studies. In December 1996, the Broward Travel Characteristics Study was completed for the FDOT. Table 2-9 shows internal/external trip rates by purposes of home-based work (HBW), home-based shopping (HBS), home based-social recreation (HBR), home-based other (HBO), and non-home based (NHB).

Table 2-9 Internal/External Trip Rate by Purposes							
Unit Type	**Trip Type**	**Trip Purpose**					**Total trips**
		HBW	**HBS**	**HBR**	**HBO**	**NHB**	
Single Family	Internal	1.24	0.86	0.45	1.55	2.14	6.25
	Int/Ext	0.33	0.02	0.02	0.04	0.18	0.59
	Total	1.57	0.87	0.48	1.60	2.32	6.83
Multi Family	Internal	0.55	0.94	0.47	1.24	0.53	4.74
	Int/Ext	0.13	0.03	0.04	0.07	0.14	0.41
	Total	0.68	0.97	0.52	1.31	1.67	5.15
All units	Internal	0.83	0.77	0.39	1.06	1.66	4.81
	Int/Ext	0.21	0.02	0.03	0.05	0.14	0.45
	Total	1.04	0.79	0.42	1.21	1.80	5.26

Source: Broward Travel Characteristics Study: Final Report, Table 11, Walter H. Keller, Inc. (Dec. 1996).

Of the 2000 Census population of72,739, over 77% lived in "traditional" family settings (husband-wife-natural children). Approximately 4.5% of the population lived alone. Persons 65+ living alone constituted 25% of the live-alone population, or 1% of the total city population. Nearly 41% of the population was foreign born. Of the native-born population, nearly 23% (16,300 persons) were born in another state. See population characteristics in Table 2-10 below:

Table 2-10
2000 Population Characteristics

2000 Characteristic	Miramar	Broward County
Population	72,739	1,623,018
% of pop. < 18 years	31%	24%
% of pop. > 65 years	6.5%	16%
Married couples, % of households	56%	47%
Persons per household	3.15 people	2.45 people
Persons in group quarters	28 people	19,924 people
% of population in group quarters	0%	1.2%
Percentage of pop. by race and Hispanic origin		
White, non-Hispanic	43.6%	70.6%
Black, non-Hispanic	43.3%	20.5%
Am. Indian, non-Hispanic	0.2%	0.2
Asian, non-Hispanic	3%	2.3%
Other, non-Hispanic	4.7%	3%
Hispanic	29.4%	16.7%

Source: United States Census 2000, Demographic Profile SF1.

80% of the workers in Miramar drove alone to work. Nearly 15% of workers carpooled. Public Transportation means were used by a total of 504 (1.5%) workers. Information on means to access to work accents the community's reliance on the private automobile and the arterial highway system. See Table 2-11 below:

Table 2-11
Means of Travel to Work, 2000

Means of Travel	Workers over 16 years old
Drove Alone	26,717
Carpooled	4,814
Bus or Trolley Bus	452
Subway or elevated	12
Railroad	0
Taxi	30
Motorcycle	17
Bicycle	80
Walked	310
Worked at home	624

Source: United States Census 2000, P30 Means of Transportation Summary File 3 (SF3)

The 2000 Census provided statistics, which can be used to indicate transit need. One factor is mobility limitation of the population, as indicated in Table 2-12 below. Approximately 10% of the 2000 population over 16 yrs of age had a disability making it difficult to go outside the home, thus resulting in some mobility limitation.

Table 2-12 Mobility Limitations and Employment Status, 2000	
Total pop 16+:	**52,163**
Male:	**24,046**
16 to 20 years:	2,531
With a go-outside-home disability:	239
Employed	112
Not employed	127
No go-outside-home disability:	2,292
Employed	763
Not employed	1,529
21 to 64 years:	19,666
With a go-outside-home disability:	1,964
Employed	1,121
Not employed	843
No go-outside-home disability:	17,702
Employed	14,479
Not employed	3,223
65 to 74 years:	1,158
With a go-outside-home disability	135
No go-outside-home disability	1,023
75 years and over:	691
With a go-outside-home disability	194
No go-outside-home disability	497
Female:	**28,117**
16 to 20 years:	2,338
With a go-outside-home disability:	115
Employed	71
Not employed	44
No go-outside-home disability:	2,223
Employed	713
Not employed	1,510
21 to 64 years:	22,903
With a go-outside-home disability:	2,060
Employed	909
Not employed	1,151
No go-outside-home disability:	20,843
Employed	15,002
Not employed	5,841
65 to 74 years:	1,587
With a go-outside-home disability	234
No go-outside-home disability	1,353
75 years and over:	1,289
With a go-outside-home disability	411

No go-outside-home disability	878

Source: United States Census of Population 2000, PCT31.

The 2000 Census population data reflected the population growth in Miramar. Approximately 42% of the population in 2000 lived in the same house as in 1995. Eight percent of the population lived in another state and 35% lived in another county in 1995. The population in Miramar increased from 40,663 in 1990 Census to 72,739 in 2000. for a growth of 79%.. The census estimates the City's 2008 population to be 108,484 which represents a 49% increase since 2000 and a 167% increase since 1990.The overall and annual growth rates for the City and county are depicted below in Table 2-13.

Table 2-13
Growth Rates by Population Estimates

Total Population	**Broward County**	**Growth Rate**		**Miramar**	**Growth Rate**
1990 (Census 1990)	1,255,488			40,663	
2000 (Census 2000)	1,623,018	+ 29%		72,739	+ 79%
2008 (Census Estimate)	1,751,234	+ 7.9%		108,484	+ 49%
April 1, 2000 (Census 2000)	1,623,018			72,739	
July 1, 2000	1,631,983	+ 0.6%		74,578	+ 2.5%
July 1, 2001*	1,668,165	+ 2.2%		81,975	+ 9.9%
July 1, 2002*	1,698,537	+ 1.8%		89,697	+ 9.4%
July 1, 2003*	1,718,271	+ 1.2%		95,728	+ 6.7%
July 1, 2004*	1,739,670	+ 1.2%		100,518	+ 5.0%
July 1, 2005*	1,763,706	+ 1.4%		105,669	+ 5.1%
July 1, 2006*	1,764,533	+ 0.04%		106,844	+ 1.1%
July 1, 2007*	1,748,771	- 0.9%		107,548	+ 0.7%
July 1, 2008*	1,751,234	+ 0.1%		108,484	+0.9%

Source: US Census Bureau, Population Estimates Program, defined as of July 1, 2008
*Census Estimates

2. Availability of transportation facilities and services to serve existing land use. Availability, as used here, refers to the extent to which the transportation system provides access to serve existing land uses. Access to serve existing land uses requires an extensive network of connections. Roadways, public transit, bikeways, and pedestrianways are transportation modes that require an extensive network of connections in order to serve existing uses. Some transportation modes, such as the recreational traffic network, have limited connections and do not serve the primary function of serving or providing access to existing land uses. Still other transportation modes, such as airports and related facilities and intermodal facilities, are in essence transportation hubs serving regions. Consequently, this section addresses availability of the roadway, public transit, bikeways, and pedestrianways networks to serve existing land use.

a. Roadway network. Availability of the roadway network to service existing land uses is primarily a function of the existing local roadway system. The primary local roadway network

in the City of Miramar totals approximately 173 miles (FDOT, 2008 City/County Mileage Report). New development is assured access by the subdivision regulations (Section 509) of the City of Miramar Land Development Code, which requires that development have adequate access to roadways. The secondary local roadway network consists of both private and public roads that link to the primary roadway network and are typically maintained and improve by the particular development for which they serve, or by the City if the road is dedicated to the public.

Collector and arterial roadways, as a secondary or tertiary function, oftentimes provide access to existing land uses. This occurred prior to the implementation of access management strategies.

b. Public transit network. According to the Broward County Transportation Element (BCTE), availability of public transit to service existing land uses is based on the functional area coverage of the existing fixed-route bus network. BCt defines functional area coverage as a ½ mile corridor surrounding a bus route, 1/4 mile in each direction. The 1/4-mile radius is based upon studies showing a person would walk up to 1/4 mile to access the public transit network. The City of Miramar employs the BCt functional area coverage as the public transit level of service standard. Functional Area Coverages are identified on Figure 2-2B: ~~Existing~~ Transit ~~Routes and~~ Functional Area Coverage. The functional area coverage encompasses approximately 70 percent of the total land area in the entire City of Miramar.
As stated earlier, public transit services in Miramar continues to be provided by the Broward County Mass Transit Division (BCt). The City is served by six fixed routes, namely Route 2, Route 5, Route 18, Route 28, 441 Breeze, and University Breeze. According to the Broward County Transit Division, 2009 ridership on the routes serving Miramar averaged 34 passengers per hour for Route 2, 23 passengers per hour for Route 5, 52 passengers per hour for Route 18 and 37 passengers per hour for route 28. The data indicates that Route 18 exhibits the highest volume/capacity percentage, 36%. This route services the City along 441/SR7. The mass transit network encompasses all facilities and services used to transport the public.

Intralocal service is provided by a community shuttle transit service sponsored by the City of Miramar. This service connects the City's residents to many of the activity centers throughout the City. The shuttle also provides service to Memorial Hospital west, which is located outside of the City limits, and Memorial Hospital Miramar. The shuttle service was initiated in 1995. In 1999 ridership totaled of 6,559 for an average of 550 passengers monthly while in 2000, ridership increased to a total of 33,508 (January-October) with the monthly average increasing to 3000 passengers. Ridership increased to 10,834 for the month of August 2009 The primary reasons for the increase in ridership are the improved consistency in service, the addition of two new buses to the fleet since program initiation, increased hours of operation and increased route coverage.
Intercounty transit service can be accommodated through the BCt. BCt Route 18 provides service to the Golden Glades Interchange and 163 Street Shopping Center in Miami-Dade County. Route 2 provides service to Northwest 207 Street in Miami-Dade County. Miramar residents can also take BCt Route 18, transfer to Route 7, which connects to the Tri-Rail terminal for access to Dade and Palm Beach Counties. The 441 Breeze provides express

service along the 441 corridor and the University Breeze provides express bus service along the University Drive corridor.

The Broward County Transit Development Plan Update Fiscal Year 2009-2018 identifies operational and capital improvements to the County's transit system. The FY 2009-18 major update of the TDP incorporates a 10-year planning horizon beginning in FY 2009 (which starts October 1, 2008). The TDP addresses the requirements of, and is consistent with, applicable FDOT regulations, all requirements of Florida Administrative Code Section 14-73.001 (revised and published in December 2005), and all requirements of Florida Statute 341.052. The required Annual Update to the TDP was issued in August 2009. Table 2-14 below depicts Miramar's transit improvements per the 2009 Annual Update of the Plan:

Table 2-14
Summary of Service Improvements by Year and Improvement Type, Miramar

Year	Weekday Frequency	Weekday Span	Saturday Frequency	Saturday Span	Sunday Frequency	Sunday Span	Route Extension	New Routes
FY 2009	Route 5	-	-	-	-	-	-	Route 2 limited
FY 2010	Route 28	-	-	-	-	Route 28	~~Route 18~~	-
FY 2011	-	-	-	-	-	-	Route 18	-
FY 2012	-	-	-	-	-	-	-	-
FY 2013	~~Routes 28, 2~~	~~Route 5~~	-	-	~~Route 2~~	~~Routes 28, 2~~	-	-
FY 2014	~~441 Breeze~~ Route 2	Route 5	-	Route 5	Route 2	Route 2	~~441 Breeze~~	-
FY 2015	441 Breeze-	-	-	-	-	-	-	-
FY 2016	-	-	-	-	-	-	-	-
FY 2017	-	-	-	-	-	-	-	-
FY 2018	-	-	-	-	-	-	-	-
FY 2019	-	-	-	-	-	-	-	-

Source: Broward County Transit Development Plan, Table 7-19, Major Update, 2009-2018.; Broward County FY2010 Transit Development Plan (TDP) Annual Update, August 25, 2009, Table 3.

c. Bikeways and Pedestrianways network. According to the Broward County Transportation Plan, availability of the bikeways network to serve existing land uses can be defined by the functional area coverage for utilitarian bicycle trips, which can be categorized as a two (2) mile radius from the point of trip origination. The two (2) mile radius was derived from a special tabulation of the 1990 Nationwide Personal Transportation Survey which found that 72 percent of the work trips by bicycle are two (2) miles or less; the comparable figure for shopping trips is 87 percent. Availability of pedestrian ways to service existing land uses is primarily a function of the functional area coverage of the existing pedestrianway. As noted in the public transit availability discussion, the distance a person would be willing to walk is approximately 1/4 mile. Since this distance is so small, the pedestrianway network, when utilized as a strategy

to promote intermodal facilities, should be geared toward improving access to the public transit network and improving connections between employment centers.

Through the platting process in the City of Miramar, new development is required to dedicate adequate right-of-way for the transportation system, which includes bikeways and sidewalk areas. Since the platting process is conducted at both the city and county levels in Broward County, it gives the city an opportunity to provide recreational oriented bikeways and sidewalks that link the system to many of the City's schools, parks, and commercial facilities, while giving the county an opportunity to provide intermodal transportation oriented bikeways and sidewalks needed to improve access to the public transit network.

The City continues to coordinate with the Broward County Bicycle and Pedestrian Coordinators to improve the link connections between the City's local recreational oriented bikeway/pedestrianway systems and Broward County's systems.

3. Compatibility around airports. The principal land use impacts from any airport can be expressed in terms of safety, noise and accessibility. As is common among urban airports, some land uses surrounding North Perry are not considered compatible with the airport. However, according to the BCTE, Broward County has undertaken initiatives to identify and reduce incompatibility at North Perry Airport.

a. North Perry Airport. Miramar's predominant land use adjacent to North Perry Airport is residential followed by commercial. Most residential uses are one-story, single family. While it is preferable that developments surrounding an airport be of low density and intensity, it is not feasible to promote redevelopment of the existing properties adjacent to North Perry.

Safety. Portions of six of the eight RPZs at North Perry fall outside airport property, overlaying roads, commercial and residential properties. Broward County has acquired aviation easements on properties off Runway 18R. The 1996 North Perry Master Plan Update recommended adding nominal amounts of pavement to four of the airport's runways to permit the locations of the RPZs to be adjusted so they do not include areas of residential or commercial development. Runway pavement construction is due to begin in 2000 at an estimated cost of $400,000.

Broward County Aviation Department conducts regular surveys for obstructions that affect airspace in the runway approaches at North Perry. Fixed objects, including towers and light poles, are marked with obstruction lights as required by FAA regulations.

Noise. An aircraft noise analysis completed in April 1980 by Greiner Engineering Sciences, Inc, indicated that the only occurrences of noise exposure levels of 65 DNL or greater are within the Airport property boundaries. The 65 DNL noise exposure level is considered by the FAA to be the threshold level for aircraft noise: land uses around North Perry are considered to be compatible with the level of airport noise exposure resulting from aircraft operations at the airport. (Although conducted in 1980, this analysis was based on 279,000 annual operations which is less than the number of operations forecast for 2015 in the 1997 Master Plan.)

Accessibility. North Perry is accessible from the surrounding roadways. Broward County Transit has services along University Drive, Pines Boulevard and Pembroke Road.

Existing transportation system level of service and system needs

Rule 9J-5.019(3) (a), FAC requires the analysis of the existing transportation levels of service (LOS) and system needs to be based on the following data: existing design and operational capacities; most recently available estimates for average daily and peak hour vehicle trips; existing modal split and vehicular occupancy rates; existing public transit facilities; population characteristics; and the existing characteristics of the major trip generators and attractors within the community. The existing transportation system analysis is focused on the single mode (roadways) due to the fact that public transit services are provided by BCt; however, the City has examined land uses within the functional coverage areas as defined by BCt and has identified the existing and future major transit generators and attractors in the TE Data Requirements Section of this element. Other transportation modes are addressed under the section on future transportation system level of service and system needs.

1. Roadway network: Figure 2-7A: Existing Roadways 2008 Level of Service, Approaching Overcapacity & Overcapacity Roadways (AADT) depicts the existing 2008 roadway level of service and network segments that are approaching capacity, that is, those roads with a V/C ratio between 0.90 and 0.99, and those segments that are overcapacity. Table 2-15, 2008 Roadway Characteristics, supports Figure 2-7 and depicts roadway segments, segment volumes, committed traffic, segment capacity, volume to capacity (V/C) ratio, and level of service as measured by average annual daily traffic (AADT) and peak-hour traffic (PHT). The AADT figures, including committed trips are derived from the Broward County Traffic Review and Impact Planning System (TRIPS) model, which is the concurrency management system computer model used by the county for the issuance of development orders and permits. The BCTE states that since Broward County initially used a planning analysis hour factor to convert daily traffic to peak-hour traffic, the V/C ratio and LOS remain the same for both daily and peak-hour traffic. Figure 2-7B depicts the existing peak hour level of service for roadways within the City.

Table 2-15
Existing Roadway Conditions 2008

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity *	V/C	LOS Std.	Exist. LOS	Peak-Hr Volume	Peak-Hr Capacity *	V/C	Exist. LOS
NORTH / SOUTH ROADWAYS	**US 27**										
	N of Dade CL	4	22500	61800	.36	D	B	2100	5870	.36	B
	N of Miramar Pkwy	4	19500	61800	.32	D	A	1900	5870	.32	A
	SW 196 Ave										
	N of Miramar Pkwy*	2	4520	10000	.45	D	C	440	950	.46	C
	SW 184 Ave										
	N of Bass Creek Rd*	2	13417	10000	1.34	D	F	1310	950	1.38	F
	N of Miramar Pkwy*	2	13417	15580	.86	D	D	1310	1482	.88	D
	SW 178 Ave										
	N of Miramar Pkwy	4	6700	21700	.31	D	C	630	2070	.30	C
	SW 172 Ave										
	N of Bass Creek Rd	4	8000	31100	.26	D	C	750	2950	.25	C
	N of Miramar Pkwy	4	12500	31100	.40	D	C	1170	2950	.40	C
	SW 160 Ave/Dykes Rd										
	N of Bass Creek Rd	4	18800	21700	.87	D	D	1750	2070	.85	D
	N of Miramar Pkwy	4	19400	33915	.57	D	B	1810	3221	.56	B
	I-75										
	N of Dade C L	8	145982	144300	1.01	D	E	12410	13420	.92	D
	N of Miramar Pkwy	8	150500	144300	1.04	D	E	12790	13420	.95	D
	SW 148 Ave										
	N of Bass Creek Rd	2	16900	10000	1.69	D	F	1580	950	1.66	F
	SW 145 Ave										

Table 2-15
Existing Roadway Conditions 2008

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity *	V/C	LOS Std.	Exist. LOS	Peak-Hr Volume	Peak-Hr Capacity *	V/C	Exist. LOS
	N of Miramar Pkwy	4	10300	21700	.47	D	C	960	2070	.46	C
	Flamingo Rd										
	N of Dade	4	26000	31100	.84	D	D	2430	2950	.82	D
	C L	4	23790	31100	.76	D	D	2315	2950	.78	D
	N of	4	19800	31100	.64	D	C	1850	2950	.63	C
	HEFT*	6	53500	53500	1.00	D	D	5210	5080	1.03	F
	N of Miramar Pkwy										
	N of Red Rd*										
	Red Rd										
	N of Dade	6	38500	53500	.72	D	B	3590	5080	.71	B
	C L	6	54500	53500	1.02	D	F	5080	5080	1.00	D
	N of	6	40500	53500	.76	D	B	3780	5080	.74	B
	HEFT										
	N of Miramar Pkwy										
	Hiatus Rd										
	N of Red Rd	4	12900	33915	.38	D	B	1200	3221	.37	B
	Palm Ave										
	N of Dade	2	12800	15580	.82	D	D	1190	1482	.80	D
	C L	4	25000	33915	.74	D	B	2330	3221	.72	B
	N of Miramar Pkwy										
	Douglas Rd										
	N of Dade	4	18300	32700	.56	D	C	1710	3110	.55	C
	C L	4	23477	32700	.72	D	C	2290	3110	.74	C
	N of	4	19200	32700	.59	D	C	1790	3110	.58	C
	Miramar Pkwy*										
	N of Miramar Blvd										
	University Dr	6	56000	49200	2.92	D	F	5220	4680	1.12	F
	N of Dade	6	47000	49200	.96	D	D	4390	4680	.94	D
	C L										
	N of Miramar Pkwy										

Table 2-15
Existing Roadway Conditions 2008

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity *	V/C	LOS Std.	Exist. LOS	Peak-Hr Volume	Peak-Hr Capacity *	V/C	Exist. LOS
	FL TPK (HEFT)	4	47200	67200	.70	D	C	4510	6250	.72	C
	E of I-75	4	62000	67200	.92	D	D	6050	6250	.97	D
	E of Flamingo Rd	4	59100	67200	.88	D	C	5770	6250	.92	D
	W of FL Turnpike										
	Florida's Turnpike	6	81800	103600	.79	D	C	10040	10050	1.00	D
	N of Dade CL										
	SR7										
	N of Dade	4	44000	35700	1.23	D	F	3960	3390	1.17	F
	C L	4	42500	35700	1.19	D	F	3830	3390	1.13	F
	S of Pembroke Rd										
EAST / WEST ROADWAYS	**Honey Hill/CLine Rd**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E of SW 148 Ave*	2	9764	10000	.98	D	D	950	950	1.00	D
	E of Flamingo Rd*	4	31500	33915	.93	D	C	2940	3221	0	C
	E of University Dr	4	28000	33915	.83	D	C	2610	3221	.91	C
	E of FTPK									.81	
	Bass Creek Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E of SW 184 Ave*	2	4166	10000	.42	D	C	410	950	.43	C
	E of SW 172 Ave*	2	5024	10000	.50	D	D	490	950	.51	D
	E of Dykes Rd*										
	Miramar Pkwy	4	20964	31100	.67	D	C	2040	2950	.69	D
	E of SW 196 Ave*	4	25000	32700	.76	D	C	2330	3110	.75	C
	E of SW 184 Ave	6	40000	49200	.81	D	C	3730	4680	.80	C
		6	45000	49200	.91	D	D	4200	4680	.90	D
		6	52000	53500	.97	D	D	4850	5080	.95	C

Table 2-15
Existing Roadway Conditions 2008

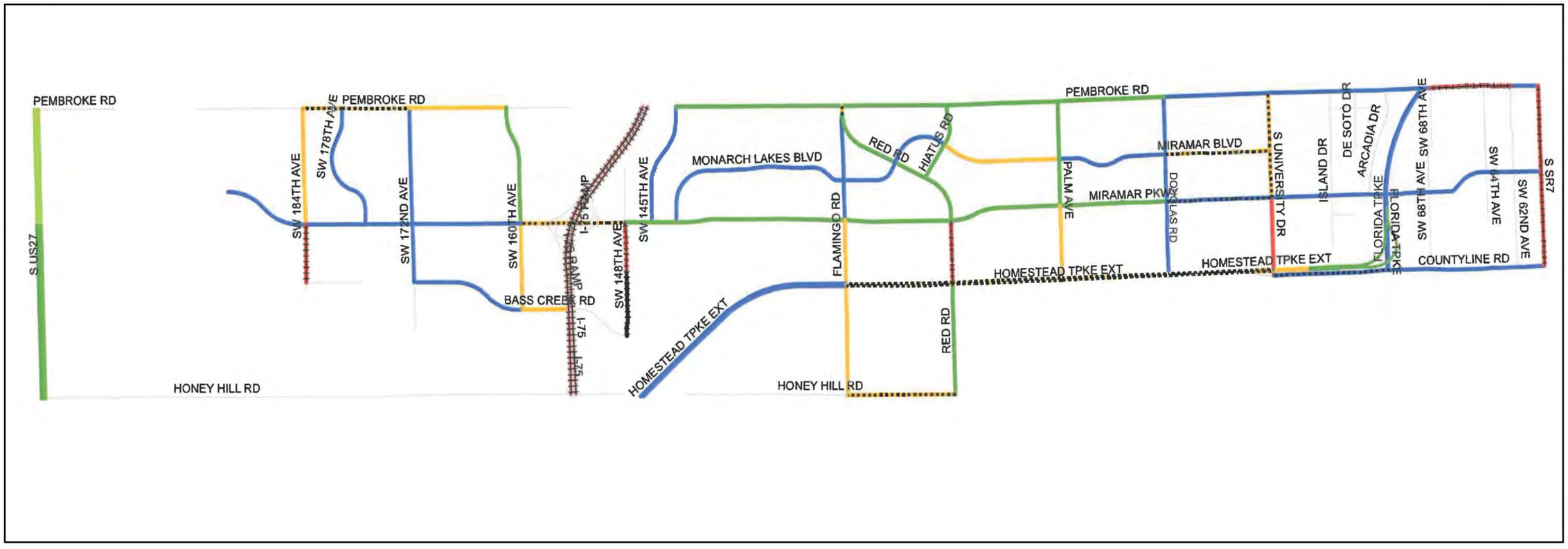
			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity *	V/C	LOS Std.	Exist. LOS	Peak-Hr Volume	Peak-Hr Capacity *	V/C	Exist. LOS
	E of SW 172 Ave	6	44000	53500	.82	D	B	4110	5080	.81	B
	E of SW 160 Ave	6	44000	53500	.82	D	B	4110	5080	.81	B
	E of I-75	6	35500	53500	.66	D	B	3310	5080	.65	B
	E of SW 148 Ave	6	33000	53500	.62	D	B	3080	5080	.61	B
	E of SW 136 Ave	4	28500	35700	.80	D	B	2660	3390	.78	B
	E of Flamingo Rd	4	34000	35700	.95	D	C	3170	3390	.94	C
	E of Red Rd	4	31500	35700	.88	D	C	2940	3110	.95	D
	E of Palm Ave										
	E of Douglas Rd										
	E of University Dr										
	Monarch Lakes Blvd N or Miramar Pkwy	4	4500	21700	.21	D	C	420	2070	.20	C
	Miramar Blvd	2	1800	10000	.18	D	C	170	950	.18	C
	E of Flamingo Rd	2	3262	10000	.33	D	C	320	950	.34	C
	E of Red Rd*	2	6200	10000	.62	D	D	580	950	.61	D
	E of Hiatus Rd	4	9900	21700	.46	D	C	920	2070	.44	C
	E of Palm Ave	2	9200	10000	.92	D	D	860	950	.91	D
	E of Douglas Rd										
	Pembroke Rd	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E of US 27*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		2	9300	10000	.93	D	D	870	950	.92	D
		2	7100	10000	.71	D	D	660	950	.69	D

Table 2-15
Existing Roadway Conditions 2008

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity *	V/C	LOS Std.	Exist. LOS	Peak-Hr Volume	Peak-Hr Capacity *	V/C	Exist. LOS
	E of SW 196 Ave*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E of SW 184 Ave	4	10900	33915	.32	D	B	1020	3221	.32	B
	E of SW 172 Ave	4	18500	33915	.55	D	B	1730	3221	.54	B
	E of SW 160 Ave*	4	25000	35700	.70	D	B	2330	3390	.69	B
	E of SW 145 Ave	4	25000	35700	.70	D	B	2330	3390	.69	B
	E of SW 136 Ave	4	27000	35700	.76	D	B	2520	3390	.74	B
	E of Flamingo Rd	4	31500	35700	.88	D	C	2940	3390	.87	C
	E of Hiatus Rd	6	35500	49200	.72	D	C	3310	4680	.71	C
	E of Palm Ave	4	38500	32700	1.1	D	F	3590	3110	1.1	F
	E of Douglas Rd	6	38500	49200	8	D	C	3750	4680	5	C
	E of University Dr				.78					.80	
	E of SW 68 Ave										
	E of SW 62 Ave*										

Source: Broward County MPO *Year 2008 Traffic Count Report*, April 2009.
*Source: Broward County MPO *Roadway Capacity and Level of Service Analysis for 2007 and 2030*, September 2008.

Figure 2-7A: Existing 2008 Level of Service, Approaching Overcapacity & Overcapacity Roadways (AADT)



LEGEND

Level of Service

- Roadways
- A
- B
- C
- D
- E
- F
- Approaching Overcapacity
- Overcapacity

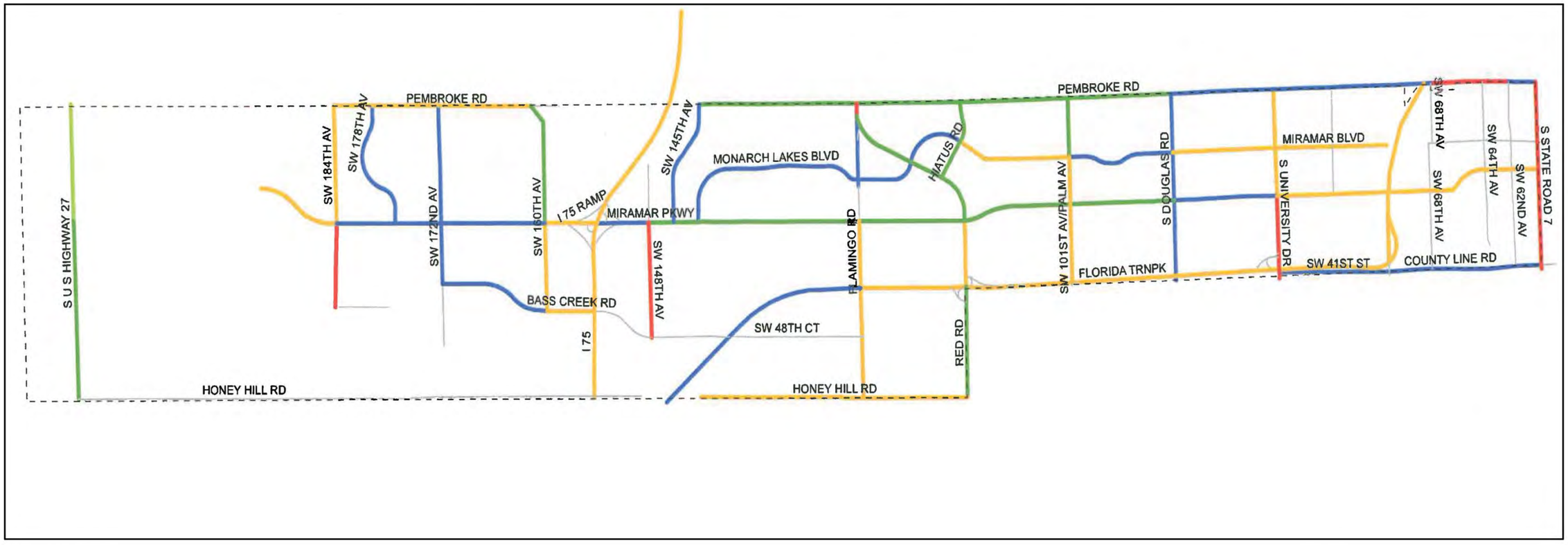
N

0 0.5 1 2 Miles

Source: Broward County MPO Year 2008 Traffic Count Report, April 2009 - Broward County MPO Roadway Capacity and LOS Analysis 2007 and 2030, September 2008
Prepared: 09/28/2009

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Figure 2-7B: Existing 2008 Level of Service (Peak Hour)



LEGEND

Existing Peak Hour Level of Service

Roadways

Level of Service

A
B
C
D
F
Miramar City Limits

N

0 0.5 1 2 Miles

Source: Broward County MPO Year 2008 Traffic Count Report, April 2009 - Broward County MPO Roadway Capacity and LOS Analysis 2007 and 2030, September 2008
Prepared: 02/19/2010

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Existing (2008) roadway segments that are approaching overcapacity or are overcapacity are depicted on Figure 2-7**A**.

One of the "approaching overcapacity" segments is programmed for improvements in either the MPO's Transportation Improvement Plan, the Broward County's Capital Improvement Element or the City's Capital Improvement Element. One of the "overcapacity" segments is programmed for improvements in either the MPO's Transportation Improvement Plan, the Broward County's Capital Improvement Element or the City's Capital Improvement Element.

Projected transportation system level of service and system needs

Rule 9J-5.019(3)(f), FAC, requires an analysis on the projected transportation LOS and system needs based on the future land uses shown on the future land use map. Rule 9-J-5.019(3)(e), FAC, requires an analysis of projected intermodal needs. This section addresses the above requirements for the roadway network and the bikeway/pedestrianway networks since Broward County provides this analysis for the public transit network and intermodal facilities.

1. Roadway network. Tables 2-16 & 2-17, supports Figure 2-8: 2015 Short-Term Projected Level of Service, Approaching Overcapacity & Overcapacity Roadways (AADT) and Figure 2-9A: 2030 Long-Term Projected Level of Service, Approaching Overcapacity & Overcapacity Roadways (AADT), and are the MPO's roadway network databases associated with the short-term and long-term planning horizons. The volumes included in the tables are based on the City of Miramar Land Use Plan, which establishes a future land use map designation for all property within the city. Table 2-16, Projected 2015 Roadway Conditions, supports Figure 2-8 and depicts roadway segments, segment volumes, committed traffic, segment capacity, volume to capacity (V/C) ratio, and level of service as measured by average annual daily traffic (AADT) and peak-hour traffic (PHT). Figure 2-9B depicts the 2030 long-term peak hour projected Level of Service for roadways in the City.

Roadway segments projected to approach overcapacity or projected to be overcapacity in the short term planning horizon 2015 are depicted on Figure 2-8

Refer to Table 2-17, "LOS E & F Strategy" as it regards overcapacity segments funded for improvements.

Table 2-16
Projected Roadway Conditions 2015 Short-Term Horizon

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity*	V/C	LOS Std.	2015 LOS	Peak-Hr Volume	Peak-Hr Capacity*	V/C	2015 LOS
29	**US 27**										

Table 2-16
Projected Roadway Conditions 2015 Short-Term Horizon

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity*	V/C	LOS Std.	2015 LOS	Peak-Hr Volume	Peak-Hr Capacity*	V/C	2015 LOS
	N of Dade CL N of Miramar Pkwy	4 4	26520 24474	61800 61800	.43 .40	D D	B B	2519 2325	5870 5870	.43 .40	B B
	SW 196 Ave N of Miramar Pkwy*****	2	8470	10000	.85	D	D	805	950	.84	D
	SW 184 Ave N of Bass Creek Rd***** N of Miramar Pkwy*****	2 2	10434 12153	10000 15580	1.04 .78	D D	E D	991 1155	950 1482	1.04 .78	E D
	SW 178 Ave N of Miramar Pkwy	4	6092	21700	.28	D	C	579	2070	.28	C
	SW 172 Ave N of Bass Creek Rd N of Miramar Pkwy	4 4	9170 13812	31100 31100	.29 .44	D D	C C	871 1312	2950 2950	.30 .44	C C
	SW 160 Ave/Dykes Rd N of Bass Creek Rd N of Miramar Pkwy	4 4	23868 18468	21700 33915	1.10 .54	D D	E B	2267 1754	2070 3221	1.10 .54	E B
	I-75 N of Dade C L N of Miramar Pkwy	8 8	304061 176249	144300 144300	2.11 1.22	D D	F F	28886 16744	13420 13420	2.15 1.25	F F
	SW 148 Ave N of Bass Creek Rd	2	21347	10000	2.13	D	F	2028	950	2.13	F
	SW 145 Ave N of Miramar Pkwy	4	11541	21700	.53	D	D	1096	2070	.53	D

Table 2-16
Projected Roadway Conditions 2015 Short-Term Horizon

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity*	V/C	LOS Std.	2015 LOS	Peak-Hr Volume	Peak-Hr Capacity*	V/C	2015 LOS
	Flamingo Rd										
	N of Dade	4	27554	31100	.86	D	D	2618	2950	.89	D
	C L	4	27330	31100	.88	D	D	2596	2950	.88	D
	N of	4	24222	31100	.78	D	D	2301	2950	.78	D
	HEFT*	6	62239	53500	1.16	D	F	5913	5080	1.16	F
	N of Miramar Pkwy										
	N of Red Rd*										
	Red Rd										
	N of Dade	6	36275	53500	.68	D	B	3446	5080	.68	B
	C L	6	58835	53500	1.10	D	F	5589	5080	1.10	F
	N of HEFT	6	44329	53500	.83	D	B	4211	5080	.83	B
	N of Miramar Pkwy										
	Hiatus Rd										
	N of Red Rd	4	17089	33915	.50	D	B	1623	3221	.50	B
	Palm Ave										
	N of Dade	2	19257	15580	1.24	D	F	1829	1482	1.23	F
	C L	4	32298	33915	.95	D	D	3068	3221	.95	D
	N of Miramar Pkwy										
	Douglas Rd										
	N of Dade	4	25607	32700	.78	D	C	2433	3110	.78	C
	C L	4	30120	32700	.92	D	D	2861	3110	.92	D
	N of Miramar Pkwy*	4	25084	32700	.77	D	C	2383	3110	.77	C
	N of Miramar Blvd										
	University Dr										
	N of Dade	6	64009	49200	1.30	D	F	6081	4680	1.30	F
	C L	6	54667	49200	1.11	D	F	5193	4680	1.11	F
	N of Miramar Pkwy										
	FL TPK (HEFT)	4	67935	67200	1.01	D	E	6454	6250	1.03	E
	E of I-75	4	65963	67200	.98	D	D	6266	6250	1.00	D
	E of Flamingo Rd	4	57611	67200	.86	D	D	5473	6250	.88	D

Table 2-16
Projected Roadway Conditions 2015 Short-Term Horizon

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity*	V/C	LOS Std.	2015 LOS	Peak-Hr Volume	Peak-Hr Capacity*	V/C	2015 LOS
	W of FL Turnpike										
	Florida's Turnpike	6	121699	103600	1.17	D	F	11561	10050	1.15	F
	N of Dade CL										
	SR7										
	N of Dade	4	55805	35700	1.56	D	F	5301	3390	1.56	F
	C L	4	53254	35700	1.49	D	F	5059	3390	1.49	F
	S of Pembroke Rd										
EAST / WEST ROADWAYS	**Honey Hill/CLine Rd**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E of SW	2	10531	10000	1.05	D	E	1000	950	1.05	E
	148 Ave*	4	31946	33915	.94	D	D	3035	3221	.94	D
	E of Flamingo Rd*	4	30749	33915	.91	D	D	2921	3221	.91	D
	E of University Dr										
	E of FTPK										
	Bass Creek Rd	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E of SW	2	8107	10000	.81	D	D	770	950	.81	D
	184 Ave*	2	9198	10000	.92	D	D	874	950	.92	D
	E of SW 172 Ave*										
	E of Dykes Rd*										
	Miramar Pkwy	4	22656	31100	.73	D	D	2152	2950	.73	D
	E of SW	4	28279	32700	.86	D	D	2687	3110	.86	D
	196 Ave*	6	41093	49200	.84	D	D	3904	4680	.83	D
	E of SW	6	48976	49200	1.00	D	E	4653	4680	.99	E
	184 Ave	6	55203	53500	1.03	D	F	5244	5080	1.03	F
	E of SW	6	49347	53500	.92	D	C	4688	5080	.92	C
	172 Ave	6	51896	53500	.97	D	C	4930	5080	.97	C
	E of SW	6	46338	53500	.87	D	C	4402	5080	.87	C
	160 Ave	6	41944	53500	.78	D	B	3985	5080	.78	B
	E of I-75	4	37686	35700	1.06	D	F	3580	3390	1.06	F
	E of SW	4	40838	35700	1.14	D	F	3880	3390	1.14	F
	148 Ave	4	38174	35700	1.07	D	F	3627	3110	1.17	F
	E of SW 136 Ave										

Table 2-16
Projected Roadway Conditions 2015 Short-Term Horizon

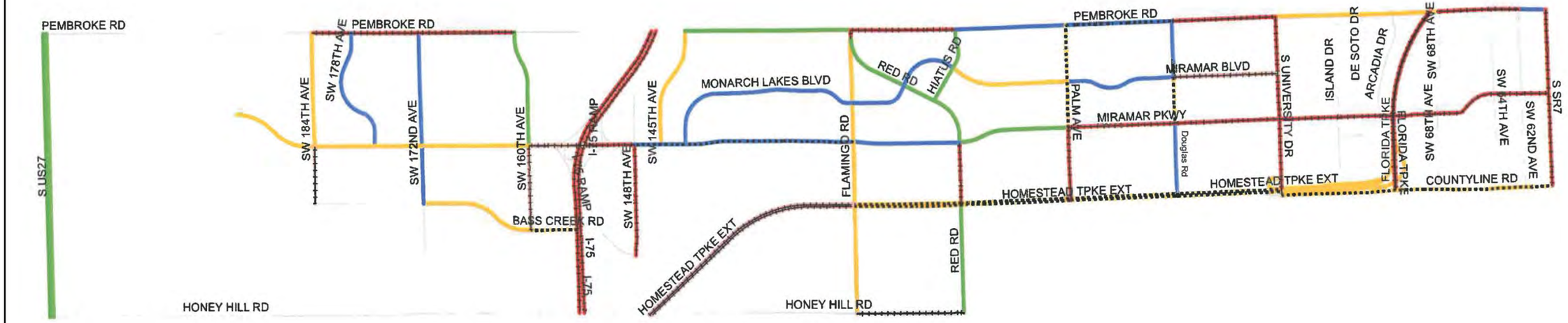
			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity*	V/C	LOS Std.	2015 LOS	Peak-Hr Volume	Peak-Hr Capacity*	V/C	2015 LOS
	E of Flamingo Rd										
	E of Red Rd										
	E of Palm Ave										
	E of Douglas Rd										
	E of University Dr										
	Monarch Lakes Blvd	4	3451	21700	.16	D	C	328	2070	.16	C
	N or Miramar Pkwy										
	Miramar Blvd	2	2016	10000	.20	D	C	192	950	.20	C
	E of	2	2334	10000	.23	D	C	222	950	.23	C
	Flamingo	2	5478	10000	.55	D	D	520	950	.55	D
	Rd	4	11065	21700	.51	D	C	1051	2070	.51	C
	E of Red	2	10273	10000	1.03	D	E	976	950	1.03	E
	Rd*										
	E of Hiatus Rd										
	E of Palm Ave										
	E of Douglas Rd										
	Pembroke Rd										
	E of US	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	27*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	E of SW	2	12820	10000	1.28	D	F	1218	950	1.28	F
	196 Ave*	2	12906	10000	1.29	D	F	1226	950	1.29	F
	E of SW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	184 Ave	4	23618	33915	.70	D	B	2244	3221	.70	B
	E of SW	4	27319	33915	.81	D	B	2595	3221	.81	B
	172 Ave	4	39850	35700	1.12	D	F	3786	3390	1.12	F
	E of SW	4	31212	35700	.87	D	C	2965	3390	.87	C
	160 Ave*	4	32927	35700	.92	D	C	3128	3390	.92	C
	E of SW	4	38960	35700	1.09	D	F	3701	3390	1.09	F
	145 Ave	6	43279	49200	.88	D	D	4111	4680	.88	D
	E of SW	4	43914	32700	1.34	D	F	4172	3110	1.34	F
	136 Ave	6	39535	49200	.80	D	C	3756	4680	.80	C

Table 2-16
Projected Roadway Conditions 2015 Short-Term Horizon

			Daily Conditions					Peak-Hour Conditions			
	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity*	V/C	LOS Std.	2015 LOS	Peak-Hr Volume	Peak-Hr Capacity*	V/C	2015 LOS
	E of Flamingo Rd E of Hiatus Rd E of Palm Ave E of Douglas Rd E of University Dr E of SW 68 Ave E of SW 62 Ave*										

Source: Broward County MPO *Year 2008 Traffic Count Report*, April 2009.; Broward County MPO *Roadway Capacity and Level of Service Analysis for 2007 and 2030*, September 2008; Leigh Robinson Kerr & Associates, Inc. Interpolation.

Figure 2-8: 2015 ~~F~~Short-Term Projected Level of Service, Approaching Overcapacity & Overcapacity Roadways (AADT)



LEGEND

Roadways

Level of Service

- B
- C
- D
- E
- F
- Approaching Overcapacity
- Overcapacity

Source: Broward County MPO Year 2008 Traffic Count Report, April 2009 - Broward County MPO Roadway Capacity and LOS Analysis 2007 and 2030, September 2008
Prepared: 09/28/2009

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Table 2-17, 2030 Roadway Characteristics, supports Figure 2-9A and depicts roadway segments, segment volumes, committed traffic, segment capacity, volume to capacity (V/C) ratio, and level of service as measured by average annual daily traffic (AADT).

Roadway segments projected to approach overcapacity or projected to be overcapacity in the long term planning horizon 2030 are depicted on Figure 2-9 A.

Table 2-17
Projected Roadway Conditions – 2030 - Long-Term Horizon

	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity	V/C	LOS Std.	2030 LOS	LOS E & F Roadway Strategy	Concurrency District
NORTH / SOUTH ROADWAYS	**US 27**								
	N of Dade CL	4	35134	61800	.57	D	C		Southwest District - Standard/TCEA
	N of Miramar Pkwy	4	35134	61800	.57	D	C		
	SW 196 Ave								
	N of Miramar Pkwy	4	16935	31100	.54	D	C		Southwest District - Standard/TCEA
	SW 184 Ave								
	N of Bass Creek Rd	4	4042	21700	.19	D	C		Southwest District - Standard/TCEA
	N of Miramar Pkwy	4	9443	33915	.28	D	B		
	SW 178 Ave								
	N of Miramar Pkwy	4	17361	21700	.80	D	D		Southwest District - Standard/TCEA
	SW 172 Ave								
	N of Bass Creek Rd	4	11678	31100	.38	D	C		Southwest District - Standard/TCEA
	N of Miramar Pkwy	4	16622	31100	.53	D	C		
	SW 160 Ave								
	N of Bass Creek Rd	4	34729	21700	1.60	D	F		Southwest District - Standard/TCEA
	N of Miramar Pkwy	4	16473	33915	.49	D	B		
	I-75								
	N of Dade C L	10	328517	182600	1.80	D	F		Southwest District - Standard/TCEA
	N of Miramar Pkwy	10	231426	182600	1.27	D	F		
	SW 148 Ave								
	N of Bass Creek Rd	4	30876	21700	1.42	D	F	LRTP #105 2 to 4L	South Central District/TCMA
	SW 145 Ave								
	N of Miramar Pkwy	4	14199	21700	.65	D	D		South Central District/TCMA
	Flamingo Rd								
	N of Dade C L	4	30885	31100	.99	D	D		South Central District/TCMA
	N of HEFT	4	34916	31100	1.12	D	F		
	N of Miramar Pkwy	4	33698	31100	1.08	D	F		
	N of Red Rd	6	80966	53500	1.51	D	F		
	Red Rd								
	N of Dade C L	6	31507	53500	1.16	D	F		South Central District/TCMA
	N of HEFT	6	68125	53500	1.27	D	F		
	N of Miramar Pkwy	6	52533	53500	.98	D	D		
	Hiatus Rd								
	N of Red Rd	4	26066	33915	.77	D	B		South Central District/TCMA
	Palm Ave								
	N of Dade C L	2	33094	15580	2.12	D	F		South Central District/TCMA

Table 2-17
Projected Roadway Conditions – 2030 - Long-Term Horizon

	ROADWAY Segment	Lanes	AADT Volume	AADT Capacity	V/C	LOS Std.	2030 LOS	LOS E & F Roadway Strategy	Concurrency District
	N of Miramar Pkwy	4	47935	33915	1.41	D	F		
	Douglas Rd								
	N of Dade C L	4	41266	32700	1.25	D	F		South Central District/TCMA
	N of Miramar Pkwy	4	44355	32700	1.36	D	F		
	N of Miramar Blvd	4	37693	32700	1.15	D	F		
	University Dr								
	N of Dade C L	6	81171	49200	1.65	D	F		South Central District/TCMA
	N of Miramar Pkwy	6	71096	49200	1.45	D	F		
	FL TPK (HEFT)								
	N of Dade C L	4	112367	67200	1.67	D	F		South Central District/TCMA
	E of Red Rd	4	74454	67200	1.11	D	E		
	E of University Dr	4	54420	67200	.81	D	D		
	Florida's Turnpike								South Central
	N of Dade CL	8	207196	140200	1.48	D	F		District/TCMA
	SR7								
	N of Dade C L	6	81102	53500	1.52	D	F	TIP#6 add 2L	Southeast District/TCMA
	N of Miramar Pkwy	6	76298	53500	1.43	D	F	TIP#6 add 2L	
EAST / WEST ROADWAYS	**Bass Creek Rd**								
	E of SW 184 Ave	4	4042	31100	.13	D	C		Standard/TCEA – Southwest District
	E of SW 172 Ave	4	16551	31100	.53	D	C		
	E of Dykes Rd	4	18141	31100	.58	D	C		
	Honey Hill/Cnty Line	4	13168	31100	.42	D	C		South Central District/TCMA
	E of SW 148 Ave	2	12175	10000	1.22	D	E		
	E of Flamingo Rd	4	32901	33915	.97	D	C		
	E of University Dr								
	County Line Rd								
	E of FTPK	4	36641	33915	1.08	D	F		Southeast District/TCMA
	Miramar Pkwy								
	E of SW 196 Ave	4	26828	31100	.86	D	D		Southwest District - Standard/TCEA
	E of SW 184 Ave	4	35306	32700	1.08	D	F		
	E of SW 172 Ave	6	43434	49200	.88	D	D		
	E of SW 160 Ave	6	57496	49200	1.17	D	F		
	Miramar Pkwy								
	E of I-75	6	62067	53500	1.16	D	F		South Central District/TCMA
	E of SW 148 Ave	6	60806	53500	1.14	D	F		
	E of SW 136 Ave	6	68816	53500	1.29	D	F		
	E of Flamingo Rd	6	69562	53500	1.30	D	F		
	E of Red Rd	6	61110	53500	1.14	D	F		
	E of Palm Ave	6	57371	53500	1.07	D	F	LRTP #32 4 to 6L	
	E of Douglas Rd	6	55492	53500	1.04	D	F	LRTP #32 4 to 6L	
	E of University Dr	6	52476	49200	1.07	D	F	LRTP #32 4 to 6L	
	Monarch Lakes Blvd								South Central
	N or Miramar Pkwy	4	1202	21700	.06	D	C		District/TCMA
	Miramar Blvd								
	E of Flamingo Rd	2	2478	10000	.25	D	C		South Central District/TCMA
	E of Red Rd	2	344	10000	.03	D	C		

Table 2-17
Projected Roadway Conditions – 2030 - Long-Term Horizon

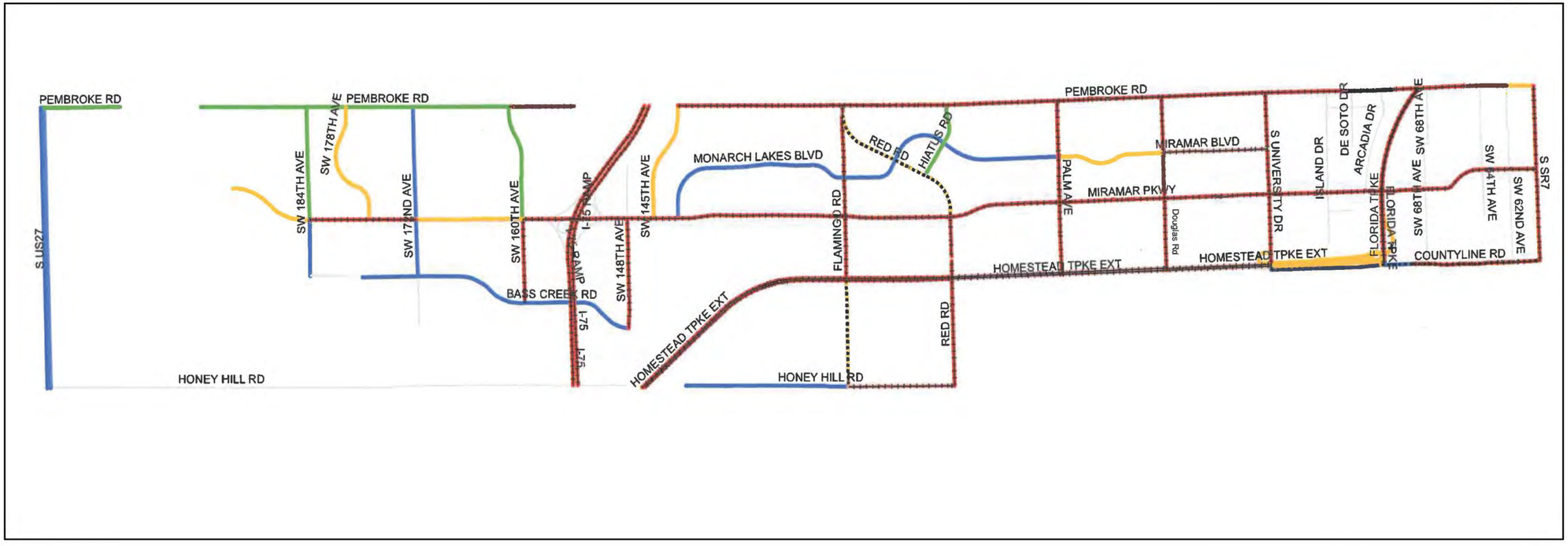
ROADWAY Segment	Lanes	AADT Volume	AADT Capacity	V/C	LOS Std.	2030 LOS	LOS E & F Roadway Strategy	Concurrency District
E of Hiatus Rd	4	3932	21700	.18	D	C		
E of Palm Ave	4	13560	21700	.62	D	D		
E of Douglas Rd	2	12571	10000	1.26	D	E		
Pembroke Rd								
E of US 27	4	8054	35700	.23	D	B		
E of SW 196 Ave	4	7456	35700	.21	D	B		Southwest District - Standard/TCEA
E of SW 184 Ave	4	20364	33915	.60	D	B		
E of SW 172 Ave	4	25347	33915	.75	D	B		
E of SW 160 Ave	4	42788	33915	1.26	D	F	TIP#1552 160 to 136th	
Pembroke Rd								
E of SW 145 Ave	4	50872	33915	1.50	D	F		
E of SW 136 Ave	4	46217	33915	1.36	D	F		
E of Flamingo Rd	4	40240	35700	1.13	D	F		
E of Hiatus Rd	4	44522	35700	1.25	D	F		South Central District/TCMA
E of Palm Ave	4	45627	35700	1.28	D	F		
E of Douglas Rd	6	54945	53500	1.03	D	F	LRTP #145 4 to 6L	
E of University Dr	6	59948	49200	1.22	D	F		
Pembroke Rd								
E of SW 68 Ave	6	55516	49200	1.13	D	F	LRTP #73 restripe-6L	Southeast District/TCMA
E of SW 62 Ave	6	41754	49200	.85	D	D		

Sources: Broward County MPO Roadway Capacity and Level of Service Analysis for 2007 and 2030, September 2008
MPO TIP FY09/10-13/04, July 9, 2009
Broward County 2030 Long Range Transportation Plan

Notes: TCMAs shall be a compact geographic area with an existing network of roads where multiple, viable alternative travel paths or modes are available for common trips. An area-wide LOS standard shall be established for this District. The portion of the City situated between I-75 and the Florida Turnpike is located within the South Central Concurrency District TCMA. The portion of the City situated east of the Florida Turnpike is located within the Southeast Concurrency District TCMA

A Standard Concurrency District shall be an area where roadway improvements are anticipated to be the dominant form of transportation enhancement. A roadway LOS standard shall be established for the standard Miramar district lying west of I-75, the Standard Southwest Concurrency District. All Standard Concurrency Districts within the City are also considered Transportation Concurrency Exception Areas (TCEAs) per the 2009 amendment to Senate Bill 360.

Figure 2-9A: 2030 Long-Term Projected Level of Service, Approaching Overcapacity & Overcapacity Roadways (AADT)



LEGEND

Roadways

Level of Service

- B
- C
- D
- E
- F
- Approaching Overcapacity
- Overcapacity

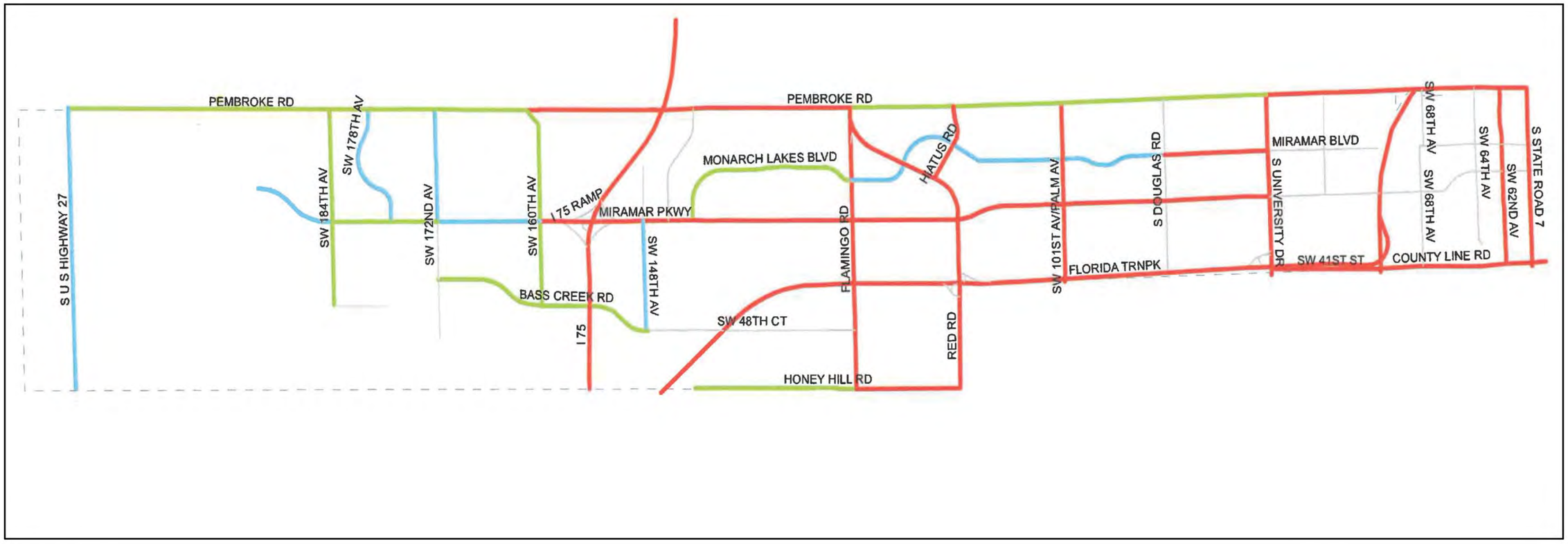
Source: Broward County MPO Year 2008 Traffic Count Report, April 2009 - Broward County MPO Roadway Capacity and LOS Analysis 2007 and 2030, September 2008
Prepared: 09/28/2009

N

0 0.5 1 2 Miles

Leigh Robinson Kerr & Associates, Inc.
808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

Figure 2-9B: 2030 Long-Term Projected Level of Service (Peak Hour)



LEGEND

Miramar Roadways

2030 Peak Hour Level of Service

A-C

D

F

Miramar City Limits

Source: Broward County Map 3-12 Year 2030 Peak Hour Roadway LOS
Prepared: 03/04/2010

N

0 0.5 1 2 Miles

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808 E. Las Olas Blvd #104 Ft. Lauderdale, FL 33301
Ph: 954-467-6308 Fax: 954-467-6309 www.LeighRobinsonKerr.com

2. Bikeways/Pedestrianways network. As stated earlier in this analysis, the Broward County Transportation Element focuses on the provision of bikeways/pedestrianways as a strategy for improving access to major pubic transit attractors in addition to its recreational purposes. The City of Miramar can only focus on the projected needs for recreational purposes since BCt prepares the projected needs of the public transit system countywide. The City will work with BCt and the Broward County Bicycle and Pedestrian Coordinators in their efforts to enhance the connections between the multimodal transportation systems.

With respect to the City's recreational bikeway/pedestrianway network, the city has adequate provisions for new development to dedicate sufficient right-of-way for the purpose of constructing a recreational oriented network to serve the future residents. Also, the city has implemented a citywide sidewalk construction program, which is programmed to continue for the next five years. The project consists of the construction of concrete sidewalks to improve the safety of children walking to school and residents traveling throughout the City. Table 2-16 identifies the improvement locations and summarizes the yearly work schedule.

No significant bikeways or pedestrian ways are currently planned for the City. The Broward County MPO Transportation Improvement Program identifies the following bikeway and pedestrian improvements:

- Miramar Pkwy – SR7 to SW 64 Ave – Streetscape
- Miramar Pkwy (east) – SR7 to SW 64 Ave – construct bike path/trail

The Broward County MPO Long Range Transportation Plan identifies the following cost-feasible pedestrian projects and bicycle projects:

Pedestrian Projects

- #22 Flamingo Rd – Miramar Pkwy to Pembroke Rd
- #43 Palm Ave - County Line to Pembroke Rd
- #47 196th Ave – County Line to Pembroke Rd
- #119 University Dr – HEFT to Pembroke Rd

Bicycle Projects

- #35 Miramar Pkwy – University Dr to SR7
- #56 Pembroke Rd – Douglas Rd to University Dr
- #84 SW 101 Ave – FL Turnpike to Pembroke Rd

Table 2-18
Sidewalk Construction Program

YEAR	LOCATION	FROM	TO	COST
1999	SW 66 Ter (W side) SW 27 St (N, S sides) SW 27 St (N, S sides) SW 65 Av (W side) Oleander Dr (W side) Sunshine Bl (E side) SW 62 Av (E side)	26 Ct 6800 block 6600 block 26 Ct LaSalle Blvd 27 Ct 35 St	Miramar Pkwy Miramar Pkwy Miramar Blvd Miramar Pkwy 40 Ct	$16,000 $5,000 $4,000 $3,000 $6,500 $11,000 $35,000
2000	SW 23 St (S side) SW 26 Ct (N side) SW 27 St (N side) Alhambra Blvd (N side) Plantation Blvd (S side)	Sunshine Blvd Sunshine Blvd Sunshine Blvd Tarpon Dr Jamaica Dr	SW 69 Av SW 68 Av SW 68 Av Island Dr DeSoto Dr	$7,700 $22,400 $22,400 $28,000 $15,000
2001	LaSalle Blvd (S side) Acapulco Dr (W side) Plantation Blvd (S side)	Bahama Dr LaSalle Dr DeSoto Dr	Acapulco Dr Miramar Blvd Acapulco Dr	$7,200 $15,000 $22,000
2002	SW 68 Av (W side) Bahama Dr (W side) Everglades Dr (W side) SW 64 Av (E side)	Miramar Pkwy Miramar Pkwy Miramar Pkwy Miramar Pkwy	SW 27 Ct LaSalle Blvd Miramar Blvd Pembroke Rd	$12,000 $10,000 $22,000 $32,000
2003	SW 30 St (N side) SW 29 St (N side) SW 28 St (N side)	Sunshine Blvd Sunshine Blvd Sunshine Blvd	SW 69 Way SW 68 Ter SW 68 Ter	$9,800 $20,300 $20,300

3. Public transit network. The public transit level of service standard is to maintain a 70 percent peak hour functional area coverage for residential and employment locations. Functional area coverage as defined by BCt is an access standard and a residential and employment area is considered to be accessible if it is within ¼ mile of a fixed bus route.

Functional area coverage is measured by superimposing Broward County's fixed route bus system over the traffic analysis zone map and database. The TAZ database is a countywide database that is updated by the county bi-annually. Both the County's Transportation Planning Division and City's Planning Division maintain the fixed route bus map while the County's Mass Transit Division implements fixed route bus service. A review of the land uses within the BCt functional area coverage indicates that in the City of Miramar, Broward County presently maintains a public transit peak hour LOS standard at the adopted standard of 70 percent functional area coverage for both the residential and employment population. Therefore, according to the Broward County

Transportation Element, the county has no public transit concurrency deficiencies. Figure 2-2B depicts the existing Transit Functional Area Coverage.

Based upon the Transit Development Plan, there are no new BCt routes planned for the City, only the addition of an express bus with limited stops added to existing BCT Route 2. Therefore, the future public transit system coverage is expected to remain unchanged. The current Transportation Improvement Program (TIP) lists the following funded mass transit projects specific to the City of Miramar:

Table 2-19
Funded Mass Transit Projects, TIP

TIP #	DESCRIPTION	STATUS
1272	Transit service demonstration	Underway
1136	Transit Shelter Enhancements	Underway
1345	Bus benches stops amenities	Underway
1418	Multi-service complex transit elements/transit improvements	Underway
1608	Town Center Transit Hub	Underway

Source: TIP 09/10-13/04, Section 2

The 2030 Long Range Transportation Plan (LRTP) lists the following cost feasible mass transit projects within City of Miramar:

Table 2-20
Cost Feasible LRTP Projects
Regular Transit Service

PROJECT TYPE	SERVICE IMPROVEMENT	ROUTE #
Regular Bus	Weekday 15 minute headways	2
Regular Bus	Weekday 20 minute headways	28
Regular Bus	Weekday 30 minute headways	5
Regular Bus	Saturday Headway Improvements	2

Source: 2030 LRTP Table 8-5: Cost-Feasible Transit Projects

Table 2-21 Cost Feasible LRTP Projects Premium Transit Service			
PROJECT ID	**PROJECT TYPE**	**PROJECT NAME**	**PROJECT LIMITS**
5	BRT/Rapid Bus *	SR7 Transit Bridge	Phase 1: Miami-Dade Co. to I-595; Phase 2:I-595 to Palm Bch Co.
10	Rapid Bus	University Drive	From Miami-Dade Co. to Sample Road
14	Express Bus	I-75	From Miami-Dade Co. to Sawgrass Mills

Source: 2030 LRTP Table 8-5: Cost-Feasible Transit Projects
*The LRTP contains sufficient funds for this project to evolve from a rapid bus service in mixed-use traffic to a BRT service with exclusive transit lanes.

Figure 2-2C depicts the future public transit system.

No additional public transit terminals, transfer stations, rights-of-way, intermodal facilities, or exclusive corridors are planned to occur within the City. The City of Miramar through the BCt has one connection to an intermodal facility identified in the Broward County Transportation Element (BCTE); however the City does not provide within its jurisdiction any terminals, connections, HOV lanes, park and ride facilities or intermodal facilities of State Significance as defined by FDOT. BCt Bus service to the Tri-Rail Station on Hollywood Boulevard is available for Miramar residents; however, that facility has not been designated an intermodal facility since neither feeder or fixed bus routes directly service the passenger terminal. The City will continue to coordinate with BCt, FDOT, the MPO and other entities to investigate the need for additional intermodal facilities in the City.

4. Parking Facilities. There are no future significant parking facilities planned to be located in the City of Miramar.

5. Freight and Passenger Rail Lines. There are no future freight or rail lines planned to be located in the City of Miramar.

6. Intermodal Terminals and Access to Intermodal Facilities. No future Intermodal Terminals are planned to be located within the City of Miramar. Access to Intermodal Facilities is planned to remain unchanged.

Maintaining the adopted level of service standard

Prior to discussing how the City of Miramar can maintain the adopted transportation LOS standards, several caveats are in order. First, the transportation system is a function of the previous City of Miramar and Broward County land use decisions. These previous land use decisions included decisions on: the location and intensity of built development and constructed roadways; the location and intensity of approved but unbuilt (i.e. vested) development; and public transit investments. Many of these decisions cannot be retracted without great public expense.
Secondly, the availability of transportation funding, especially at the federal level, can greatly influence a local government's ability to maintain the adopted LOS standard. Finally, unexpected events such as hurricane, energy crisis, or new technology can impact the maintenance of the adopted LOS standard.

1. Concurrency Management System (CMS). The CMS consists of the procedures and processes employed by the City of Miramar and Broward County to assure that development orders and permits are not issued unless the necessary facilities and services are available concurrent with the impacts of development. The City will also examine other means to maintain the adopted LOS standard such as Transportation System Management strategies (TSM), Transportation Demand Management (TDM), Public Transportation Corridors, Transportation Concurrency Management Areas, and Transportation Concurrency Exception Areas (TCEA's).

The City of Miramar uses LOS standard D for the purpose of issuing development permits for all affected road segments. The City's Planning Division, which coordinates the development review process, manages the CMS in a manner that assures development orders or permits are not issued

unless roadway facilities are available concurrent with the impacts of development or impacts are mitigated.

2. Transportation System Management (TSM). TSM means improving roads, intersections, and other related facilities to make the existing transportation system operate more efficiently. TSM techniques include demand management strategies, incident management strategies, and other actions that increase the operating efficiency of the existing system.

a. Roadway improvements. In lieu of traditional widening and construction, alternative solutions are proposed in order to eliminate the traffic problems.

b. Intersection improvements. Adding a turning lane at an intersection is another TSM technique.

c. Access management. Access management is the control and regulation of spacing and design of driveways, ramps, medians, median openings, traffic signals and intersections on arterial and collector roads to improve safe and efficient traffic flow on the road system.

d. Signalization. Computerization of signals on roadways has been recognized as one of most effective ways to improve the traffic flows.

3. Transportation Demand Management (TDM). TDM means strategies and techniques that can be used to increase the efficiency of the transportation system. Demand management focuses on ways of influencing the amount and demand for transportation by encouraging alternatives to the single-occupant automobile and by altering peak hour travel demand. These strategies and techniques include: ridesharing programs, flexible work hours, telecommuting, shuttle services, and parking management. TDM also is effective at lower residential densities than are required for public transit and pedestrian and bicycyle programs. Thus, TDM can be another strategy to help combat the effects of sprawl.

The report entitled Proposed Transportation Demand Management Options prepared by the Broward County Transportation Planning Division in cooperation with the FDOT in 1996 addresses TDM programs. A summary of its findings is addressed below.

a. Ridesharing programs. Ridesharing is a form of transportation, other than public transit, in which more than one person shares the use of the vehicle, such as a car or van, to make a trip. Ridesharing requires only moderate densities at the home-end of trips and a common work destination; long commutes are actually conducive to ridesharing since time lost in picking up other passengers is balanced by real cost savings on the commute itself. The City of Miramar has not implemented a ridesharing program to date.

- Explore ridesharing programs for City of Miramar residents to Fort Lauderdale and Miami.

- Explore ridesharing programs for school/college trips.

b. *Flexible work hours.* Flexible work hours is a TDM strategy that allows employees to schedule their work hours so as to avoid driving during the peak hours. Flexible work hour strategies include flextime, staggered work hours, and compressed work schedules. These strategies are well-suited to low and medium densities, where traffic congestion is short-lived.

Flextime is a TDM strategy allowing employees to chose the work day arrival and departure times that best suit their personal schedules on a daily basis. Staggered work hours means workday arrival and departure times are staggered by the employer according to a predetermined schedule. Employees arrive and depart from work at 15-minute or up to 2-hour intervals. The City of Miramar has not implemented a flextime program to date.

- Encourage employers within the City of Miramar to implement flexible work hours.

c. *Shuttle services.* This TDM strategy uses buses, vans and cars to provide transportation from remote parking locations to the workplace. This TDM strategy is currently employed in the City of Miramar.

- Explore shuttle programs for City of Miramar residents to Fort Lauderdale and Miami.

d. *Parking managemen*t. Parking management can be an effective strategy for maintaining the adopted LOS standard, for improving mobility, and for improving air quality. Parking management strategies include preferred parking, price parking, parking limitations, and shared parking. The City of Miramar has not implemented parking management strategies to date.

Preferred parking is a transportation demand management strategy that gives certain users, such as ride-sharers and the disabled, the most convenient parking spaces, such as a location closer to the building or a covered parking space. Preferred parking, however, does not provide a financial incentive for the motorist. Consequently, it provides marginal benefit to maintaining the LOS and improving mobility. Price parking has proven to be one of the most effective transportation demand management strategy for maintaining and improving the LOS and mobility; however, other than for City employees, the City does not own or maintain any automobile parking lots or garages. Employees would have a greater incentive to use transit and commuter rail when parking charges are added to out-of-pocket expenses. The incentive becomes even greater when ride-sharers are eligible for free or discounted parking, while solo commuters pay the full price.

Parking limitations is another transportation demand management strategy that is effective in maintaining and improving LOS and mobility. Land development regulations typically establish minimum off-street parking requirements far in excess of normal needs, that is, parking requirements are typically set for peak demand. Amending the land development regulations to bring parking supply in line with parking demand could help reduce the number of solo commuters.

- Amend land development regulations to bring parking supply in line with parking demand to reduce solo commuters.

Shared parking is a transportation demand management strategy that occurs when two or more enterprises, such as a retail establishment and an office building, are able to use one combined parking area, either public or privately owned. Shared parking works well between adjacent enterprises that have their busiest times at different parts of the day.

Planning Studies

Pembroke Road / Miramar Parkway / Pines Boulevard

A planning study was performed to assess the impacts of various improvements to Pembroke Road. These improvements consist of extending Pembroke Road westward to US 27 and widening sections between Flamingo Road and University Drive. The analysis focused primarily on the major east-west arterial highways within close proximity: Pembroke Road, Pines Boulevard, and Miramar Parkway.

FSUTMS was utilized to simulate anticipated future land use and transportation roadway conditions. Six scenarios evaluated the impacts of different lane configurations with and without a bridge connection over I–75.

As the capacity along Pembroke Road increases, the through vehicle traffic increases, particularly along eastern segments. This benefits eastern segments of Pines Boulevard and Miramar Parkway.

The I–75 bridge connection will result in greater traffic volumes along Pembroke Road, with corresponding decreases in traffic volumes for parallel links on Pines Boulevard and Miramar Parkway. The effects are most prominent near I–75. For more detailed information, reference the Pembroke Road Traffic Study (October 1998) prepared for the City of Miramar.

The capacity and extension improvements along Pembroke Road only postpone Miramar Parkway and segments of Pines Boulevard from reaching capacity. Until Pembroke Road is improved, large volumes of motorists cannot be diverted to Pembroke Road. As a result, additional solutions are still needed to cope with future traffic demands in the City of Miramar.

Pembroke Road may absorb a greater share of the transportation needs if interstate access were provided to I–75. A combination of improvements including interstate access, additional capacity, and the extension of Pembroke Road should be examined to determine the resulting benefit. Without the interstate access, the capacity and extension improvements will only postpone a deficient LOS along Miramar Parkway and Pines Boulevard a few years. The problem will be delayed but it will still occur in the near future.

A feasibility study to determine if interstate access is warranted at Pembroke Road and I–75 is recommended. If interstate access is not warranted, a cost/benefit analysis is needed to determine the best alternative presented in the Pembroke Road Traffic Study (October 1998) to postpone Miramar Parkway and Pine Boulevard from reaching capacity.

Honey Hill Road / Bass Creek Road

The Broward County Transportation Improvement Plan and the Broward County Year 2020 Long Range Plan identify multiple improvements on Bass Creek Road, which is located approximately 0.5 miles north of Honey Hill Road. The Bass Creek bridge over I–75 currently provides access to the southwest area of the city.

FSUTMS was utilized to simulate anticipated future land use and transportation roadway conditions along Honey Hill Road and Bass Creek Road. The trips to this area of the City continue to utilize Bass Creek Road even with improvements along Honey Hill Road. The City should maintain its focus on improving Bass Creek Road to provide adequate access and roadway capacity in this section of the City. The Broward County Year 2020 Long Range Plan identifies two projects along this roadway, although funding is still needed. Consideration should be given to extend Honey Hill Road across Florida's Turnpike and to be connected to Bass Creek Road at the S. W. 148th Avenue/Bass Creek Road intersection.

Consistency between the future land use element and transportation system and with other plans.

This section addresses Rule 9J-5.019(3)(d), FAC, which requires an analysis of the compatibility/consistency of the future land use and transportation elements; Rule 9J-5.019(3)(g), FAC, which requires an analysis that considers the compatibility/consistency of the Transportation Element with the policies and guidelines of other transportation plans; and Rule 9J-5.019(3)(h) and (I), FAC, which requires an analysis of compatibility/consistency with other elements of the Comprehensive Plan.

1. City of Miramar and Broward County Land Use Plans. The Planning Division of the City of Miramar Community Development Department is responsible for preparing a citywide land use plan for adoption by the City Commission. The Broward County Charter establishes the Broward County Planning Council (BCPC). The BCPC is responsible for preparing a countywide land use plan, known as the Broward County Land Use Plan (BCLUP), for adoption by the Board of County Commissioners. All municipal future land use elements and map amendments must be consistent with the BCLUP. Through certification of future land use elements by the BCPC subsequent to a DCA determination of compliance with Chapters 163 and 9J-5, consistency between future land use elements and the regional transportation system is assured.

2. Florida Department of Transportation's Adopted Work Program. Broward County and the City of Miramar are in the jurisdiction of the FDOT's District 4; therefore, the FDOT District 4's Work Program for Fiscal Year 2010 through 2014 contains Broward County's and the City's projects. The Work Program basically lists the projects with abbreviated terms and codes of action. The Program consists of three sections. First, the Glossary of Terms contains the Work Program item numbers with codes for identifying project, project length, road numbers, project description, phase, estimated cost and source of funds. Second, Fund Codes include abbreviations of various funding categories. Finally, the actual program lists projects with details described in the above-mentioned two sections. Priorities in the new 5-year Adopted Work Program are determined by the MPO and are the direct result of the long range planning process. Projects on a priority list submitted to FDOT for inclusion in the Work Program must appear in the Long-Range Plan. The Work Program, once adopted, forms the basis of the new TIP.

3. Transportation Improvement Program (TIP). The TIP is a comprehensive listing of transportation projects in Broward County scheduled for funding in the next five years. It represents the cooperative integration of plans by municipalities, the FDOT, the MPO and implementing agencies. Projects are initially identified as part of the Long-Range Planning Process. This is a prerequisite for inclusion on an MPO priority list. Priority Lists are then submitted to FDOT. Each year in the Annual Work Program, FDOT funds these priorities identified by the MPO to the extent possible. The Annual Work Program, in turn, forms the state and federal component of the TIP. The priority list is then updated to reflect these funding actions and a new list is submitted each year to FDOT. The most recent TIP was adopted on July 9, 2009. The TIP is coordinated with the TE indirectly through the Capital Improvement Element(CIE).

4. North Perry Airport Master Plan Update. The Master Plan provided data and analysis on the North Perry Airport. The Aviation Department updated the 1985 Master Plan in 1996 and extended the planning horizon to the year 2015. The City will review the North Perry Airport Master Plan and will coordinate with Broward County and adjacent municipalities to ensure safety and land use compatibility.

5. Consistency among transportation improvement plans. Consistency between the City's transportation plan and the BCTE is indirectly addressed through the Broward County CIE, which includes a section on joint transportation projects, and the City of Miramar CIE.

6. Committed DRI Improvements. Currently, six (6)) Development of Regional Impacts (DRI) are committed to make transportation improvements due to trips generated and/or attracted to their site. The DRI's include: Silver Lakes FQD, Country Lakes West DRI, Huntington DRI, , East Miramar Area wide DRI, Miramar Park of Commerce DRI, University Park DRI. All committed DRI improvements were incorporated into the future conditions analysis.

Promoting and supporting public transit in designated public transportation corridors

Subsection 163.3177(6)(j)(8), FS, requires the Transportation Element to address the identification of land use densities, building intensities, and transportation management programs to promote public transportation systems in designated public transportation corridors to encourage population densities sufficient to support such systems. This section addresses land use and building intensities. Transportation management programs are discussed in the Maintenance of LOS standards section.

The City will coordinate with Broward County, the MPO, FDOT, DCA, South Florida Regional Planning Council and other affected municipalities to promote the public transit network on designated public transportation corridors as defined and identified by DOT, including the preparation of an overlay zoning district.

Table 2-2~~1~~0
Broward County Metropolitan Planning Organization
Transportation Improvement Program (FY 2009/10 – 2013/14)
Roadways

TIP#		Description		Fiscal Yr Use By Fund Type

	Project Name		Cost ($000)	Prior	09-10	10-11	11-12	12-13	13-14
1718	FTPK	Resurfacing	6,386		353	6,033			
979	I-75	@ Miramar Pkwy. Minor Intrchg improvement	16,546	100			25	3,633	
1322	I-75	Brwd/Dade CLine PD&E/EMO Study	600		600				
373	Miramar Blvd	Palm Ave to Hiatus Add 2L	1,500			1,500			
332	Miramar Pkwy	SR7 to SW 64 Ave. Streetscape	2,000			2000			
1333	Miramar Pkwy	SR7 to SW 64 Ave. construct bike path/trail	6,254		5,754 500				
1552	Pembroke Rd	SW 160 Ave to SW 136 Ave New 4LD incl bridge over I-75	25,500		27,734 16 12,750				
6	SR7	S of Dade CL to N of Hallandale Bch Blvd. Add 2L, reconstruct 4L and lighting upgrade	1,200	150	320	730			
1065	I-75	@ Pines Blvd. Major Intrchng Improvement	25,004	6,874 5,445 9,733 2,952					

Source: TIP 09/10-13/04, Section 1

Table 2-20
2030 Long-range Transportation Improvement Plan (Cost Feasable)
City of Miramar

	Project ID	Street Name	Limits	Description	Cost ($000)
Pedestrian Projects	22	Flamingo Rd	Miramar Pkwy to Pembroke Rd	-	227
	43	101st Ave	Miami Dade CL to Sheridan st	-	911
	47	196th Ave	Miami Dade CL to Pines Blvd	-	785
	119	University Dr	N of Pines Blvd to HEFT	-	642
Bicycle Projects	35	Miramar Pkwy	University Dr to SR7	Add bike lane	1,918
	56	Pembroke Rd	Douglas Rd to University Dr	R/R for bike lane	113
	84	SW 101st Ave	FL Tpk to Pembroke Rd	Add bike lane	1,167
Transit Projects	Regular Transit Services	Route 18	441/SR7	Weekday 10-min. headways	7,800*
		Route 2	University Dr., Miramar Pkwy, Douglas Rd	Weekday 15-min. headways	6,900*
		Route 5	Pembroke Road	Weekday 30-min. headways	4,500*
		Route 2	University Dr., Miramar Pkwy, Douglas Rd	Saturday headway improvements	0
Highway Projects	8	Bass Creek Rd	SW 172 Ave to SW 148 Ave	2 to 4 Lanes (4LD)	10,634
	9	Bass Creek Rd	SW 148 Ave to Flamingo Rd	New 4 lanes	24,942
	142	Bass Creek Rd	SW 148 Ave to SW 172 Ave	New (4LD)	7,343
	56	Miramar Pkwy	Palm Ave to SR7/441	4 to 6 lanes (6LD)	44,822
	73	Pembroke Rd	W of Turnpike to SR7	Restripe for 6LD	1,000
	72	Pembroke Rd	Sw 200 Ave to US27	New 4LD	11,015
	133	Pembroke Rd	SW 184 Ave to SW 200 Ave	New 4LD	7,342
	134	Pembroke Rd	SW 160th Ave to SW 184 Ave	New 4LD	13,950
	145	Pembroke Rd	University Dr to Douglas Rd	4 to 6 lanes (6LD)	2,500

	105	SW 148 Ave	Bass Creek Rd to Miramar Pkwy	2 to 4 lanes (4LD)	14,435
	139	SW 172 Ave	Miramar Pkwy to SW 23 St	Add one NB lane	1,450
	140	SW 172 Ave	Miramar Pkwy to Bass Creek Rd	2 to 4 lanes (4LD)	2,900
	111	SW 196 Ave	Miramar Pkwy to Pines Blvd	New 4LD	14,686
	35	County Line Rd (HEFT)	FL Trnpk to I-95	Feasibility Study	1,000

* Cost includes route listed as well as other routes receiving service improvements.
Source: Broward County 2030 Long Range Transportation Plan, Cost Feasible Projects.

Table 2-19
Transportation Planning Implementing Agencies

Agency Enabling Legislation Responsibility

Agency	Enabling Legislation	Responsibility
Federal Aviation Administration	Subtitle VII of Title 49, United States Code	Regulate air commerce to promote its safety and development; achieve efficient use of the navigable airspace of the U.S.
Florida Department of Transportation (FDOT), Aviation Office.	Florida Statutes, Chapter 332 and Chapter 333	Plan airport systems in the state as well as assist, advise, cooperate and coordinate with the federal, state, and local and private organizations in planning such a system.
Broward County Aviation Department	Broward County Administrative Code, Ch. VIII, Section 50.01	Planning, construction, operation, and maintenance of buildings, hangars, runways, and other county-owned facilities located upon and used in connection with FLL and North Perry Airports.
Transportation Planning Division (MPO)	Broward County Administrative Code, Vol. 1 Chapter 8, Sections 110.01, 110.012,110.04, 110.041, (G), (H). F.S. Ch. 163 & Rule 9J-5	Administration and coordination of transportation planning and improvement programs in the Broward Couny Urbanized Area.
Engineering Division of the Miramar Public Works Department	Section 512, Land Development Code	Issuance of engineering permits in City of Miramar
Broward County Traffic Engineering Division	Broward County Administrative Code, Ch. 6, Art. 1. C. 1	Design, install, and maintain signals, signs, and pavement markings

III. Housing Element

A. Existing Conditions

An overview of conditions pertinent to the preparation of the housing goal, objectives and policies are presented in the sections that follow.

Housing and Household Characteristics

Miramar is approximately 94% developed at this time (Ref: Future Land Use Element) with approximately 338.6 acres of vacant residential land remaining. The City's housing stock consists primarily of single-family homes (64.6%), with the balance consisting of multiple-family units (27.6%), and mobile homes (1.8%).

Housing and Residential Development

New housing growth, as evidenced by recent building permit activity (Ref: Table 3-1) has had a robust market and then a sudden halt of the housing market; during the –2000 to 2008 , averaging 1,794 units per year. In accord with 2005-2007 American Community Survey. (ACS) (Ref: Table 3-4) and building permit activity, it is estimated that there was a total of 37,405 housing units in Miramar in 2005-2007, consisting of 24,179 single-family detached units, 12,554 multiple-family units, and 672 mobile homes.

Current numbers reflect a 62.4% increase in the City housing stock during the 2000-2008 period. The current estimate is substantiated by a history of building permit activity evidenced in the City during the 2000 to 2008 period (Ref: Table 3-1).

Housing stock within Miramar constitutes a small share of the countywide total; approximately 4.69% of the 797,309 year-round units reported by the, 2005-2007 ACS in 2005-2007. It should be noted that "total" units includes all "year-round" housing units, including occupied and vacant units, including those held for occasional use.

Household Characteristics

Characteristics of housing within the City, including type, tenure, rent, value, monthly cost and cost-to-income ratio are examined in this section and compared with those characteristics exhibited countywide. The most current statistics available for an inventory and analysis of this type are presented in the 2000 Census and 2005-2007. (ACS)

Comparative tenure statistics are presented in Table 3-3. Of the 37,405 housing units reported in the 2000 U.S. Census and 2005-2007 ACS, 27,046 units, or 72.3% were owner-occupied, while 7,127 units, or 19.1% were renter-occupied. The balances of the units (3,232, or 8.6% of the total) were classified as vacant. Owner-occupied plus renter-occupied units represent "year-round" occupancy, while the remainder of the units are vacant or held for seasonal or occasional use.

Table 3-1

City of Miramar
Building Permit Activity Issued 2000-2008

Year	Single-Family Units	Multiple-Family Units	Cost Of Construction (Average Cost Per Unit)
2000	2250	630	$157,265
2001	2470	657	$122,656
2002	1639	771	$124,519
2003	1275	521	$153,409
2004	1164	959	$134,866
2005	443	596	$116,092
2006	831	1184	$134,050
2007	502	120	$147,058
2008	78	63	$215,477

Sources: City of Miramar, Community Development Department, 2000-2008; HBI Planning Services, Inc.; 1/99.

Table 3- 2

City of Miramar
Housing Units By Age 2005-2007

Year Structure Built	Number OF Units	Percentage Of Total
2005 or later	1,368	3.7
2000 - 2004	11,968	32.0
1990 - 1999	8,789	23.5
1980 - 1989	3,406	9.1
1970 - 1979	4,008	10.7
1960 - 1969	4,889	13.1
1950 - 1959	2,413	6.5
1940 - 1949	319	0.9
1939 or earlier	245	0.7
Total Units	**37,405**	**100.0**

Sources: U.S. Department of Commerce, Bureau of the Census, 1990; Table 3-1; HBI Planning Services, Inc.; 1/99. 2005-2007 American Community Survey.

Table 3- 3

City of Miramar
2005-2007 Housing Tenure Characteristics

	Miramar		Broward County	
	Units	**Percent**	**Units**	**Percent**
Total housing units	37,405	100.0	797,309	100.0
Occupied housing units	34,173	91.4	676,384	84.8
Vacant housing units	3,232	8.6	120,925	15.2
Owner-occupied units	27,046	72.3	481,273	60.4
Renter-occupied units	7,127	19.1	195,111	24.5
Homeowner vacancy rate	4.4		3.1	
Rental vacancy rate	6.8		8.3	

Sources: U.S. Bureau of the Census, 1990: STF 3A; HBI Planning Services, Inc.; 1/99.
2005-2007 American Community Survey.

Table 3- 4

City of Miramar
2005-2007 Units By Units Per Structure

Units Per Structure	Units	Percent Of Units
One Unit, Detached	24,179	64.6
One Unit, Attached	4,552	12.2
Two Units	676	1.8
Three or Four Units	711	1.9
Five to Nine Units	957	2.6
Ten to Nineteen Units	2,250	6.0
Twenty or more Units	3,408	9.1
Mobile Home	672	1.8
Other	0	0
Totals	**37,405**	**100.0**

Sources: U.S. Department of Commerce, Bureau of the Census, 1990 STF 3A; HBI Planning Services, Inc.; 1/99. 2005-2007 American Community Survey.

In relation to total housing stock, the City (91%) has a higher "year-round" housing unit occupancy rate than Broward County (84%) as a whole.

In 2005-2007, the City experienced a vacancy rate of 11.2%, in comparison to the countywide rate of 11.4%. Due to the fact that Miramar remains primarily a permanent residential community, as opposed to a tourist and seasonal resident destination, it is concluded that this rate has remained constant to the present date.

Comparative monthly gross rent data for Broward County and Miramar are presented in Table 3-5. The median monthly rent for renter-occupied units in Miramar in 2005-2007 was $1,260 per month, as compared to $1,057 per month for Broward County. Further, the median gross rent as a percentage of household income, as reported in the 2005-2007 for Miramar is shown in Table 3-7 was over 35%.

Comparative housing value data for Broward County and Miramar are presented in Table 3-6A. The median value of specified owner-occupied units reported in 2005-2007 was $337,800 in Miramar, as compared to $283,700 for Broward County.
Comparative monthly owner cost data for Broward County and Miramar are presented in Table 3-6B
The Florida Department of Community Affairs concludes that housing gross costs should fall below 30% of a family's income; a gross housing cost-to-income ratio of more than 30% is indicative of an excessive amount of household expenditure for housing costs.

From Table 3-7, there were 4,059 renter households in Miramar, or 56% of the total renters in 2005-2007 paid 30% or more of household income for gross housing costs. Further, 14,491 owner households, or 50.5% of the total owners in 2005-2007, paid 30% or more of household income for gross housing costs. Based upon the Department of Community Affairs standard, these figures indicate that most of the housing within the City is affordable to its residents.

Household Income Characteristics and Groups

Household income distribution data for 2007 are presented in Table 3-8. Countywide income group definitions, by household size, published by the U.S. Department of Housing and Urban Development (DHUD), are presented in Table 3-9.

Table 3-5

City of Miramar
2005-2007 Monthly Gross Rent of Specified Renter-Occupied Units

	Miramar		Broward County	
Gross Monthly Rent Range	**Units**	**Percent**	**Units**	**Percent**
Median Gross Rent	$1,260		$1,057	

Sources: 2005-2007 American Community Survey.

Table 3- 6A

City of Miramar
2005-2007Value of Specified Owner-Occupied Units

Value Range	Miramar Units	Miramar Percent	Broward County Units	Broward County Percent
Less than $50,000	624	2.3	16,093	3.3
$50,000 - $99,000	474	1.8	32,153	6.7
$100,000 - $149,999	978	3.6	40,823	8.5
$150,000 - $199,999	2,274	8.4	56,189	11.7
$200,000 - $299,999	6,484	24.0	110,059	22.9
$300,000 - $499,999	11,127	41.1	146,789	30.5
$500,000 - $999,999	4,885	18.1	65,937	13.7
$1,000,000 or more	200	0.7	13,230	2.7
Totals	**27,046**	**100.0**	**481,273**	**100.0**
Median Value	**$337,800**		**$283,700**	

Sources: U.S. Department of Commerce, Bureau of the Census, 1990 STF 3A; HBI Planning Services, Inc.; 1/99. 2005-2007 American Community Survey

Table 3-6B

City of Miramar
2007 Monthly Owner Costs as a Percentage of Household Income of Owner Occupied Units

Mortgage Status & Selected Monthly Owner Costs	Miramar Percent	Broward County Percent
Owner Occupied Units	**28,762**	**476,251**
A. Mortgaged Units	**25,607**	**338,992**
Less than 20.0 percent	12.6%	13.2%
20.0 to 24.9 percent	7.5%	8.7%
25.0 to 29.9 percent	12.5%	8.8%
30.0 to 34.9 percent	8.3%	7.0%
35.0 percent or more	47.8%	32.9%
Not computed	100	2,508
B. Units Without A Mortgage	**3,155**	**137,259**
Less than 10.0 percent	2.3%	5.8%
10.0 to 14.9 percent	1.6%	4.8%
15.0 to 19.9 percent	1.8%	3.7%
20.0 to 24.9 percent	0.9%	3.0%
25.0 to 29.9 percent	0.4%	2.2%
30.0 to 34.9 percent	0.9%	1.7%
35.0 percent or more	3.1%	7.0%
Not computed	0	2,511

Sources: U.S. Department of Commerce, Bureau of the Census, 1990 STF 3A; LRM, Inc.; 6/99. 2005-2007 American Community Survey.

Table 3-7
City of Miramar
2005-2007 Cost Burden Characteristics
(Specified units)

A. Gross Rent As A Percentage Of Household Income	Miramar Units	Miramar Percent	Broward County Units	Broward County Percent
Renter Occupied Units				
Less than 15 percent	312	4.4%	12,001	6.2%
15 to 19.9 percent	692	9.7%	19,986	10.2%
20 to 24.9 percent	940	13.2%	22,515	11.5%
25.0 to 29.9 percent	624	8.8%	22,301	11.4%
30.0 to 34.9 percent	772	10.8%	17,106	8.8%
35.0 percent or more	3,287	46.1%	90,635	46.5%
Not computed	500		10,567	

Sources: U.S. Department of Commerce, Bureau of the Census, 1990 STF 3A; HBI Planning Services, Inc.; 1/99. 2005-2007 American Community Survey

Table 3-8

City of Miramar
Household Income in the Past 12 Months (in 2007 Inflation Adjusted Dollars) Distribution

Income Range	Miramar Households	Miramar Percent	Broward County Households	Broward County Percent
Households	34,173		676,384	
Less than $10,000		3.7%		6.5%
$10,001 to $14,999		3.1%		5.5%
$15,000 to $24,999		6.7%		11.2%
$25,000 to $34,999		8.5%		10.7%
$35,000 to $49,999		13.2%		14.9%
$50,000 to $74,999		22.5%		19.0%
$75,000 to $99,999		16.1%		11.8%
$100,000 to $149,999		18.4%		12.1%
$150,000 to $199,999		4.9%		4.3%
$200,000 or more		2.7%		4.0%
Totals	**34,173**	**100.0 %**	**676,384**	**100.0%**
Median Income		**$65,179**		**$51,221**

Sources: U.S. Department of Commerce, Bureau of the Census, 1990 STF 3A; HBI Planning Services, Inc.; 1/99. 2005-2007 American Community Survey

Table 3-9
Housing Groups by Income Range

2009 Ft. Lauderdale Area

Household Size	0-30% AMI Very Low Income	31-50% AMI Low Income	51-80%AMI Moderate Income	81-120% Middle Income
1	$14,950	$24,900	$39,850	$59,760
2	$17,100	$28,500	$45,550	$68,400
3	$19,200	$32,050	$51,250	$76,920
4	$21,350	$35,600	$56,950	$85,440
5	$23,050	$38,450	$61,500	$92,280
6	$24,750	$41,300	$66,050	$99,120
7	$26,450	$44,150	$70,600	$105,960
8	$28,200	$47,000	$75,150	$112,800

Source: U.S. Department of Housing and Urban Development

When applying percentages to Table 3-9A, it results in the following estimate of the 2000 distribution of households in Miramar, by tenure and income group:

Table 3-9A
Distribution of Household by Tenure and Income
Miramar

Income Group	Renters		Owners		Total	
Very-Low Income	821	3.6%	1212	5.3%	2033	8.8%
Low Income	575	2.5%	1300	5.6%	1875	8.1%
Moderate Income	1068	4.6%	2789	12.1%	3857	16.7%
Above Moderate Income	2028	8.8%	13235	57.4%	15263	66.3%
Total	**4492**	**19.5%**	**18536**	**80.5%**	**23028**	**100%**

Source: SOCDS CHAS Data: Housing Problems Output for All Households, 2000, the Community Development Department

Housing and Living Conditions

There are several measures which can be used to evaluate housing stock and living conditions within the City, including: Age of structure; over-crowding; the lack of certain necessary facilities; structural integrity; and Florida Building Code requirements. Specific indicators of substandard housing or living conditions for each of the above measures are as follows:

1. Age of Structure - A housing unit constructed prior to 1940, which is valued at less than $25,000.

2. Over-Crowding - 1.01 persons per room or more within a dwelling unit.

3. Lacking Facilities - A housing unit lacking complete plumbing facilities, heating and cooking facilities and/or complete kitchen facilities.

4. External Housing Conditions - A housing unit categorized as either of the following by the City of Miramar:

Deteriorated: Meaning in need of some relatively minor exterior repair which is indicative of a lack of maintenance. Examples include housing that requires painting, fascias and soffits showing signs of deterioration, cracked and broken windows, and even severely overgrown yards which is generally accompanied by a lack of structural maintenance.

Dilapidated: Meaning in need of substantial rehabilitation. The unit may be considered to be unfit for human habitation or rapidly approaching that condition. This category of substandard housing needs to be addressed immediately, through either rehabilitation or demolition, as the health and safety of the inhabitants may be endangered.

Table 1: Total Occupied Households - Renters and Owners

INCOME	Total Renters 2000	Total Owners 2000	Total Households 2000	Total Households 1990	Overall Change From 1990 to 2000
Household Income <=30% MFI Very Low	821	1,212	2,033	1,143	+77.9%
Household Income >31 to <=50% MFI Low Income	575	1,300	1,875	1,387	+35.2%
Household Income >51 to <=80% MFI Moderate Income	1,068	2,789	3,857	2,153	+79.1%
Household Income >81%	2,028	13,235	15,263	9,742	+56.7%
Total Households	**4,492 (19.5%)**	**18,536 (80.5%)**	**23,028**	**14,425**	**+59.7%**

Source: SOCDS CHAS Data: Housing Problems Output for All Households, 2000&1990

Source: The Comprehensive Housing Affordability Strategy (CHAS) Data Book (Florida),

5. Code Violations - The City has adopted the Florida Building Code which incorporates the following definition of unsafe structure:

   (1) A building deemed a fire hazard, as a result of debris or other combustible material, creates a hazard, vacant and unguarded; or

   (2) A building deemed structurally unsafe by design or deterioration, partially destroyed, unsafe or lack of adequate plumbing, inadequate or unsafe electrical, inadequate waste disposal system or lack of a building permit.

The following discussion outlines the rationale used for preparing definitions of "standard", and "substandard" living and conditions in terms of the five measures listed and discussed above. From Table 3-2, it is observed that there are 245 units (0.7%) of the City's housing stock) within the City which were constructed prior to 1940. Further, there were only 624 specified owner-occupied units 2.3% of the total) in Miramar valued at less than $50,000 in 2005-2007. It is therefore concluded that "Age of Structure" and "value" do not, in themselves, raise any issues regarding overall substandard living and housing conditions within the City.

An over-crowded condition is normally defined to occur when there are more than 1.01 persons per room in a dwelling unit (Note: excluding bathrooms, open porches, utility rooms, unfinished attics, etc. - rooms not used for "living" purposes).Overcrowded conditions arise typically in situations where: (1) A residential unit is shared in order to afford living costs; or (2) a large family in a lower income group cannot afford a unit with an adequate number of bedrooms to accommodate its needs.

In 2005-2007, there were 1,524 households, or 4.4% of the total, reporting occupancy of more than 1.0 person per room in Miramar. This rate is slightly higher than the countywide rate of 2.7%. Due to the relatively high rate, it is concluded that "over-crowding" is an issue to be addressed regarding overall substandard living and housing conditions within the City.

The 2005-2007 ACS reported that high percentages of occupied housing units had complete plumbing facilities (99.9%) and complete kitchen facilities (99.7 %). Due to the high level of availability, it is concluded that "Lack of Facilities" does not, in itself, raise any issues regarding overall substandard living and housing conditions within the City.

The Florida Building Code has been adopted by the City. There are a relatively small number of housing units within the City currently the subject of repairs, rehabilitation or demolition activity resulting from Florida Building Code citations. During the 2006 - 2008 period, a total of 20 residential units were the subject of demolition permit activity. Further, approximately 31% of the City's housing stock is at least 30 years old; an indication that "Code Violations" will become an increasingly serious issue in the future regarding substandard living and housing conditions within the City.

Although substandard living and housing conditions are not a serious issue within the City at this time, appropriate definitions should be incorporated within the Comprehensive Plan for potential future use should the need arise. The application of these definitions will allow the institution of appropriate implementation mechanisms oriented to preserving and enhancing the current quality of living and housing conditions within the City.

Further, the City should consider:

- The use of enforcement actions to reduce the rate of "over-crowding" in the City
- Obtaining the designation of "Entitlement City" under the Community Development Block Grant Program, and promoting the use of State Housing Initiative Partnership (SHIP) program financing.
- The use of County housing rehabilitation funds in the area where "over-crowding" is likely concentrated (i.e. "East Miramar", east of Palm Avenue to SR 7/US Hwy. 441).

Subsidized Housing

There are currently no renter-occupied housing developments within the City using federal, state, or local subsidy programs. However, there are a number of subsidized rental communities within other jurisdictions which provide housing opportunities to very-low and low income residents. The Broward County Housing Authority (BCHA), as well as several municipal housing authorities, provides affordable rental accommodations.
In addition the BCHA provides Section 8 rental assistance to qualified households. According to BCHA, there are 82 households currently receiving Section 8 assistance. Also, the City of

Hollywood Housing Authority provides Section 8 assistance to 17 households. The Section 8 program is available to residents of Miramar.

Conventional Rental Housing

Conventional rental housing communities located in Miramar are listed in Table 3-11. From Table 3-11, there are 83 licensed rental communities containing a total of 3,211apartment units in the City.

Group Facilities and Homes

The Florida Department of Health and Rehabilitative Services (FDHRS) licenses group homes through three of its divisions; Aging and Adult Services (Adult Congregate Living Facilities), Division of Developmental Services (Long Term Residential Care Facilities and Centers for Independent Living), and Children, Youth and Families (Family Group Home and Family Foster Home facilities).

FDHRS provides licensing to individuals or businesses that provide homes to individuals that are developmentally delayed. The individuals placed in homes are typically adults; however, a disability had to have occurred prior to the age of 18 to be eligible. Licensed homes with capacities of less than three are considered foster homes, while those with capacities of 4 to 8 are termed group homes.

In addition to group homes licensed by FDHRS, the Agency for Health Care Administration licenses assisted living facilities (ALFs). There are currently 51 licensed ALFs in the City.
Inventories of group home facilities and adult congregate facilities in Miramar are presented in Tables 3-12 and 3-13.

Table 3-11

Rental Apartments		
Business Name	Address Line 1	Units
MAPLE LEAF APARTMENTS	7220 - 7230 PEMBROKE RD	10
FRANK O'NEILL APTS (TRUST)	6012 SW 33RD ST	10
RAHING APARTMENTS	6020 SW 32ND ST	4
NEW PARK TOWERS	2261 S SHERMAN CIR	220
FLAMINGO COVE DBA MILANO BLDG 10	11501 SW 30TH ST	24
FLAMINGO COVE DBA MILANO BLDG 5	2900 SW 116TH ST	24
FLAMINGO COVE DBA MILANO BLDG 7	2951 SW 116TH ST	24
WILLOWBROOK I APARTMENTS	1860 SW 68TH AVE	74
PS HOLDINGS	7300 PEMBROKE RD	5
SUNSET APARTMENTS	6124 PEMBROKE RD	8
PJ & SON ENTERPRISE INC	7625 & 7631 VENETIAN ST	8
FLAMINGO COVE DBA MILANO BLDG 3	11580 SW 30TH ST	24
FERNANDO DELGADO APARTMENTS	6326 SW 25TH ST	3
HILLSIDE APARTMENTS	7311 VENETIAN ST	4
MIRAMAR PARK APARTMENTS	7607 VENETIAN ST	4
DAMI-PREM INC (WEDGEWOOD APTS)	7211 VENETIAN ST	12
GLOGOVER APARTMENTS	6326 SW 27TH ST	10
DARNELL APARTMENTS	6140 SW 37TH ST	4
DON Q APARTMENTS	6040 SW 26TH ST	6
BONNIE -L- APARTMENTS	7200-7210 PEMBROKE RD	10
FAIRFIELD PIER CLUB/THE ASHLAR	8440 N SHERMAN CIR	480
FLAMINGO COVE DBA MILANO BLDG 1	3101 SW 119TH ST	24
PS HOLDINGS	7410 PEMBROKE RD	5
EDISON & BARBARA WATLER (APTS)	6023 SW 35TH ST	12
WINDSOR AT MIRAMAR	3701 SW 160TH AVE	348
VILLA DE LAMAR APTS	7612 - 7624 PEMBROKE RD	10
GOLDEN COACH APARTMENTS	6305 SW 18TH ST	5
PS HOLDINGS	7400 PEMBROKE RD	5
EDISON & BARBARA WATLER (APTS)	6013 SW 35TH ST	10
SAMSODEEN SAFFIE APTS	6034 SW 36TH ST	6
MCDANIEL APARTMENTS	6240 SW 18TH ST	2
PEREZ-FIGUEROA II APTS.	6050 SW 26TH ST	6
M & J APARTMENTS	6115 SW 35TH CT	6
RON B SMITH APARTMENTS	6050 SW 25TH ST	4
FLAMINGO COVE DBA MILANO BLDG 9	2902 SW 115TH ST	24
FLAMINGO COVE DBA MILANO BLDG 4	2950 SW 116TH ST	24
EDISON & BARBARA WATLER (APTS)	6033 SW 35TH ST	12
MIRAMAR APARTMENTS	2919 SW 68TH TER	27

Table 3-11 (continued)

Business Name	Address Line 1	Units
SKY RANCH APARTMENTS	7640-7650 PEMBROKE RD	18
NICOLE ELLIS APARTMENTS	6060 SW 25TH ST	4
6036 ALZOA	6036 SW 27TH ST	5
MIRAMAR GARDENS APARTMENTS	6024 SW 26TH ST	25
COLLEEN A. RAMLAL APTS	7561 VENETIAN ST	4
PS HOLDINGS	7240 PEMBROKE RD	5
ROBIN HOLLOWAY APTS	6120 SW 27TH ST	5
WYN APARTMENTS	6041 SW 18TH ST	5
RAYMOND MINCHER APTS.	2213 -2119 SW 60TH WAY	4
SUN VILLA APARTMENTS	6015 SW 33RD ST	15
ARC HALL OF FAME / SUTTON APTS	6224-26 MIRAMAR PKWY	16
HERON POINTE APARTMENTS	2260 SHERMAN CIR N	200
LINDA'S VILLA, INC	6050 SW 27TH ST	23
PS HOLDINGS	7320 PEMBROKE RD	5
SOLANO AT MIRAMAR	11700 SW 26TH ST	512
RUSTIC COURT APARTMENTS	7331 VENETIAN ST	5
PS HOLDINGS	7310 PEMBROKE RD	5
PS HOLDINGS	7420 PEMBROKE RD	5
EMMANUEL APOSTOLIC CHURCH APTS	6131 SW 35TH CT	7
SAMSODEEN SAFFIE APTS	6035 SW 37TH ST	6
PALM TREE APARTMENTS	6300 MIRAMAR PKWY	8
SKYLINE APARTMENTS	7221 VENETIAN ST	12
VILLAS DE MALLORCA	3430 DOUGLAS RD	252
ALZOA 7531	7531 VENETIAN ST	12
DEOCHAND PERSAUD	2700 SW 62ND AVE	5
FLAMINGO COVE DBA MILANO BLDG 2	3020 SW 119TH ST	24
FLAMINGO COVE DBA MILANO BLDG 6	11551 SW 30TH ST	24
FLAMINGO COVE DBA MILANO BLDG 8	11520 SW 29TH ST	24
VICTORIA ESLAVA (APTS)	3019 SW 68TH TER	7
MIRAMAR LAKES APARTMENTS	10720 N PRESERVE WAY	344
RON & SLY'S COURT APTS	7660 PEMBROKE RD	5
GARY DUNKLEY APTS	7613 VENETIAN ST	4
FIONA HUDSON APARTMENTS	7551 VENETIAN ST	4
NESTOR LOPEZ APARTMENTS	6141 SW 30TH ST	18
PS HOLDINGS	7330 PEMBROKE RD	5
ION & ANA BRINZEI APTS	7511 VENETIAN ST	12
PRESENTY PROSPER APTS	7630 PEMBROKE RD	4
SCOTLAND ARM APTS	7401 VENETIAN ST	6
STILES APARTMENTS	1731 ACAPULCO DR	7
VILLANOVA APARTMENTS C/O EAGLE	7421 VENETIAN ST	12
MIRAMAR VILLAGE APTS	6032 SW 25TH ST 6036-40 SW 25TH ST	15
ELDY VALENTIN APARTMENTS	7655 VENETIAN ST	4
MIRAMAR PARK VIEW APTS	6141 SW 37TH ST	31
Total		**3211**

Table 3-12
City of Miramar
Inventory of Assisted Living Facilities

Name	Address	Zip	Capacity	Type
Adams GH #1	2400 OLEANDER DR	33023	6	APD
Adrienne Guillaume	8259 WINDSOR DR	33025	5	AHCA
Angel's Safe Haven	2005 BAHAMA DR	33023	2	APD
Angel's Safe Haven, Inc.	7964 PLANTATION BLVD	33023	4	APD
April GH #1	18567 SW 46 ST	33029	5	APD
Brenda Knowles Foster Home	15656 SW 53 CT	33027	3	APD
Bright Style #2	6508 SW 23 ST	33023	4	APD
Christal's Haven	7201 PLANTATION BLVD	33023	6	APD
Christiana Raphael	18574 SW 55 ST	33029	6	AHCA
Consumer Supports Assoc	9591 HUDSON ST	33025	6	APD
Daphne Cares, Inc	8424 SHERATON DR	33025	4	APD
Denise Archer	5000 SW 151 TER	33025	5	AHCA
Destiny Living, LLC	9230 N CYPRESS CIR	33025	6	AHCA
Doreen Turner	7520 HARBOUR BLVD	33023	5	AHCA
Emerged Home Care, LLC	8660 S LEXINGTON DR	33025	6	AHCA
Englishannes Prestige Care	1813 SW 96 AVE	33025	4	AHCA
Esther's GH #1	7945 INDIGO ST	33023	7	APD
Esther's GH #4	12775 SW 47 ST	33027	6	APD
Fullness of Love	3405 KNOLLS RD	33025	5	AHCA
G + G Home	6737 SW 27 CT	33023	5	APD
Glory House #1	3409 BAHAMA DR	33023	6	APD
Glory House #2	7744 GRANDVIEW BLVD	33023	6	APD
Grandview Manor #1	7550 GRANDVIEW BLVD	33023	6	APD
JMW Adult Home Care	1832 SW 156 AVE	33027	6	AHCA
Kinder Care West	8618 S SUTTON DR	33025	5	APD
Lilita Home II	2451 SW 103 WAY	33025	6	AHCA
Marie's GH	2140 SW 67 WAY	33023	5	APD
Mary's Extreme Care	6107 SW 26 ST	33023	5	AHCA
Mavis Williams	7320 NEPTUNE ST	33023	5	AHCA
Max Walters	11451 SW 20 ST	33025	6	AHCA
Meadowview Sunnyland	1941 SW 68 WAY	33023	6	APD
Miramar Isle GH	6612 SW 33 ST	33023	6	APD
Miramar Manor	7916 DILIDO DR	33023	6	APD
Miramar Manor #2	3700 ACAPULCO DR	33023	6	APD
Miramar Parkway Outreach	8544 MIRAMAR PKWY	33025	3	APD
MonCoeur Suzette GH	6419 SW 19 ST	33023	6	APD
One Stop Nursing	11740 SW 24 ST	33025	6	AHCA
Palm Manor, Inc	6609 SW 20 ST	33023	6	AHCA
Piper's GH #1	7781 BILTMORE BLVD	33023	7	APD
Piper's GH #2	6523 SW 26 ST	33023	7	APD
Piper's GH #3	1911 ACAPULCO DR	33023	6	APD
Piper's GH #4	3100 ISLAND DR	33023	5	APD
Prestine Companion Home Care	8665 W LONG ACRE DR	33025	6	AHCA
Saejca"s Castle	13393 SW 32 ST	33027	6	AHCA
Sandra Bartley	2318 SUNSHINE BLVD	33023	4	AHCA
Sommerville Homes Inc	7933 INDIGO ST	33023	5	AHCA
South Oaks	6141 SW 34 ST	33023	8	AHCA
Sunny Residence, Inc	9001 SW 20 ST	33025	5	AHCA
Tender Touch Home Care, Inc	1801 ALCAZAR DR	33023	8	AHCA
TenderCare Living Facilities	2906 SUNSHINE BLVD	33023	4	AHCA
Vangie's GH	1711 SW 99 AVE	33025	6	APD

Source: City of Miramar Community Development Department/

Mobile Home and Recreational Vehicle Parks

The two mobile home parks located in Miramar are listed in Table 3-14. Currently, there are no recreational vehicle parks in the City.

Historically Significant Housing

There are no residential structures in the City at this time listed on the Florida Master Site File or the National Register of Historic Places, nor have any been so designated by the City of Miramar.

B. Housing Analysis

The population of Miramar was estimated at 112,666 residents in 2008 by the US Clearing House. It is projected therein that resident population will increase to the following levels: 2010 113,109 residents; 2015 - 120,806; and 2020 – 127,841residents.

Table 3-14

City of Miramar
Inventory of Licensed Mobile Home and Recreational Vehicle Parks

Name/HRS License #	Type	Address	Capacity
Laplam Trailer Park/6-11-95	MHP	6128 S.W. 35th Court	17
Haven Lakes Est./6-163-95	MHP	11201 S.W. 55th Street	520

Source: Florida Department of Health and Rehabilitative Services, Broward County Health Unit; HBI Planning Services, Inc.

Housing needs projections during the – 2008-2020 period, accounting for resident household and seasonal resident growth, as well as a reasonable vacancy rate, are summarized in the following table:

2008	2010	2015	2020
33,516	35,406	37,377	39,073
31,639	33,423	35,284	36,885
279	295	311	325

From the above table, it is projected that 3,861 units will be required during the – 2008-2015 period to accommodate the City's housing needs; while an additional 1,696 units will be required to accommodate needs during the 2015 2020 period.

Residential acreage required to accommodate projected housing needs are summarized in the Future Land Use Element.

Resident household growth projections, based upon the assumption that historical renter versus owner splits are maintained, are presented in the following table:

	Resident Household Growth	
Growth Period	**Rented Units**	**Owned Units**

2008	**2015**	**629**	**3,232**
2015	**2020**	**276**	**1,420**
Total Growth	**2008 2020**	**905**	**4,652**

The housing stock of the City currently (2008) consists of the following components: Low density - (less than 5 units per acre) - 64.6%; medium density (5 units per acre and more) - 33.6% and mobile home and other - 1.8%.

Vacant residential land analysis (Ref: Future Land Use Element) indicate that the remaining residential build out potential of the City is 1,489 units.
\
When existing housing stock (73,405 units) is added to remaining build out potential 1,489 units) it is concluded that total residential build out of the City is 52,174 units.

For projection purposes, it is assumed that current population and housing characteristics of the City will remain relatively unchanged throughout the short-term and long-range planning periods. (Note: It is recognized that household income will increase during the planning periods.)

The following table presents total housing stock projections, by residential density type:

Residential	**Projected Housing Units By Year**		
Density	**1998**	**2005**	**2010**
Low	15,650	18,997	21,819
Medium	3,577	4,341	4,986
Mobile Home and Other	594	594	594
Total units	**19,821**	**23,932**	**27,399**

Land requirements necessary to accommodate the above projections are shown in the Future Land Use Element.

Household Characteristics Projections

It is estimated that there are currently 18,711 resident households in the City (1998 population of 52,882 residents and an average household size of 3.1 persons per household). Projections of total household growth, based upon resident population projections and the assumption of maintenance of the current average household size are presented as follows: 2005 - 22,592 households; and 2010- 25,865 households.

The above projections include the assumption of an adequate number of vacant units to meet or exceed the rate defined by the 1990 census.
Household estimates and projections, by tenure and household size, are presented in Table 3-15. Estimates and projections prepared in Table 3-15 are based upon the assumption that tenure and

household size distributions, per the 1990 Census, will be maintained through the year 2010. From Table 3-15, the following observations are made:

1. Of the total growth (7,154 households) during the 1998 - 2010 period, 5,737 households (80% of the total) are projected to be owners, as opposed to renters.

2. Renters will increase by 1,417 households during the 1998 - 2010 period.

3. Family households (i.e. 3 persons or more per household) will constitute 51% of the total growth in the City during the 1998 - 2010 period.

Population projections, by age group, are presented in Table 3-16. Projections prepared in Table 3-16 are based upon those generated by the Shimberg Housing Model, Version 3. From Table 3-16, the following observations are made:

Table 3-15

City of Miramar
1998 to 2010 Projections of Household Growth by Tenure and Household Size

A. Owner Occupied Housing:

Household Size	1998	2005	2010
1	2,476	2,990	3,423
2	4,712	5,689	6,514
3	3,347	4,041	4,625
4	2,656	3,207	3,672
5	1,170	1,413	1,617
6	496	598	685
7+	150	181	208
Subtotals	**15,007**	**18,119**	**20,744**

B. Renter Occupied Housing:

Household Size	1998	2005	2010
1	814	985	1,127
2	1,071	1,292	1,480
3	715	863	987
4	660	797	912
5	222	268	308
6	119	143	164
7+	103	125	143
Subtotals	**3,704**	**4,473**	**5,121**

C. Total Occupied Housing

Household Size	1998	2005	2010
1	3,290	3,975	4,550
2	5,783	6,981	7,994
3	4,062	4,904	5,612
4	3,316	4,004	4,584
5	1,392	1,681	1,925
6	615	741	849
7+	253	306	351
Totals	**18,711**	**22,592**	**25,865**

Source: HBI Planning Services, Inc; 2/99.

Table 3-16

City of Miramar
1997 to 2010 Population Projections by Age-Group Distribution

Age Group (years)	Year (Population) 1995	2005	2010	Growth 1995 - 2010
0- 4	3916	5159	5943	2027
5- 9	3900	5319	5899	1999
10-14	3573	5798	6126	2553
15-19	2965	5089	6038	3073
20-24	2481	4157	5212	2731
25-34	6949	8498	10395	3446
35-44	7815	9826	9320	1505
45-54	5567	9290	11002	5435
55-64	3355	5670	7281	3926
65-74	2281	2918	3589	1308
75+	1610	2126	2295	685
Totals	**44,411**	**63,850**	**73,100**	**28,689**

Source: Shimberg Model; HBI Planning Services, Inc.; 2/99.

1. Prime school-age groups (i.e. 5 years - 19 years of age) are projected to increase by 7,625 residents, or 27% of the total projected growth, during the 1995 - 2010 period.

2. Of the total growth (28,689 residents) during the 1995 - 2010 period, 13,117 residents (46% of the total) are projected to be prime working age-groups (i.e. 20 years - 54 years of age).

3. Growth in the retirement age-group (i.e. 65 years and older) is projected to constitute 7% of the total. Further, the age-group approaching retirement (i.e. 55 years - 64 years of age) is projected to constitute approximately 7% of the total.

Housing Delivery Process

Housing stock in the City has historically been constructed entirely by the private sector. Relatively high City income levels and housing values and rents, low vacancy rates, and the generally good quality of the housing stock lead to the conclusion that the private sector will continue to provide the majority of housing to accommodate projected population growth throughout the planning periods.

However, due to the relatively high rate of "over-crowding" and building code violations, the City should increase code enforcement activity, as well as its efforts to provide alternative accommodations through the City's Local Housing Assistance Plan (LHAP) and Affordable Housing Incentive Plan (AHIP).

The LHAP was approved by the City in 1998, and the AHIP was approved in 1999. In combination, these programs provide incentives for affordable housing in the City, as well as home repairs and home purchase assistance for the next three-year period. Approximately $293,000 per year for each of the three years has been budgeted for the program, with the bulk of the funds (i.e. approximately 65%) earmarked for repair activities.

Further, due to the fact that slightly fewer than 3,000 housing units will be at least 40 years old by the year 2000, the city should anticipate assuming a stronger role in maintenance and rehabilitation.

Based upon an analysis of demographic characteristics, it is recommended that the City develop incentives for alternative housing arrangements for both families and the elderly (i.e. residents aged 65 years and older). During the 1995 - 2010 period, City residents within this age-group are projected to increase by 51%.

Indicators of the cost of housing are presented in Table 3-1. During the 1990 - 1996 period, construction costs have steadily risen from an average of $91,100 in 1990 to $102,520 in 1996. The increase in average construction costs, per Table 3-1, has been somewhat sporadic due to the influence of multiple-family units. Recent average costs have declined due to the relatively large numbers of multiple-family units included in the totals.

Multiple-family units constituted only 12% of the total constructed during the 1990 - 1996 period within the City; however, during the 1995 - 1996 period, multiple-family construction (517 units) constituted 19% of the total.

An analysis of vacant residential land (Ref: Future Land Use Element) leads to the conclusion that substantial vacant residential land remains to be developed. Future residential development will consist of the build out of currently approved developments, and the approval and development of new communities.

It is anticipated that additional rental housing demand in the City will be met primarily by private sector developers, including non-profit corporations.

The City's role in the new housing delivery process will continue to be based primarily upon the provision of services necessary to facilitate housing delivery by the private sector. However, it is

anticipated that the City's role in code enforcement and housing rehabilitation activities will increase.

Alternative Housing Issues

An analysis of 1990 household income data from Table 3-10 leads to the following conclusions:

1. Approximately 38% of the very-low income households in Miramar are elderly (i.e.householder aged 65 years and older);

2. Approximately 30% of the low income households are elderly.

3. In total, approximately 35% of the very-low and low income households in Miramar are elderly.

4. Approximately 45% of the very-low income households in Miramar are families;

5. Approximately 55% of the low income households are families.

6. In total, approximately 49% of the very-low and low income households in Miramar are families.

Rental unit vacancy statistics from Table 3-3 (i.e. 7.7%) indicate that supply exceeds demand (Note: A 5% vacancy rate is indicative of an equilibrium situation where supply meets demand, accounting for a normal turnover of tenants.)

It is concluded that very-low income households will continue to consist primarily of elderly and family households. Housing programs should be oriented to meeting the needs of these two groups. Many elderly who purchase a home do so without a mortgage, therefore reducing housing costs to affordable levels; however, it is recommended that the City encourage the development of rental housing alternatives for the elderly. Adult day-care and congregate living facilities are alternatives which should be further pursued.

Availability of Services

Miramar has sufficient infrastructure in place, either provided directly by the City, or through interlocal agreement, to accommodate current development demands. Also, plans are in place to accommodate future growth needs.

At this time Miramar has sufficient capacity to provide the potable water and wastewater demand of existing development. Further, new treatment facilities are currently planned to serve future growth. Until the new facilities are constructed, the City has executed interlocal agreements with adjacent jurisdictions to meet interim growth needs.

Most roadways in Miramar are operating at LOS "D" or better. Programmed roadway improvements may alleviate LOS problems on roadways currently operating below the adopted standard of "D".

Sufficient solid waste capacity is available at the County's facilities for the disposal of both processable and non-processable solid waste. The County operates waste-to-energy facilities and ash disposal landfills. A contractual agreement exists between Miramar and All Services Inc. for the collection and transport of all solid waste to the County facilities, and for pick-up and recycling of all residential and commercial materials.

Drainage is managed and controlled on an area wide basis, by both the South Broward Drainage District and the South Florida Water Management District. Miramar requires that all construction designs for development be in compliance with standards established by these agencies prior to issuing a building permit.

Miramar has several local and community parks which serve its residents; a total of 461 acres. The County has purchased two large parcels of land within Miramar; one for a regional park, and a second for environmentally sensitive lands preservation. Future parks needs, in addition to existing and planned facilities will generally be accommodated through the development approval process.

Affordable Housing Assessment

Florida Statutes, Chapter 9J-5.010(2)(b) requires that an affordable housing assessment be performed using a methodology established by the Florida Department of Community Affairs.

A copy of the Shimberg Affordable Housing Assessment (Version 3) for Miramar was provided by the South Florida Regional Planning Council. A reformatted copy of the Model is included as Attachment A hereto. Data tables in Attachment A are grouped within the following sections: A. 1990 Census Data; B. 1995/96 Estimates; and C. Projections.

Population projections, a primary factor in determining future housing needs, used in the Shimberg Model differ dramatically from those prepared locally, Miramar. Summaries of Shimberg Model results are presented in Tables 3-17 and 3-18. A comparison of the differing sets (i.e. Miramar versus Shimberg) of projections is presented in the following table:

Population Projections 1995 - 2010 (Residents)

Year	Miramar	Shimberg Model	Difference (Shimberg Model - Miramar)
1995	44,412	44,412	0
1998	52,882	NA	NA
2000	56,150	48,573	(7,577)
2005	63,850	51,977	(11,873)
2010	73,100	55,024	(18,076)

From the above table, the projections used in the Shimberg Model understate those prepared by Miramar by 7,577 residents in 2000, 11,873 residents in 2005, and 18,076 residents in 2010. The differences in the projections are attributed to the greater local knowledge of City officials regarding the expected pace of future growth, in relation to the large remaining build out capacity of vacant, designated residential land. Local projections were prepared based upon this knowledge, while Shimberg Model projections were prepared using historical growth data.

As a result of the population projections, household and housing needs projections prepared as part of the Shimberg Model also greatly understate those prepared by the City. A comparison of the Miramar projections versus those prepared as part of the Shimberg Model is presented in the following tables:

Table 3-17

City of Miramar
Cumulative Deficit (Surplus) of Affordable Occupied Units

Shimberg Model

Income Group	Owner Occupied Units 1995	2000	2005	2010	Renter Occupied Units 1995	2000	2005	2010
Very-Low	2,311	2,516	2,695	2,949	981	1,083	1,179	1,287
Low	1,021	1,277	1,504	1,805	(151)	(44)	49	165
Moderate	(2,947)	(2,503)	(2,134)	(1,675)	(455)	(293)	(151)	28

Source: Shimberg Model, Version.

Table 3-18A
City of Miramar
Shimberg Model Impact of Growth Upon Need* for Affordable Owner- Occupied Units

Inco Group	Growth Period 1995 - 2000	2000-2005	2005-2010	1995-2010
Very-Low	205	179	254	638
Low	256	227	301	784
Moderate	444	369	459	1,272

* - Need = Projected household growth less existing supply, accounting for the current (1995) estimated surplus or deficit of affordable units.
Source: Shimberg Model Version 3; HBI Planning Services, Inc.; 3/99.

Table 3-18B
City of Miramar
Shimberg Model Impact of Growth Upon Need* for Affordable Renter-Occupied Units

Income Group	Growth Period 1995 - 2000	2000-2005	2005-2010	1995-2010
Very-Low	102	96	108	306
Low	107	93	116	316
Moderate	162	142	179	483

* - Need = Projected household growth less existing supply, accounting for the current (1995) estimated surplus or deficit of affordable units.
Source: Table 3 - 16A; HBI Planning Services, Inc.; 3/99.

Housing Stock Projections 1995 - 2010 (Year-Round Units)

Year	Miramar	Shimberg Model	Difference (Shimberg Model - Miramar)
1995	NA	16,871	NA
1998	19,821	NA	NA
2000	NA	17,323	NA
2005	23,932	18,401	(5,531)
2010	27,399	19,489	(7,910)

Household Projections 1995 - 2010 (Households)

Year	Miramar	Shimberg Model	Difference (Shimberg Model - Miramar)

1995	NA	15,383	NA
1998	18,711	NA	NA
2000	NA	16,638	NA
2005	22,592	17,669	(4,923)
2010	25,865	18,721	(7,144)

From the above tables, it is concluded that the Shimberg Model greatly understates the future demand for housing and household growth in relation to projections prepared by the City.

The understatement of population, housing units, and households also effects the Shimberg Model's housing affordability assessment. As stated earlier in this analysis, it is recommended that the City obtain "Entitlement City" status under the Community Development Block Grant Program. Under the designation the City will prepare a "Consolidated Plan" to specifically quantify current and future housing needs. In the meantime, preliminary estimates of housing needs are prepared using household projections prepared in this analysis, along with estimates of the distribution of households by income group, and tenure presented in Table 3-19.

Assuming the maintenance of the income-group and tenure distribution presented in Table 3-19, projections of household growth, by income group, are presented in the following table:

Household Projections,
By Income Group 1998 - 2010 (Households)

A. Owner-Occupied Households

Year	Very-Low	Low	Moderate +	Total
1998	2,208	1,965	10,834	15,007
2005	2,666	2,372	13,081	18,119
2010	3,052	2,716	14,976	20,744

B. Renter-Occupied Households

Year	Very-Low	Low	Moderate +	Total
1998	1,047	767	1,890	3,704
2005	1,265	926	2,282	4,473
2010	1,449	1,060	2,612	5,121

In the above section entitled "Alternative Housing Issues", housing needs, by household type (e.g. by tenure and type of household) are discussed. Projections and household needs presented herein should be used to guide the preparation of the City's forthcoming "Consolidated Plan".

Population growth projections, by age-group, are presented in Table 3-16. Although total projections differ, the distribution of population among the various age-group cohorts derived from the Shimberg

Table 3-19

City of Miramar
Locally Prepared Projected Growth of Need* for Affordable Occupied Units

Income Group	Growth Period 1997 - 2005	2005-2010	1997-2010
Very-Low Owner	458	386	844
Very-low Renter	218	184	402
Low Owner	407	344	751
Low Renter	159	134	293
Moderate + Owner	2,247	1,895	4,142
Moderate + Renter	392	330	722

* Note: Need = Projected household growth distributed to income groups according to the percentages shown in Table 10.
Source: HBI Planning Services, Inc.; 3/99.

The model is assumed to be accurate. Projections do not indicate that the City should incorporate special policies to encourage large-scale facilities to accommodate the special needs of the elderly population within the indicated planning periods. However, policies to encourage small-scale affordable elderly rental communities should be encouraged.

Conservation Activities

The City is expected to continue its role as monitoring and agent, as discussed in this element. Further, conservation and rehabilitation activities are anticipated as a means of preserving the condition of the City's housing stock. The designation of historically significant housing is not anticipated; however, the need should be reassessed at the time of each required, periodic Comprehensive Plan update.

IV. Infrastructure Element
(a). Potable Water Sub-Element

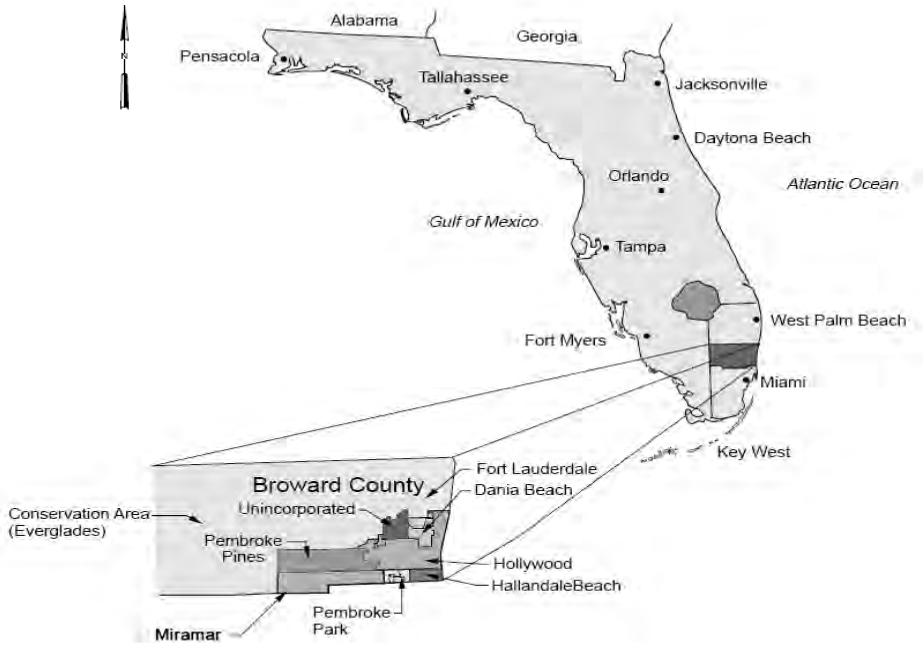
Introduction and General Information

1.1 Background

The City of Miramar is located in the southwest portion of the populated area of Broward County (Figure 1-1). It is bordered on the north by the City of Pembroke Pines and by the City of Hollywood, on the east by City of West Park, on the south by the City of Miami Gardens and Miami-Dade County, and on the west by the Everglades. Figure 1-2 illustrates the boundaries of the City of Miramar.

Over the past fifteen years, the City of Miramar has experienced unprecedented growth and development of previously vacant lands in its former western service area, historically defined as the area between Palm Avenue and US 27 (Refer to Chapter 2 for a description of recent service area modifications). This development required water and wastewater services beyond capacities that existed within the City's utilities systems at that time (circa 1992).

(Figure 4.1A) Figure 1-1 Location Map



(Figure 4.1B) Figure 1-2 Overview Map

To provide necessary water service, the City planned for, designed, financed and constructed a new Western Water Treatment Plant to serve future development. Phase I construction of a 4.5 MGD water treatment plant was completed in 1996. In 1998, faced with increasing demands from developers for additional water capacity, the City planned Phase II construction of a 3.0 MGD water plant expansion. Hence, water supply to new development was adequately addressed.

In 2006, the City conducted a needs assessment of growth forecast and impact analysis of all future developments including residential, industrial, retail and commercial developments and concluded that the City needed to expand the water and wastewater plant capacities in order to serve the future developments.

1.2 Statutory Requirements

In 2002, the Florida Departments of Community Affairs (DCA) and Environmental Protection (DEP) and the state's water management districts examined the agencies' statutory and regulatory authorities, as well as their processes for providing technical assistance to local governments, to determine whether water supply planning and local government comprehensive planning could be better integrated.

It has been determined that traditional water supply sources used in our area will not be sufficient to meet the demands of the growing population and the needs of the environment, agriculture and industry over the next twenty years. As potential limitations on the continued use of traditional water supplies became increasingly apparent in recent years, the Florida Legislature enacted bills in 2002, 2004, and 2005 to more effectively address the state water supply needs by improving the coordination between local land use planning and water supply planning.

In 2005, the Florida Legislature significantly changed Chapter 163, Part II, and 373, F.S., to improve the coordination of water supply planning and land use planning. Senate Bills 360 and 444 strengthened the statutory linkage between the regional water supply plans and local government comprehensive plans, plan amendments and evaluation and appraisal reports (EARs). The Bills encouraged local governments located in the areas subject to regional water supply plans to cooperate with the water management districts in development of alternative water supplies. The legislation also reemphasized the need for local governments to implement water conservation and reuse programs.

Moreover, each local government located in a regional water supply planning area must now prepare a Water Supply Facilities Work Plan for a minimum 10-year period, describing the public, private, and regional water supply facilities and alternative water supply projects, reuse, and conservation that will be developed to address future water needs.

1.3 Water Supply Planning Requirements

With regard to water supply, the legislation requires the local government to ensure that adequate water supplies and facilities are available to serve new development no later than the date on which the local government anticipates issuing a certificate of occupancy and consult with the applicable water supplier prior to approving a building permit, to determine whether adequate water suppliers will be available to serve the development by the anticipated issuance date of the certificate of occupancy. This "water supply concurrency" is now in effect, and local governments should be complying with the requirement for all new development proposals.

Specifically, the water supply plan needs to address the following elements:

a. The Infrastructure Element identifies alternative and traditional water supply projects, and conservation and reuse programs necessary to meet the projected water demands identified within the local government's jurisdiction; incorporates the alternative water supply projects the local government has elected from the regional water supply plan or its' own proposed alternative water supply plan; and include a minimum 10-year work plan for building public water supply facilities necessary to serve existing and new development.

b. The Capital Improvements Element addresses the need for and location of public facilities, including those identified in the 10-Year Water Facilities Work Plan. The financially feasible five-year schedule of capital improvements must describe projects listed in the 10-year work plan that are to be implemented in the first five years of the plan, including both publicly and privately funded water supply projects that are necessary to ensure that adopted level of service standards are achieved and maintained.

c. The Conservation Element includes an assessment of current and projected water needs and sources for a minimum 10-year period, considering the appropriate regional water supply plan and consumptive use permit.

1.4 Regional Water Sources and Planning

The Biscayne Aquifer is one of the most productive aquifers in the world and is currently the primary source of freshwater to residents of Broward County, Miami-Dade County, and southeastern Palm Beach County. In 1979, it was designated a sole source aquifer by the U.S. Environmental Protection Agency (EPA), under the Safe Drinking Water Act (1974). The South Florida Water Management District (SFWMD) is the state agency responsible for water supply planning in the Lower East Coast Planning Area, which includes all of Broward County and the City of Miramar. Withdrawals from the Biscayne Aquifer are managed by the SFWMD through the issuance of Consumptive Use Permits (CUPs). In order to protect the Biscayne Aquifer from saltwater intrusion, ensure adequate groundwater levels for maintenance of natural systems, and prevent excessive groundwater seepage or surface water flows from the regional (Everglades) system, the SFWMD worked with local water supply utilities and developed the Lower East Coast Regional Water Supply Plan (LECRWSP) in 2000.

In 2005, passage of Senate Bill 444 created an alternative water supply assistance program to encourage the development of alternative water supplies by providing financial assistance to utilities.

In February 2007, the Governing Board of the SFWMD adopted the "Regional System Water Availability Rule" requiring that new water demands be met through alternative water sources. At the same time, an updated Lower East Coast Water Supply Plan Update (2005-2006 LEC Plan Update), was approved by the SFWMD Governing Board. The LEC Update identified base line conditions of Biscayne Aquifer allocation and alternative water supply sources that local utilities are required to implement in order to ensure adequate water supply for present and future water capacity demands. The City of Miramar's permitted Biscayne Aquifer allocation and future projected water supply needs are included in the updated LEC Plan.

1.4.1 Development of City of Miramar's 10-Year Water Supply Facilities Work Plan

Recognizing all these changes and rule making that affect traditional water supply planning and financing, the City of Miramar has taken initiatives on meeting growth requirements by integrating alternative water supplies in its Comprehensive Plan. The Department of Utilities prepared a 10-Year Water Facilities Work Plan and coordinated with the Department of Community Development to incorporate the latest water supply requirements into the Comprehensive Plan.

During the preparation of the Work Plan, the City of Miramar worked closely and coordinated with SFWMD regarding demand projections, the use of appropriate water sources to meet projected demands and the use of water conservation and reuse strategies through permitting efforts.

The 10-Year Water Supply Facilities Work Plan (the Work Plan) is prepared under the guideline of "A Guide for Local Government in Preparing Water Supply Comprehensive Plan Amendments and Water Supply Facilities Work Plan", Florida Department of Community Affairs, Division of Community Planning (Sept. 2007). The Work Plan identifies the future water supply needs and develops a strategy for meeting projected water demands. Financing feasibilities and capital improvements will ensure that the Department of Utilities has the ability to meet those needs and that the City's future growth is not affected.

The Work Plan includes a detailed analysis of existing water facilities, current and projected water demands, and identifies the base line condition with Biscayne Aquifer allocation under the "Water Availability Rule" and in combination with alternative water supplies to meet future water demands. The Work Plan also includes Capital Improvement Projects and construction cost estimates for plant expansion and alternative water supply facilities including reclaimed water expansion and Floridan Aquifer wells in consistency with the 2005-2006 LEC Plan Update.

1.5 Objective of the Work Plan

The Water Supply Facilities Work Plan ensures the construction of water supply facilities that are necessary to serve existing and new development for at least a 10-year planning period. The Work Plan addresses those facilities for which the City of Miramar is responsible. The Work Plan also addresses the area that is served by Broward County through the Large-User Wholesale Agreement with the City of Hollywood.

The Work Plan will strengthen the coordination between Community Development land use planning responsibilities, Utilities water supply facilities planning activities and the water resource development responsibilities of the water management districts.

1.5.1 Goals, Objectives, and Policies and Comprehensive Plan Update

The current Comprehensive Plan was reviewed to identify the goals, objectives and policies that integrate the Work Plan into the Comprehensive Plan. Elements of the Comprehensive Plan related to water supply are being updated to include the Work Plan. The goals, objectives and policies are made consistent with strategies in the Work Plan that address the selection of water sources, improvements of facilities, conservation and reuse. The Conservation Element is being updated to be consistent with the assessment of the current and projected water needs and sources, considering the requirements of the South Florida Water Management District's Lower East Coast Water Supply Plan.

The proposed amendments to the Comprehensive Plan support the City's 10-Year Water Supply Facilities Work Plan and the requirements of Chapters 163 and 373, F.S.

Water Supply and Infrastructure

2.1 Service Areas

As noted in Chapter 1, the City of Miramar is located in the southwest portion of the populated area of Broward County. It is bordered on the north by the City of Pembroke Pines and by the City of Hollywood, on the east by City of West Park, on the south by the City of Miami Gardens and Miami-Dade County, and on the west by the Everglades. The City is linear with dimensions of approximately 14 miles in length from East to West and 1.5 to 2.5 miles in width, comprising of 31 square miles.

The water service area is divided into two sub-areas: Eastern and Western Service Areas. The Eastern Water Service Area is bounded by US 441 to the east and Palm Avenue to the west. The area west of Palm Avenue and bordered by US 27 to the west is known as the Western Water Service Area. Figure 2-1 illustrates the water service area boundaries and major water facilities. The water service area designations are an artifact of City development patterns. The older portion of the City is served by the older Eastern Water Treatment Plant (EWTP) while the newer area (west of Palm Avenue) is served by the Western Water Treatment Plant (WWTP). (It is noted that rates are uniform throughout the City and that water facilities are operated as a single integrated system).

The City's Eastern Water Service Area has a dedicated wellfield and water treatment plant. The same applies to the Western Water Service Area. The potable water distribution within the City, including remote storage and high service pump stations, are interconnected. This provides reliable service to residents in either service area, i.e., during scheduled plant maintenance shutdowns, increased service area water demands, transmission main cleaning and/or repairs, etc.

The Eastern Service Area also includes an area in which Broward County provides potable water within the City's municipal boundaries. The County's Service Area includes a relatively small section of the City bounded by the Florida Turnpike to the west, US 441 to the east, Pembroke Road to the north, and SW 25th Street to the south.

As described in the Broward County 10-Year Water Supply Facilities Work Plan, Broward County Water and Wastewater Services (BCWWS) Retail District 3BC is located in the southern portion of Broward County and covers approximately 6.67 square miles. The year 2000 population for District 3BC was estimated to be 30,823. The service area includes portions of the cities of Hollywood, Miramar Pembroke Park, Pembroke Pines and West Park. BCWWS purchases finished water from the City of Hollywood for resale to retail District 3BC customers in accordance with the agreement between the City and County. Table 2-1 (see Broward County 10-Yeare Water Supply Facilities Work Plan, Table 32) describes the populations and water to be provided by year, within the area that is served by Broward County.

(Figure 4.1C) Figure 2-1: Water Service Area & Major Facilities

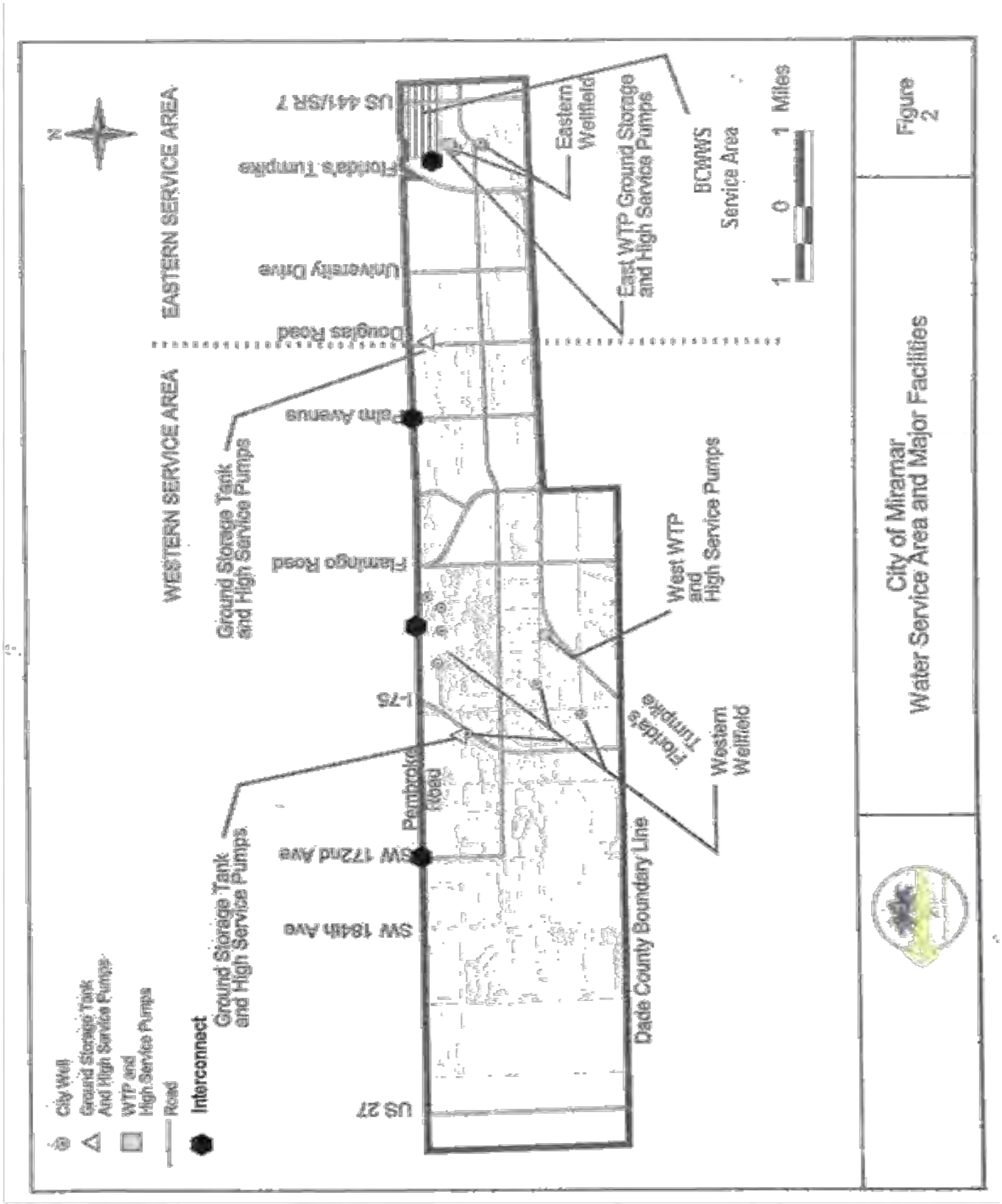


Table 2-1
Population and Flow Projections for BCWWS Service Area in a City

City	Year 2000		Year 2005		Year 2010		Year 2015		Year 2020		Year 2025		Year 2030	
	Population	Flow	Population	Flow	Population	Flow	Population	Flow	Population	Flow	Population	Flow	Population	Flow
Regional County Facility	0	1.12	0	1.47	0	1.54	0	1.76	0	1.95	0	2.18	0	2.44
Dania Beach	10515	1.73	12145	1.97	13136	2.10	14188	2.28	15182	2.41	15876	2.50	16524	2.60
Davie	376	0.10	648	0.14	686	0.14	722	0.15	756	0.16	788	0.16	814	0.17
Deerfield Beach	21196	2.93	22443	3.10	23848	3.17	24900	3.30	25965	3.44	27145	3.58	28202	3.69
Fort Lauderdale	6909	1.79	7401	1.90	8031	1.99	9463	2.24	10770	2.43	11726	2.59	12462	2.71
Hollywood	5266	0.60	5461	0.63	5750	0.66	6237	0.72	6834	0.77	7749	0.85	8441	0.90
Indian Reservation	86	0.01	94	0.01	110	0.01	133	0.02	151	0.02	157	0.02	164	0.02
Lauderdale Lakes	28514	3.56	29143	3.63	33543	4.02	38814	4.49	43214	4.88	45736	5.15	47529	5.36
Lauderhill	6285	0.75	6469	0.77	6947	0.81	7279	0.85	7772	0.90	8327	0.96	8698	1.00
Lighthouse Point	9745	2.82	10053	2.84	10441	2.87	10740	2.95	11059	3.05	11398	3.15	11680	3.23
Miramar	5423	0.50	5530	0.51	5811	0.53	6160	0.56	6624	0.60	7354	0.66	7932	0.71
North Lauderdale	6199	0.61	6515	0.63	6972	0.66	7347	0.70	7694	0.73	8256	0.78	8752	0.82
Oakland Park	8589	1.30	8801	1.34	12232	1.78	12701	1.86	13196	1.92	1386	2.01	14411	2.08
Pembroke Park	5989	1.45	6598	1.41	6938	1.47	7238	1.59	7543	1.66	7864	1.74	8147	1.80
Pembroke Pines	2696	0.23	2739	0.23	2800	0.23	2915	0.24	3034	0.25	3172	0.26	3256	0.27
Plantation	1131	0.13	1417	0.17	1492	0.18	1647	0.19	1838	0.21	1951	0.22	2011	0.23
Pompano Beach	23772	4.06	24448	4.18	25838	4.25	27563	4.56	29443	4.85	31959	5.18	34153	5.46
Tamarac	1650	0.22	1677	0.23	1770	0.24	1883	0.25	1997	0.27	2164	0.28	2314	0.30
West Park	12848	1.21	13428	1.25	14257	1.32	15426	1.42	16799	1.52	18562	1.65	19971	1.75
Unincorporated	3135	0.36	9437	1.23	10009	1.27	10375	1.31	10995	1.35	11838	1.44	12443	1.50
Note: Based on year 2007 city boundaries. Flow is finished water average day demand potential.														

2.2 Water Resources and Allocations

Pursuant to Section 3.2.1 E of the Basis of Review for Water Use Applications (water availability rules for ground water withdrawn from the Lower East Coast Everglades Waterbodies), the base condition water use for individual permits of the public water supply system class is equal to the maximum quantity of water withdrawn by the applicant from the permitted source during any consecutive twelve-month period during the five years preceding April 1, 2006. The base condition water use for Miramar decreases our previously permitted Biscayne aquifer allocation from 12.732 million gallons per day by approximately 1.053 million gallons per day to 11.556 million gallons per day. This resulted in base condition water use allocations of 3.186 and 8.37 million gallons per day for the Eastern and Western Well Fields, respectively.

The City submitted and subsequently received a 20-year permit duration and allocation which represents the City's build-out water demand. The City was requesting that withdrawals from the Biscayne aquifer be approved for an increase on a temporary 5-year basis to 4.359 and 9.526 million gallons per day for the Eastern and Western Well Fields, respectively (13.885 million gallons per day total), to allow for the design and construction of Floridan aquifer system wells and the associated water treatment plant expansion. This represents an increase of 2.33 million gallons per day over the established water use base condition. At the conclusion of this period, the total allocation for the remainder of the 20-year permit will consist of 3.186 million gallons per day from the Eastern Well Field, 10.150 million gallons per day from the Western Well Field, and 2.667 million gallons per day MGD from the proposed Floridan Aquifer wells. This represents an increase of Biscayne Aquifer withdrawal over the base condition of 1.78 million gallons per day, to be derived from the Western Well Field.

The approved permit allows the temporary increase of the allocation from the Biscayne Aquifer as well as to sustain the long-term allocation of the withdrawal from the Biscayne Aquifer above the base condition water use for the Western Well Field. The City is planning to expand the reclaimed water distribution system to counteract the requested increase in Biscayne aquifer withdrawals above the base condition. A number of permitted irrigation users exist within the City's future distribution system, which will be serviced with reclaimed water for irrigation purposes upon completion of the reclaimed water system expansion.

It is the City’s intent that by retiring irrigation permits and converting the source for these permits to reclaimed water provided by the City within the vicinity of the Western Well Field, the City will be decreasing the stress on the waterbodies, which will counterbalance the proposed additional withdrawals from the City's western wells. The City is in the process of expanding the existing reclaimed water capacity from two-million gallons per day to four million gallons per day.

In summary, the approve permit allocations are as follows:

Annual Allocation : 5,839 million gallons (MG) or 16 MGD

Max. Monthly Allocation: 522.7 million gallons (MG) or 17.42 MGD

Specific Source Limitations:

Biscayne Aquifer: 4,866 million gallons (MG) annually, or 13.33 MGD

Max. Monthly Withdraws: 434.1 MG

Floridan Aquifer: 975 million gallons (MG) annually, or 2.67 MGD

Max. Monthly Withdraws: 88.6 MG

A temporary five-year Biscayne Aquifer Allocation is approved as follows:

October 2008 - October 2013

East Well Field – 1,591 million gallons (MG) per year (4.359 MGD)

West Well Field – 3,477 million gallons (MG) per year (9.526 MGD)

Total: 13.885 MGD

2.3 Water Supply Facilities

2.3.1 System Description

The City of Miramar owns, operates and maintains a public water system serving most of the City. The major components of the water system are water supply well fields, water treatment facilities, storage and re-pump facilities, transmission/distribution system, interconnections with other utilities, and customer service connections. Potable water is supplied primarily by two water treatment plants (WTPs) owned and operated by the City.

1. The East Water Treatment Plant
2. The West Water Treatment Plant

The two plants are operated independently, but are interconnected via the water transmission/distribution system. The East WTP is located at S.W. 26th Terrace and north of Miramar Parkway. The east water service area, bounded by the US 441 to the east and Palm Ave to the west, is primarily served by the East WTP. The West WTP is located on Flamingo Road, north of the Florida Turnpike. The West WTP serves area west of Palm Ave and bordered by US 27 to the west.

2.3.2 Water Supply Sources and Well Fields

The Biscayne Aquifer is the water source for the East and West WTPs. Each plant withdraws water from two separate wellfields that are located within close vicinity of the WTPs. The two existing wellfields are capable of operating independently, but are operated in a coordinated manner as an integral part of the total system. The wellfields are protected under the Broward County wellfield protection ordinance. Table 2-2 presents the description of the eastern and western wellfields. The total permitted annual withdrawal capacity of the two wellfields is 12.73 13.885 mgd for period between October 2008 and October 2013, and 13.33 mgd after October 2013, respectively, in accordance with the SFWMD 20-year water use permit.

The eastern wellfield consists of nine wells with production capacities ranging from 400 gpm to 1,100 gpm. Of the nine wells, five are primary wells and four are secondary wells. The raw water from the eastern wellfield is moderately hard and colored. The firm capacity of the wellfield is 6.98 mgd, which is sufficient to meet the required raw water flow for the East WTP.

The western wellfield has six wells with 2,800 gpm capacity each, of which four are outfitted and two have been drilled, but are not yet on-line. The western wellfield raw water is hard and high in color. The firm capacity is 12.1 mgd, which is sufficient to meet the currently required raw water flow.

Table 2-2
City of Miramar
Wellfields

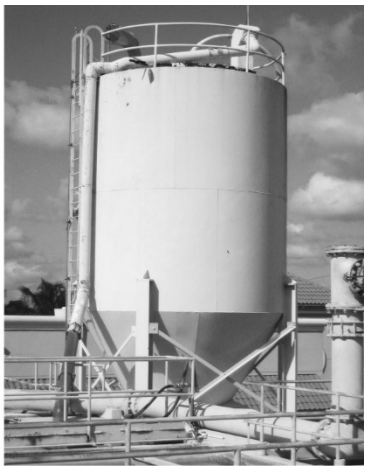
Wellfield Name	Well Diameter (inches)	Total Depth (feet)	Pump Capacity (GPM)	Year Drilled
Eastern Wellhead				
E1	8	110	550	1955
E2	6	110	400	1955
E3	8	110	550	1955
E4	8	110	500	1955
E5	10	120	500	1955
E6	12	110	1100	1963
E7	12	110	1100	1963
E8	8	110	800	1963
E9	8	110	450	1963
Western Wellhead				
W1	20	110	2800	1995
W2	20	115	2800	1995
W3	20	112	2800	1995
W4	18	70	2800	1992
W5	24	100	2800	2003
W6	24	104	2800	2003

2.3.3 East Water Treatment Plant

The East WTP was constructed in the 1950s and has undergone many modifications and expansions. The current design and rated capacity of the plant is 6.0 mgd. The facility is a conventional lime softening treatment plant that utilizes square up-flow rectangular precipitators,

followed by gravity dual media filters, disinfection, and a treated water storage system (Refer to Figure 2-2).

Water from the wellfields is transmitted to softening units where lime and coagulant aid are added to initiate the softening process. Settled water from the precipitators is subsequently treated by eight gravity filters to remove suspended particulates. Following softening, sodium hexametaphosphate, a sequestering agent, is fed upstream from the filters to control the tendency for calcium carbonate scales to form on the filters. Carbon dioxide is also applied at this point to stabilize the softened water by reducing the pH to 8.5. Lime sludge from the precipitators is sent to a recovery tank for thickening. The supernatant is periodically withdrawn and returned to the head of the treatment plant and the sludge is dewatered in a facility that was constructed and brought online around December 2004.



ɛrial View of East WTP (b) Lime Silo at East WTP

(Figure 4D) Figure 2-2. East Water Treatment Plant

Filtered water is transmitted to a clear well, where it is mixed with sodium hypochlorite for disinfection. Treated water from the clearwell is transferred to storage tanks via transfer pumps and is held in the tanks for delivery to the system via high service pumps. During the transfer from the clearwell to storage tanks, the water is treated with anhydrous ammonia to form a combined disinfectant residual in order to control trihalomethane formation. Fluoride is also added at this point.

The facility has recently been refurbished and appears to be in good operating condition. Recent improvements include replacement of lime slakers as well as aging hydro pneumatic valves. A new chemical building was built to house sodium hypochlorite, sodium hexametaphosphate, coagulant aid, and fluoride chemical feed systems. Also, as previously noted, a new solids handling facility was constructed to improve the sludge handling process.

2.3.4 West Water Treatment Plant

The West WTP (Refer to Figure 2-3) was constructed in 1996 with an initial capacity of 4.5 mgd. In 2003, the plant was expanded by 3.0 mgd to a total of 7.5 mgd. The plant is expandable to 16.0 mgd. In 2007, construction of plant modification added additional 1.75 mgd to the finished water capacity. Thus the total plant capacity is 9.25 mgd. The plant is in fair to good condition and uses a low pressure membrane softening process and nanofiltration for water treatment.

Raw water from the wellfields is pretreated with sulfuric acid to lower the pH. After acidification, a scale inhibitor is added to the feed stream and the conditioned feed water is then prefiltered through a bank of five micro cartridge filters to remove silt and other small particulates from the water. The cartridge filters have been converted to the double O-ring type to provide superior sealing characteristics compared to the original knife-edge seal design with an extended core.

Filtered water is then pressurized by vertical turbine pumps to the feed pressure required by the membrane assemblies. The membrane treatment is configured in five 1.5 mgd skids. The membrane pressure vessels are arranged in brine staged 2-stage array, which means that the concentrate from the first stage becomes the feedwater to the second stage. The water is then passed through a degasifier to remove dissolved gases such as excess carbon dioxide and small amounts of hydrogen sulfide. The water is then sent to a clearwell where sodium hypochlorite is added for disinfection, caustic soda is added for pH adjustment and fluoride is added for dental health. Water is then sent to the storage tank via transfer pumps and is supplied to the distribution system via high service pumps. Concentrate generated from the treatment process is disposed of via two injection wells that are located on site.

(a) Aerial view of West WTP

(b) Nanofiltration at West WTP

(Figure 4.1E) Figure 2-3 West Water Treatment Plant

2.3.5 Storage

The City has a total of 10 million gallons (MG) in potable water storage capacity in the system. On-site storage for the East WTP and West WTP is provided by 0.75 million gallon (MG) and 4.25 MG ground storage tanks, respectively (Refer to Figure 2-4). Off-site storage is provided by a 2 MG storage tank located at the Douglas Road re-pump station, and a 3 MG storage tank located on the west side of I-75 (Table 2-2). Each off-site storage facility consists of a concrete ground storage tank, high service pumping, and chlorine boosting facilities. The total water storage capacity is sufficient to meet the projected water demand.

Table 2-2 Summary of Storage Tank Facilities

Storage Tank Location	Size, MG
East WTP	0.75
Douglas Road Re-Pump Station	2.0
West WTP	4.25
I-75 Storage Tank	3.0
Total Storage	10.0

(a) 0.75 MG at East WTP

(b) 3 MG Remote Storage

(Figure 4.1F) Figure 2-4 Storage Tanks

2.3.6 Transmission and Distribution System

The potable water distribution system within the City, including remote storage and high service pump stations is interconnected in a looped configuration. This provides reliable service to residents throughout the service area. The water distribution system is designed to deliver adequate flow and pressure to customers. The existing transmission and distribution system consists of

approximately 311 miles of pipe ranging in size from 2 to 24 inches in diameter and predominantly made of polyvinyl chloride (PVC) and ductile iron (DI). The transmission and distribution system is in relatively good condition, however, line size improvements are underway via the East Redevelopment Transmission and Distribution Main Improvement Program to replace undersized mains located in eastern Miramar with larger diameter mains. Fire hydrants are also added throughout the area.

The improvement program has been implemented in phases since 2004. To date all undersized distribution lines have been replaced east of SW 68 Ave during phase I & II construction. Phase III improvement is underway to address the area between SW 68 Ave and University Drive.

The City has several other programs to provide preventive maintenance for the water transmission and distribution system. The water valve replacement program provides routine maintenance and exercising of valves in the transmission and distribution system to ensure proper functioning. The meter exchange program replaces old manual read customer meters with new automatic read meters that are more accurate. The galvanized iron and polybutylene pipe replacement program systematically replaces piping in the water system that is approaching the end of its useful life.

2.3.7 Customer Connections

The City's water system provided water service to 31,000 customer accounts in 2007. The metered connections range in size from 5/8 to 4 inches. Approximately, 95.5 percent of the water meters are considered residential, 2 percent are considered multi-family, 2.2 percent are considered commercial, and 0.3 percent are considered industrial.

2.3.8 Interconnects with Other Utilities

The City has three interconnects with the City of Pembroke Pines located at Pembroke Road, Palm Avenue, and SW 178th Avenue. The City also has one interconnect with Broward County, located at 25th Street and 68th Avenue, to provide emergency service to the eastern service area from its 3B storage and booster pump facility. In addition, an interconnect with Miami Dade Water and Sewer Department (MDWASD) has been constructed recently in 2008.

2.4 Water Conservation

The City has implemented a number of water conservation elements including limitation of irrigation hours, use of xeriscape principles, requirement of ultra-low volume plumbing in new construction, a water conservation based rate structure, a leak detection program, rain-sensor overrides for new lawn sprinkler systems, and public education programs. Detailed information on each of these elements is provided below.

i. Limitation of Irrigation Hours

The City's Code of Ordinances (Section 21-48) sets forth requirements for restriction or curtailment of water usage at such times that an "emergency situation" is declared by the South Florida Water Management District and affects the City. Under these

conditions, irrigation is limited to the hours of 4:00 AM to 6:00 AM and specific days of the week based upon a property's address.

City's Code of Ordinances (Section 21-272) states that "the potable water system on the premises supplies water for only ordinary domestic type uses … and does not supply water to any irrigation piping system…" Thus, irrigation supply is limited to non-potable sources.

ii. Reclaimed Water Program

City's Code of Ordinances (Section 21-294 – 21-296) states that where reclaimed water is available, its use is required for irrigation purposes.

iii. Use of Xeriscaping Principles

The City adopted Ordinance No. 93-4 in response to this requirement and falls under the jurisdiction of Broward County Code of Ordinances Sections 39-77, 39-80(i) and 39-85(b). Xericaping refers to landscaping in ways that do not require supplemental irrigation.

iv. Requirement of Ultra-Low Volume Plumbing in New Construction

The City has adopted the South Florida Building Code (SFBC), which contains plumbing flow restriction requirements. Section 6 of the Broward County Code prohibits a City within its jurisdiction from enacting standards different from the SFBC.

v. Water Conservation Based Rate Structure

The City has a conservation-based rate structure, which includes an increasing rate with increasing use, as a means of reducing demand. The specific rate tiers, by usage type, are as follows:

Table 2-3
City of Miramar Water Rates

	Cost
Monthly Base Charge	$9.67
Usage Charge per 1,000 Gallons:	
0 – 5,000 Gallons	$1.92
5,001 – 15,000 Gallons	2.35
Over 15,000 Gallons	2.95

vi. Leak Detection Program

The City has leak detection and meter replacement programs. Unaccounted-for-water summaries are submitted to the District annually. Recent calculations have estimated the unaccounted-for-water losses to be less than 10%.

vii. Rain Sensor Overrides for New Lawn Sprinkler Systems

The City has adopted the SFBC, which requires the installation of rain sensors on new irrigation systems. Additionally, the City abides by all of the Broward County Zoning Code regulations, which include Section 39-78 regarding rain sensors on automatic lawn sprinkler systems.

viii. Water Conservation Public Education Programs

The City includes water conservation literature in the monthly water bills, and pamphlets on water conservation are available at Utility Billing where customers pay their bills. In addition, City employees provide information at schools and public events.

2.5 Maintenance of the Utility

The majority of the City's water infrastructure is of relatively recent vintage (twenty years old or less). The City of Miramar maintains the water systems in a manner consistent with utility industry standards. The City has several programs in place to provide preventive maintenance for the water systems.

The water valve replacement program provides for routine system maintenance and exercising of valves in the transmission/distribution system to ensure proper performance. The City has also implemented a meter exchange program whereby old customer meters are replaced by new meters that are more accurate. The galvanized steel and polybutylene pipe replacement program is designed to systematically replace piping in those areas of the water system that are manufactured of older materials with newer piping. The majority of the work associated with this program is essentially complete. Fire hydrant testing is conducted in cooperation with the Fire Department and the Insurance Services Office (I.S.O). The water treatment facilities (East and West WTPs) have scheduled maintenance programs.

The City is in the process of integrating their computerized maintenance management system (Hansen) with a new data management system (PI Data Management System by OSI) to include reporting and tracking functions. Currently, approximately 85% of this integration has taken place and is scheduled to be completed by the end of 2008. A telemetry system (SCADA) tracks the status and condition of operational components of the water and wastewater systems.

2.6 Summary

The City operates a well maintained and appropriately sized water system, which is in fair to good condition and appears to be consistent with utility industry standards. The current permitted water supply allocation is adequate to meet the existing customer demands. Ongoing permit renewal activities will retain historical usage levels from the Biscayne Aquifer and establish the additional alternate water supply needed to support growth. To meet the increasing water demand from a growing population, the City plans to continue to diversify the array of alternative water supplies as previously mentioned in Chapter 2. It is anticipated that the majority of the additional potable water demands will be a result of the development in the City's western service area. Hence, the City plans to expand the capacity of the West WTP with the addition of Reverse Osmosis (RO) treatment which has the ability to treat raw water from an alternative water supply that utilizes a

brackish raw water supply from the Floridan Aquifer. It is envisioned that this will supplement additional allocations from the Biscayne Aquifer based on demonstrated reclaimed water offsets.

Infrastructure within Broward County District 3BC is maintained and operated by Broward County Water and Wastewater Services (BCWWS). According to the Broward County 10-Year Water Supply Facilities Work Plan, BCWWS Retail District 3BC is located in the southern portion of Broward County and covers approximately 6.67 square miles. The year 2000 population for the District was estimated to be 30,823. The service area includes portions of the cities of Hollywood, Miramar, Pembroke Park, Pembroke Pines and West Park. BCWWS purchases finished water from the City of Hollywood for resale to retail District 3BC customers in accordance with the agreement between the City of Hollywood and Broward County.

i. Finished Water Storage Facilities
District 3BC has finished water storage at two locations with a total storage volume of approximately 3.0 MG.

ii. Transmission and Distribution System
The transmission and distribution for District 3BC contains approximately 118 miles of pipe. Districts 3B and 3C are interconnected and, as indicated previously, their water supply system is fed solely by the City of Hollywood. Water system interconnects with the system of the City of Hollywood and the City of Miramar systems are used for emergency purposes to maintain adequate water supply. BCWWS has implemented a major water system rebuilding effort in District 3BC, which included rebuilding water and wastewater systems and providing wastewater service to those on septic tanks. These projects were completed in 2006, at a cost of $95 million.

iii. Reclaimed Water Facilities
There are no reclaimed water facilities in the District 3BC area.

iv. Large-User Agreements
BCWWS purchases finished water from the City of Hollywood for resale to Retail District 3BC customers in accordance with an agreement between the City of Hollywood and Broward County. The term of the agreement is endless and will continue in perpetuity unless there is mutual agreement for termination.

Historical and Projected Water Supply Demands

3.1 Historical Water Demand

The City's historical water demand data for its two water treatment plants was obtained from the City's Monthly Operating Reports (MORs). Table 3.1 presents the historical annual finished water usage of the City's system since 1997. It should be noted that the increase in the system design capacity in 2003 from 10.5 mgd to 13.5 mgd was due to the expansion of the West Water Treatment Plant (WTP) from 4.5 mgd to 7.5 mgd. Subsequently, the City expanded the West WTP by 1.75 mgd in 2007 in order to provide additional drinking water to the customers and meet capacity requirements.

The South Florida Water Management District (SFWMD) requires that the per-capita demand rate be used for the purposes of water demand projections, and should be the most representative of the anticipated demands. This per capita demand rate can be generally estimated as the average over the past five years. However, the 2007 per-capita demand rate of 99 gpcd was chosen to be representative of the future demands of the City's system due to the anticipated shift in the mix of customers and recent increased pressure conditions in the system.

The average number of persons per household in the Miramar service area is 3.28. The Comprehensive Plan establishes the level of service in terms of 325 gallons per Equivalent Residential Connection, or 325 gal/ERC. This level of service is consistent with demand projections using per capita demand. Total consumption for household is determined by multiplying 99 gpdc with 3.28 persons per household, which equals to 325 gal/ERC. It should be noted that the equivalent per-capita use include non-residential consumptions. The level of service has been established in the City's Ordinance and Comprehensive Plan and is summarized in Table 3-2 and expressed in Equivalent Residential Connections (ERCs).

The max-day peaking factor is applied to peak the water demand in order to plan for treatment system capacity expansions. The max-day peaking factor was estimated to be 1.22, which is the maximum of the past three years. It is noted that maximum daily demand identified in the past eleven years has factored in seasonal change. The peak factors show the pattern of decrease as the customers' base increase, and later increase as the type of usage and demand changed. The selection of 1.224 peak factor is considered reasonable and justifiable to be used for projection of the City's future water demand, and should be conservative for planning purposes to meet the peak demand within the City's service area.

Table 3-1 City of Miramar Water System Historical Demand

Year	Population	Average Daily Demand (mgd)	Maximum Daily Demand (mgd)	Max-Day Peaking Factor	Treatment Design Capacity (mgd)	Percent Utilization	Average Per-Capita Demand (gpcd)
1997	55,743	5.36	7.20	1.34	10.5	69	93
1998	61,408	5.35	6.90	1.29	10.5	66	84

1999	67,074	5.92	7.70	1.30	10.5	73	86
2000	72,739	6.67	8.20	1.23	10.5	78	89
2001	79,039	6.75	8.00	1.19	10.5	76	82
2002	85,339	7.89	9.33	1.18	10.5	89	89
2003	91,123	7.79	10.02	1.29	13.5	74	84
2004	96,906	8.47	10.37	1.22	13.5	77	86
2005	102,690	9.04	10.34	1.14	13.5	77	87
2006	102,060	10.44	12.16	1.16	13.5	90	95
2007	106,835	10.58	12.95	1.22	15.25	85	99

Table 3-2 Level of Water Service, 325 gallons per day per ERC

Type of Use	Unit of Measure	ERCs per Unit
Single Residential Unit	Each	1.00
Apartments	Each	0.500
Duplexes, Townhouses and Mobile Homes	Each	0.700
Gas station (fueling only)	Fuel Pump	0.500
Vehicular Repair	Per Bay	0.500
Laundry	Per Machine	1.510
Restaurant/Cafeteria	Per Seat	0.113
Restaurant (24 hour)	Per Seat	0.189
Restaurant (Fast Food)	Per Seat	0.057
Bar, Cocktail lounge	Per Seat	0.057
Place of Worship	Per Seat	0.011
Private School	Per Student	0.040
Dentist/Doctor Office	Per Doctor/Dentist	0.943

3.2 Future Water Demand Projections

The average-day finished water demand projections for the City's system were estimated as the product of the City's water service area population projections, as provided by the Broward County Planning Division and the 2007 per-capita demand rate of 99 gpcd, which was chosen to be the representative consumptive rate for the future demand. The most recent 2007 Broward County Population Projections were used in the calculation of the projected water demands in the City of Miramar's service area. The projected water demand is consistent with the adopted level of service standard in 325 gallons per ERC. The City's max-day finished water projections were estimated as the product of average-day finished water projections and the max-day peaking factor of 1.224.

The estimation of average-day and max-day finished water projections for the City's system can be represented by the following equations:

$$[FW_{avg}]_x = [Pop]_x \text{ x } 99$$

$$[FW_{max}]_n = [FW_{avg}]_n \text{ x } 1.224$$

Where

$[FW_{avg}]_n$: Average-day finished-water production in year n

$[FW_{max}]_n$: Max-day finished-water production in year n

$[Pop]_n$: Service area population in year n

The projected maximum daily finished-water demands estimated for the City's system are presented in Table 3.3. The table presents the Biscayne Aquifer equivalent max-day finished water allocation during the approved 20-year permit duration and peaked by a 1.224 max-day peaking factor. The last column of the table presents the alternative max-day finished water supply required to meet the future demands of the City.

Table 3-3 City of Miramar Projected Max-Day Finished-Water Demand

Year	Population Projections	Maximum Daily Finished Water Demand (mgd)	Allocated Biscayne Max-Day Finished-Water Equivalent (mgd)	Alternative Max-Day Finished Water Supply needed (mgd)
2008	109,934	13.33	13.33	-
2009	113,034	13.71	13.71	-
2010	116,133	14.08	14.08	-
2011	117,025	14.24	14.24	-
2012	118,718	14.39	14.39	-
2013	120,010	14.55	14.41	0.12
2014	121,303	14.71	11.91	2.29
2015	122,595	14.86	11.91	2.41
2016	123,708	15.00	11.91	2.52
2017	124,821	15.13	11.91	2.63
2018	125,933	15.27	11.91	2.74
2019	127,046	15.40	11.91	2.85
2020	128,159	15.54	11.91	2.97
2021	128,940	15.63	11.91	3.04
2022	129,721	15.73	11.91	3.12
2023	130,501	15.82	11.91	3.20
2024	131,282	15.92	11.91	3.27
2025	132,063	16.01	11.91	3.35
2026	132,543	16.07	11.91	3.40
2027	133,023	16.13	11.91	3.45

3.3Facility Capacity Analysis

The existing permitted treatment capacities of the West WTP and overall system are 9.25 mgd and 15.25 mgd, respectively. Since much of the forecasted growth is occurring in the Western service area, expansion of the West WTP is required.

Due to recently implemented policy changes by the South Florida Water Management District, the expanded use of the Biscayne Aquifer for meeting future water supply needs will not be allowed. Consequently, the expanded supply must be developed from an alternative water supply including the Floridan Aquifer, reclaimed water, and storm water recharge.

Under the new SFWMD water availability rules for restricted allocation areas, the base allocation for individual permits of the public water supply system class is equal to the maximum quantity of water withdrawn by the applicant from the permitted source during any consecutive twelve-month period during the five years preceding April 1, 2006 (SFWMD, April 2007). The base condition water use for Miramar decreases the previously permitted Biscayne Aquifer allocation from 12.73 MGD to 11.56 MGD. This results in base condition allocation of 3.186 and 8.37 MGD for the Eastern and Western Well Fields, respectively. Apparently, this base condition allocation

is not sufficient to support the demands of the City's water supply needs if no other water source is to be considered.

Figure 3-1 presents the max-day finished-water demand projections for the City and the Biscayne Aquifer equivalent max-day finished-water allocations. The recently completed modification of the City's water treatment capacity to 15.25 mgd can meet the max-day demand projections through 2015 as shown in Figure 3-1. An alternative source has to be developed to support this demand. The City needs to further expand capacity to 16 mgd based on the estimated max-day finished-water projections. Also, an alternative water supply of 4.13 mgd is required to supplement the projected max-day finished-water demand by 2027 based on the Biscayne Aquifer max-day finished water equivalent allocation for the City's system. The average daily raw water demand is shown in Figure 3-2.

3.3.1 City of Miramar Raw Water Demands through 2027

Table 3-4 presents the City's projected raw water demands, by year, through 2027. As previously noted, Figure 3-1 provides a summary of historical and projected raw and finished water demands. To meet this demand, the City plans to implement the following projects as included in the LEC Plan Update:

1. Expansion of the existing reclaimed water treatment and distribution system by about 2.0 mgd, which could offset potable water demand, wherever applicable.

2. Development of an alternative water supply that utilizes raw water from the Floridan Aquifer if necessary. The City plans to expand the West WTP by 2.5 mgd with the addition of reverse osmosis (RO) treatment with the ability to treat raw water from the Floridan Aquifer.

3. Implementation of the stormwater resource project, which would result in the enhancement of the reclaimed water program by utilization of about 1 mgd of captured stormwater for irrigation purposes.

Table 3-4 City of Miramar Projected Water Demands										
Year	Projected Population	Ave. Day Finished (MGD)	East Plant Finished (MGD)	East Plant Raw (MGD)	West Plant Finished (MGD)	West Plant Raw (MGD)	Average Day Raw (MGD)	Annual Allocation Raw (MG	Max. Month Raw (MGM)	Max. Month/Avg. Month
2008	109934	10.88	4.14	4.36	6.72	8.43	12.79	4669	416	1.07
2009	113034	11.19	4.14	4.36	7.03	8.82	13.18	4810	429	1.07
2010	116133	11.50	4.14	4.36	7.33	9.20	13.56	4950	441	1.07
2011	117425	11.63	4.14	4.36	7.46	9.36	13.72	5008	447	1.07
2012	118718	11.75	4.14	4.36	7.59	9.52	13.88	5067	452	1.07
2013	120010	11.88	3.02	3.186	6.84	8.58	14.43	5265	470	1.07
2014	121303	12.01	3.02	3.186	6.97	8.74	14.59	5324	475	1.07
2015	122595	12.14	3.02	3.186	7.09	8.90	14.75	5382	480	1.07
2016	123708	12.25	3.02	3.186	7.20	9.04	14.88	5433	484	1.07
2017	124821	12.36	3.02	3.186	7.31	9.18	15.02	5483	489	1.07
2018	125933	12.47	3.02	3.186	7.42	9.31	15.16	5534	493	1.07
2019	127046	12.58	3.02	3.186	7.53	9.45	15.30	5584	498	1.07
2020	128159	12.69	3.02	3.186	7.64	9.59	15.44	5634	502	1.07
2021	128940	12.77	3.02	3.186	7.72	9.69	15.53	5670	506	1.07
2022	129721	12.84	3.02	3.186	7.80	9.78	15.63	5705	509	1.07
2023	130501	12.92	3.02	3.186	7.87	9.88	15.73	5740	512	1.07
2024	131282	13.00	3.02	3.186	7.95	9.98	15.82	5776	515	1.07
2025	132063	13.07	3.02	3.186	8.03	10.07	15.92	5811	518	1.07
2026	132543	13.12	3.02	3.186	8.08	10.13	15.98	5833	520	1.07
2027	133023	13.17	3.02	3.186	8.12	10.19	16.04	5854	522	1.07

Treatment Method Losses (from Table I): East WTP (lime softening) – 5%, West WTP (membrane) – 20%

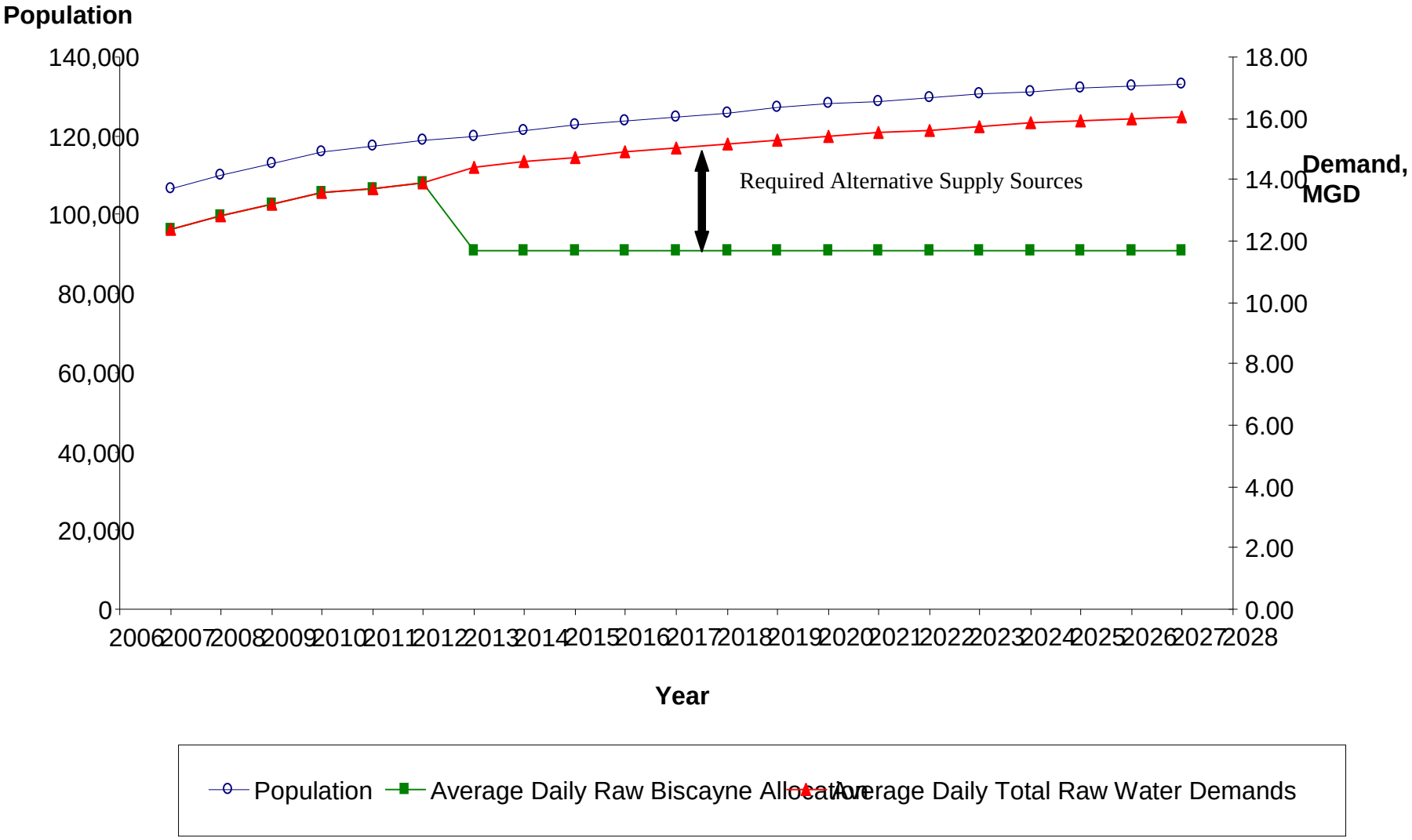
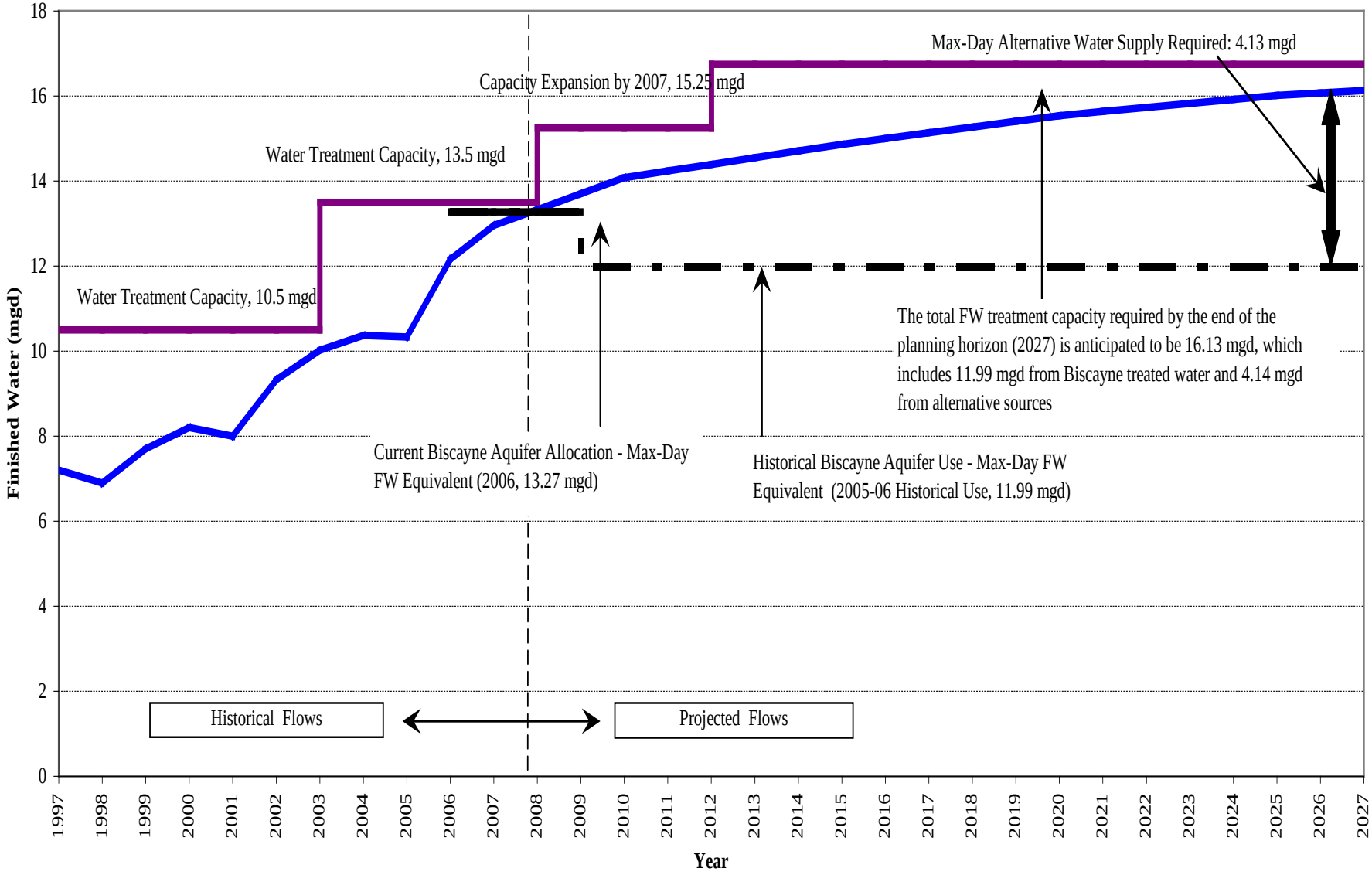

Population
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Demand, MGD
Required Alternative Supply Sources
2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028
Year
Population
Average Daily Raw Biscayne Allocation
Average Daily Total Raw Water Demands

Figure 3-2 Finished Water Projections



3.3.2 Floridan Aquifer Modeling & Well Construction

The City of Miramar is projected to require an annual raw water allocation of 5854 MG (16.04 mgd) and a maximum month raw water allocation of 522 MG (17.04 mgd) in 2027. Two wells were proposed to be installed at the Miramar Western Water Treatment Plant. Each of the wells was proposed to have a capacity of 2.88 MGD. The approved Florida Aquifer allocation is 2.67 MGD.

A single-layer analytical model (WINFLOW) was used to evaluate the potential drawdown in the Floridan Aquifer resulting from the operation of the proposed wells. The model simulated the proposed withdrawal without recharge. Since no aquifer performance tests exist within one mile of the site, data from the nearest three aquifer performance test locations were used to assign aquifer parameters to the model.

The model took consideration of other wells including the City of North Miami Beach (13-00060-W), City of Hollywood (06-00038-W), City of Ft. Lauderdale (06-00123-W), City of Sunrise (06-00120-W), Gulfstream Park (06-00954-W), and the La Gorce Country Club, each having permitted Floridan withdrawals. The model analyzed the maximum additional drawdown at the proposed Miramar Floridan wells from the other permitted Floridan users for a total combined drawdown at the proposed Miramar Floridan wells. It was determined that this drawdown was only a small percentage of the total available drawdown within the Floridan Aquifer (~900 feet of available drawdown).

On November 13, 2007, the City Commission adopted Resolution 08-45 and authorized construction of two Floridan Wells to provide alternative water supply to meet the water supply needs. The construction is currently underway and scheduled to be completed in August 2008. Subsequently, construction of a 2.5 mgd reverse osmosis treatment system will begin in 2008 and is anticipated to be completed in 2010.

3.3.3 Feasibility of Using Reclaimed Water

The City has implemented a reclaimed water program at its Wastewater Reclamation Facility. The reclaimed water facility has an existing permitted capacity of 2.0 MGD. Engineering plans and construction documents have been developed to expand the capacity of the facility to 4.0 MGD and distribute reclaimed water to a number of residential developments and a commercial area primarily between Palm Ave and I-75. In 2006, an average of 6.14 MGD of wastewater was treated at the plant, of which 2.67 mgd was distributed and used as reclaimed water for irrigation.

A conservative groundwater modeling approach was used to demonstrate the impacts to the Regional Waterbodies. To demonstrate that the requested additional allocation for the West well field could be achieved, the retirement of approximately 1.46 MGD of independently held irrigation permits in the vicinity of the well field was simulated by spreading the retired allocations (1.46 MGD) evenly over the area served by the irrigation permits.

The volume of water obtained from the Biscayne Aquifer as a result of the requested additional allocation is achieved by two hydrogeologic components. First, a small fraction of the requested increase can be obtained from the aquifer without any impacts to the regional system. This volume fraction is obtained through the storage capabilities of the aquifer and is function of the elastic nature of the geologic material and the compressibility of water. The larger proportion of water obtained from the Biscayne Aquifer as a result of the requested increased allocation is removed from the local hydrogeologic system, including the surficial canal network. To support the requested increase allocation, the calibrated model was used to assess potential impacts to the water resource, existing legal users, wetlands, potential movement of contaminants and the potential for salt water intrusion.

1. Zero Withdrawals from the City of Miramar Wells

The zero withdrawal simulation established the non-pumping groundwater elevations for the Miramar well fields. The potentiometric surfaces estimated from the zero withdrawal simulation were used to establish the area of influence resulting from all other withdrawal scenarios such that the differences between the zero pumping groundwater elevations and the various pumping scenario groundwater elevations equaled the model-predicted drawdown.

2. City of Miramar Base Condition Water Use Withdrawals

This scenario simulated the City of Miramar Biscayne Aquifer base condition water use withdrawal rates.

The base condition allocation of 3.186 million gallons per day for the Eastern Well Field was evenly distributed among nine wells. The Western Well Field base condition allocation of 8.37 million gallons per day was evenly distributed among four wells. The base condition withdrawal scenario served as a reference for impact assessments for the increased Biscayne aquifer withdrawal scenarios.

3. Temporary Five-Year Withdrawal

Requested temporary five-year increase in withdrawals from the Biscayne Aquifer for the City to meet demand requirements during the construction of the proposed Floridan aquifer wells and water treatment plant expansion. This scenario simulated the withdrawal of 4.359 million gallons per day (the current permitted amount) from the Eastern Well Field evenly distributed among nine wells. The withdrawal of

9.526 million gallons per day (an increase of 1.56 million gallons per day) from the Western Well Field was evenly distributed among four wells. The total temporary five-year allocation from the Biscayne Aquifer is 13.885 million gallons per year.

4. 20-Year Permit Allocation

This scenario simulated the proposed 20-year permit withdrawals from the Biscayne Aquifer of 3.186 million gallons per day from the Eastern Well Field (base condition) and 10.150 million gallons per day from the Western Well Field (an increase of 1.78 million gallons per day over the base condition water use). The Eastern and Western Well Field withdrawals were distributed evenly among nine wells and four wells, respectively.

5. 20-Year Permit Allocation with Recharge from Retired Irrigation Permits

This scenario simulated for the proposed 20-year permit allocation included the retirement of an additional 1.46 million gallons per day of irrigation withdrawals from projects currently withdrawing water directly or indirectly from the regional system. The selected permits currently withdrawal a combined total of 1.46 million gallons per day from both surface and groundwater sources. Irrigation permit retirement was simulated by modifying the recharge input to the model. To simulate the retirement of these permits, the combined amount of the currently permitted irrigation withdrawals was added into the model recharge files in the general area irrigated by the permits. By retiring the irrigation permits, the withdrawals from the aquifer and canal systems are completely and directly eliminated. Subsequently, when the fresh water withdrawals are replaced with reclaimed water from the City's distribution system an additional indirect source of recharge is provided to the regional system. Therefore, the net benefit to the regional system is two-fold; 1) the direct aquifer and canal withdrawals are eliminated and 2) an additional source of recharge is provided from the potential infiltration of reclaimed water through irrigated areas. Only the amount of irrigation water that will be replaced by reclaimed water is added into the model through the recharge package; therefore, the model overlooks the immediate benefit that the canal and aquifer systems realized when the point withdrawals (wells and intakes) are eliminated. This method of simulating the retirement of irrigation permits provides a conservative estimate of the hydraulic benefits to the aquifer and regional canal system.

In conclusion, the City of Miramar has planned and implemented water facilities expansion including alternative water supply projects that will provide sufficient capacity to meet long term growth requirements. The following table summarizes the projected capacity needs and the sources of water supply that will meet the requirements.

Table 3-5 Projected Demands and Alternative Water Supply

Year	Projected Population	Ave. Day Finished (MGD), Required	Ave. Day Finished (MGD), Biscayne	Required Reuse Offset (MGD)	West Plant Floridan Finished (MGD)	Total Finished (MGD)
2007	106,835	10.56	10.56	0.00	0.00	10.56
2008	109,934	10.86	10.86	0.00	0.00	10.86
2009	113,034	11.17	11.17	0.00	0.00	11.17
2010	116,133	11.48	11.48	0.00	0.00	11.48
2011	117,425	11.60	11.60	0.00	0.00	11.60
2012	118,718	11.73	11.73	0.00	0.00	11.73
2013	120,010	11.86	9.86	0.08	2.00	11.88
2014	121,303	11.99	9.99	0.24	2.00	12.04
2015	122,595	12.11	10.11	0.40	2.00	12.20
2016	123,708	12.22	10.22	0.54	2.00	12.35
2017	124,821	12.33	10.33	0.68	2.00	12.49
2018	125,933	12.44	10.44	0.81	2.00	12.63
2019	127,046	12.55	10.55	0.95	2.00	12.77
2020	128,159	12.66	10.66	1.09	2.00	12.91
2021	128,940	12.74	10.74	1.19	2.00	13.01
2022	129,721	12.82	10.82	1.28	2.00	13.11
2023	130,501	12.90	10.90	1.38	2.00	13.20
2024	131,282	12.97	10.97	1.48	2.00	13.30
2025	132,063	13.05	11.05	1.57	2.00	13.40
2026	132,543	13.10	11.10	1.63	2.00	13.46
2027	133,023	13.14	11.14	1.69	2.00	13.52

Coordination with SFWMD and Permit Modifications

In order to meet the future demands and be in compliance with rules and regulations, the City has successfully submitted a 20-year permit for a raw water allocation, which represents the City's build-out water demand. It includes an approval of withdrawals from the Biscayne Aquifer for an increase on a temporary 5-year basis to 4.359 and 9.526 MGD for the Eastern and Western Well Fields, respectively, to allow for the design and construction of Floridan Aquifer wells and the associated water treatment plant expansion. At the conclusion of this period, the total allocation for the remainder of the 20-year permit will include 3.186 MGD from the Eastern Well Field, 10.150 MGD from the Western Well Field and 2.667 MGD from the proposed Floridan Aquifer wells.

3.4 Area Served by Broward County

Future water demand in the area served by Broward County is addressed by the City of Hollywood in their 10-Year Water Supply Facilities Work Plan. The Miramar area is part of the Broward

County Retail District Service Area 3BC. An excerpt from the City of Hollywood draft Work Plan is included as follows:

"5.3 Projected Average Daily Finished Water Demands

Projected water demands were estimated based on a per-capita coefficient approach for the City's retail service area. The average daily retail per capita demand rate of 122 gallons per person, introduced in Section 4, is assumed to be constant over the planning horizon.

Bulk sales are added to the City's retail water demand to obtain the overall water demand. Therefore, the water demand projections for the City were estimated as the product of the retail population projections and the average daily retail per-capita demand plus the projections of Broward County Districts 3A and 3BC (large users). The projections for the large users were obtained from the first amendment to the inter-local agreement for the bulk sale of potable water between Broward County and the City of Hollywood.

Broward County's 10-year water supply facilities work plan shows the same bulk sale projections. The total finished-water demand projections were estimated from 2005 through 2030 as follows:

$WD_n = [Pop_n \times PC] + LU_n$

Where,
- WD_n: Finished water demand in year n
- Pop_n: City's service area population in year n
- PC: Average per capita water demand
- LU_n: Projected water demand of large users in year n

The estimated average-day finished water demand projections are presented in Table 5.3.

Table 5.3

Forecasted Average-Day Finished-Water Demand Projections

(1)	*(2)*		*(3)=(2) *Per-capita/1M*	*(4) See Table 4.1*	*(5)=(4)+(3)*
Year	**Hollywood's Retail Service Area Population Projections**	**Miramar Population Served**	**Average-Day Finished-Water Demand Projections for Retail Customers (mgd)**	**Average-Day Finished-Water Demand Projections for Broward County 3A and 3BC (mgd)**	**Total Average-Day Finished-Water Demand Projections (mgd)**
2005	146,343	5,534	17.85	7.50	25.35
2010	159,663	5,811	19.48	8.20	27.68
2015	175,461	6,160	21.41	9.30	30.71
2020	189,953	6,624	23.17	10.60	33.77
2025	204,446	7,354	24.94	11.90	36.84
2030	218,938	7,934	26.71	*12.86**	39.57

** The 2030 average-day projection for Broward County (12.86 mgd) is an extrapolation of the years preceding.*"

Capital Improvement Program

4.1 Introduction

Until the early 1990s, the City of Miramar primarily consisted of residential and commercial development east of Palm Avenue (formerly generally known as the Eastern Service Area). With significant interest voiced by western property owners for the development of land located between Palm Avenue and the City's western development boundary, the City has since enjoyed substantial growth within this previously near-vacant corridor. Much of the infrastructure required for such growth has been constructed and was paid for by special assessments to the large property owners.

The remaining Capital Improvement Program (CIP) for the City's Water System is predicated on providing the most flexibility within the treatment systems to meet future regulatory requirements while addressing growth and redevelopment within the service areas. This chapter describes the City's utilities infrastructural capital needs for the next five years.

In order to determine future water capacity needs and the financial implication on revenue requirements, the Community Development and Utilities Departments has prepared forecast impact analysis of all future estimated residential, industrial, retail and commercial developments. This analysis estimated the water demand requirements commencing from 2007 to 2027 and has determined that the West Water Treatment Plant needs to be expanded by 2.0 MGD by 2009.

The City developed a plan using alternative supply sources to meet the future growth of the western service area. On October 18, 2006, a workshop was conducted with the City Commission. Subsequently, the City Commission authorized staff to proceed with design and construction of the West Water Plant Expansion using alternative water supply.

4.2 Strategic Funding Analysis and Financial Feasibility

In 1993, the City of Miramar implemented special assessment programs to finance a water facility to serve the western development areas west of Palm Avenue and constructed a 4.5 mgd West Water Treatment Plant. In 1998, faced with increased demands from developers for plant expansion, the City Commission authorized the 3.0 mgd expansion of the West Water Treatment Plant.

In order to fund future water system expansion, the City conducted a feasibility study and reviewed financial alternatives including (i) state revolving funds; (ii) bank loans; (iii) development impact fees; and (iv) revenue bonds. It has been determined that revenue bonds would be the most feasible solution to fund the system improvements, due to the sensitivity and urgency of these projects. The revenue bonds would provide 100% funding for the project's implementation.

To address the challenge of ensuring the state's water supply, the District has implemented the law as required by Senate Bill 444 and promoted alternative water supply projects by providing significant annual recurring state funding. In 2007, the City submitted an application for Alternative Water Supply Funding for grant funding up to $1.4 million. The grant is a non-matching fund that will offset the construction cost of the West Water Plant Expansion using alternative water supply. Subsequently, the City received $336,000 for the West Water Treatment Plant Expansion – Phase I Construction of Two Floridan Wells. In 2008, the City received additional two AWS grants for Water Treatment System Expansion and the Construction of a 2.0 MGD Reclaimed Water Expansion.

4.3 Water Rate Revenue and the Issuance of 2007 Revenue Bonds

On November 17, 2004, the City Commission adopted Resolution No. 05-60 as its Master Utility System Revenue Bond Resolution. Pursuant to this Bond Resolution, the City issued its Utility System Refunding and Improvement Revenue Bonds, Series 2004. The Bond Resolution allows for the issuance of additional Bonds that would be on "parity" or equal legal standing with the Series 2004 Bonds so long as certain conditions are met. Resolution No. 07-277 was adopted on Sept. 19, 2007, which is a supplemental resolution supplementing the Bond Resolution and authorizing the issuance of the Utility System Improvement Revenue Bonds, Series 2007, on a parity basis with the Series 2004 Bonds. All of the provisions of the Bond Resolution shall apply to both the Series 2004 Bonds and the Series 2007 Bonds.

The Resolution authorizes the issuance of the City of Miramar, Florida Utility System Improvement Revenue Bonds, Series 2007, in an aggregate principal amount not to exceed $55,000,000. The Series 2007 Bonds are being issued to finance a large portion of the Utility System's current 5-year capital improvement program including water and wastewater system expansions and alternative water supply projects.

The successful issuance of 2007 bonds in conjunction with CIAC funds and water sale revenue, made the Capital Improvement Program financially feasible. In order to determine the fiscal impact and ensure the system revenues are sufficient to meet all operational requirements (including operation and maintenance

costs, personnel and insurance costs, utility tax payments and debt service payments), a rate sufficiency study was conducted. Based on the results of the study, the estimated rate of revenue increases for water and wastewater were recommended with an 18% and 19% increase, respectively. Subsequently, the City adopted a resolution for water and wastewater rate adjustments effective October 2007.

In conclusion, the City has secured 100% project funding. Any future AWS grants will be appropriated to either off set the construction costs and/or apply to debt service payments.

4.4 Water System Capital Improvements

The City maintains a Capital Improvement Program (CIP) that provides funding required to address capacity expansion, renewal and replacement, and general upgrades that are required. The City's current multi-year CIP organizes the water system investments into the following five major capital programs:

1. East Water Treatment Plant Renovation Program
2. West Water Treatment Plant Expansion
3. Eastern Miramar Fire Hydrant and Lines Improvement
4. New Water Meters and Boxes
5. Reclaimed Water Treatment and Distribution System Expansion

East Water Treatment Plant Renovation Program: This program is to modify the treatment process of the plant that would allow the plant to meet regulatory standards. In FY 2004, besides the physical improvements required to maintain plant operation in compliance with regulations, this program addressed sludge disposal process needs and eliminated the sludge pit located at the old City Garage site. As a part of this program, building renovations and SCADA system improvements were started in FY 2006 and will continue through FY 2008. In FY 2008, an engineering study followed by design will be performed to refurbish the treatment process in order to meet future regulations that may require higher treatment standards. The study will provide recommendations to replace or refurbish the existing precipitators at the WTP in order to meet stringent regulatory restraints.

West Water Treatment Plant Expansion: Based on the recently promulgated South Florida Water Management District's (SFWMD) Water Availability Rule, all additional water capacity needs are to be developed from alternative water supply sources instead of from the Biscayne Aquifer which is the City's primary drinking water source. In order to comply with this requirement and meet the City's future water capacity requirements. This is an alternative water supply project which includes the design and construction of 2.88 mgd water supply wells from the Floridan Aquifer, a reverse osmosis membrane treatment unit, and other required appurtenances to continuously provide potable water for all residential and commercial users in the City's service area.

Eastern Miramar Fire Hydrant and Lines Improvement Project: This project will replace undersized mains located in eastern Miramar with larger diameter mains to provide potable water at sufficient pressure and install fire hydrants to provide enhanced fire fighting capabilities within the eastern service area between SR 7 and University Drive. Since the inception of this program, the City has installed numerous fire hydrants and water mains. To date this program installed about 120 fire hydrants in 2004. In 2005 and

2006, pipeline improvements and fire hydrant installations between SR 7 and SW 64th Avenue were implemented. Fire hydrants and water main improvements in the rest of the area east of University Drive will continue in 2008 between SW 64th Avenue and SW 68th Avenue with construction costs of $2.5 M. The program will continue and is anticipated to be completed by 2010.

New Water Meters and Boxes: This project involves the distribution of radio-read meters to developers for installation in the next five years in the western service area to meet utility standards.

Reclaimed Water Treatment and Distribution System Expansion: This is an alternative water supply project which will make 2.00 MGD irrigation quality water available upon completion (AWS/Reuse 2.00 MGD).

The City's alternative water supply plan will include 2.0 mgd reclaimed water system expansion to provide an offset of demand for primary drinking water services. The construction will be completed as a part of Wastewater Reclamation Facility (WWRF) Expansion commencing in 2008 with the anticipated completion in 2012. Currently, a portion of effluent from the WWRF is diverted to a reuse water system. This reuse water consists of secondary treated effluent which has been filtered and chlorinated prior to its use for onsite process water and spray irrigation, as well as offsite median and residential irrigation in nearby developments. The City is proceeding with the expansion of the on-site reuse treatment, storage and pumping facilities for an expansion from a nominal capacity of 2.0 mgd to 4.0 mgd. In addition, reclaimed distribution systems will be expanded in the area that requires upgrades.

Table 4.1 presents the estimated costs of the water system improvement program over the next five years.

Table 4.1
City of Miramar 5-Year Capital Improvement Program
Water System Improvement Projects and Estimated Costs
Fiscal Years 2008-2012
In Thousands of Dollars

Project Title	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Total
Series 2007 Bonds						
East WTP Renovation Program	$2,250	-	-	-	-	$2,250
West WTP Expansion	$2,200	$7,550	$300	-	-	$10,050
Eastern Miramar Fire Hydrant & Lines Improvement	$3,450	$2,200	-	-	-	$5,650
Reclaimed Water Treatment Expansion	$4,500	-	-	-	-	$4,500
Reclaimed Distribution System Expansion	-	-	$1,150	-	-	$1,150
CIAC Fund						
New Meters and Boxes	$350	$350	$250	$200	$200	$1,350
West WTP Expansion	$200	$1,200	$300	-	-	$1,700
Total	**$12,950**	**$11,300**	**$2,000**	**$200**	**$200**	**$26,650**

4.5 Historical Revenue and R&R Expenses of the Water System

This section describes the historical expenses relating to the Renewal & Replacement (R&R) of system assets. All assets must eventually be replaced due to the effect of some combination of factors such as the following:

1. Deteriorated condition that limits remaining useful life, which could be due to factors such as age, service condition, maintenance history, etc.
2. Regulatory, functional or productivity obsolescence.
3. Other factors such as safety.

R&R investments are used to replace that portion of the asset base on an annual basis for one of the cited reasons. As utilities age, increasing funds are often required to be allocated to R&R in order to address the aspects of age and obsolescence of assets. Many utilities typically target R&R funding in the range of 5 to 10 percent of annual operating revenue (in this case, water system revenue). The R&R expenses of the City‘s water system for the past three years are presented in Table 4.2 below. The R&R cost, when expressed as a percentage of total revenue from water sales, has been in an appropriate range of 5 to 6 percent of total revenue for the past two years.

Table 4.2
Water System – R&R Expenses and Revenue

	2005	2006
Revenue from Water Sales	$8,123,974	$,8,852,560
R&R Expenses		
East Water Treatment Plant	$146,628	$129,539
West Water Treatment Plant	$166,491	$168,367
Plant Maintenance	$53,838	$46,170
Electrical Support Services	$59,344	$75,278
Transmission and Distribution	$99,555	$57,145
Total R&R Expenses	**$525,856**	**$476,499**

An allowance of $1.1M is required for miscellaneous improvements to the City's existing reclaimed water distribution system, in concert with the planned reuse treatment capacity expansion. This allowance will be allocated to extensions of the existing distribution piping network.

4.6 Conclusions

The City has prepared financially and technically combined water system improvement projects. For the five year period, FY 2008 to FY 2012, the water system projected costs are $26,650,000.

The City of Miramar has successfully implemented a well planned program to provide and maintain permanent water supply, treatment and transmission facilities necessary to serve the City's service areas and residents. The current Capital Program includes requisite improvements and budgets to address ongoing renewal and replacement needs of the existing systems, as well as provide for treatment capacity expansion to help meet projected water demands for the future.

Regulatory Compliance

5.1 General

Current water and wastewater infrastructure meets all known requirements of jurisdictional permitting agencies. Applicable construction permits and/or operation licenses have been procured from the following agencies:

Florida Department of Environmental Protection
Broward County Environmental Protection Department
United States Army Corps of Engineers
United States Environmental Protection Agency
Broward County Health Department
South Broward Drainage District
South Florida Water Management District
City of Miramar Building Department
City of Miramar Engineering Department

Copies of all permits and licenses are maintained on file at the Department of Utilities, located at the Miramar Wastewater Reclamation Facility, 13900 Pembroke Road, Miramar, Florida.

5.2 Water System

Drinking water supply is subject to both federal and state regulations that are intended to protect public health and ensure aesthetic quality. The National Primary Drinking Water Regulations (NPDWR) are legally enforceable standards that apply to public water systems. The federal government has given the Florida Department of Environmental Protection (FDEP) primacy over the majority of drinking water regulations. Broward County Health Department (BCHD) has been given jurisdiction over water systems located within the County by the FDEP. The City's finished water is compliant with present federal and state primary standards and there are currently no known outstanding permitting compliance issues on file with the BCHD.

The City monitors levels of different drinking water contaminants as required by the Primary Drinking Water Standards. Table 5.1 presents a summary of the 2006 water quality data with the list of contaminants detected in the City's drinking water. The water quality data was obtained from the City's 2006 Water Quality Report. This data demonstrates that the City is currently compliant with applicable drinking water standards.

TABLE 5.1
City of Miramar Water Quality Data

Contaminant	Units	Violation of MCL	MCLG	MCL	Level Detected	Range of Results
Regulated Contaminants (Primary)						
Microbial Contaminants						
Total Coliform Bacteria	positive	NO	5%	5%	A	
Radioactive Contaminants						
Alpha Emitters (2003)	pCi/L	NO	0	15	0.8	0.5 - 0.8
Combined Radium (2003)	pCi/L	NO	0	5	0.4	0.0 - 0.4
Inorganic Contaminants						
Copper per tap (2004)	ppm	NO	0	AL 1.3	0.047	ND - 0.047
Fluoride	ppm	NO	N/A	4	1.0	0.9 - 1.0
Lead per tap (2004)	ppb	NO	0	AL 15	ND	ND
Barium	ppb	NO	0	2000	ND	ND
Sodium	ppm	NO	N/A	160	31	23 - 31
Total Trihalomethanes (TTHMs) and Stage 1 Disinfectant/Disinfection By-Product (D/DBP) Parameters						
Chlorine/Chloramine	ppm	NO	4	4	3.0	0.4 – 3.0
Total Trihalomethanes	ppb	NO	0	80	37.4	5.3 – 104
Haloacetic Acids (HAAs)	ppb	NO	0	60	18	ND – 65

AL: Action Level
MCL: Maximum Contaminant Level
NA: Not Applicable
MCLG: Maximum Contaminant Level Goal
ND: non-detectable
pCi/L: Picocuries per liter, a measure of radioactivity in water
ppm: parts per million
ppb: parts per billion

5.3 Reuse Regulations

The State of Florida encourages effluent reuse and the application for the expansion of the Miramar Wastewater Reclamation Facility (WWRF) will include a feasibility study for expansion of the reclaimed water system beyond its current 2.0 mgd capacity. Florida Statutes (FS) 403.064 requires that applicants for permits to construct or operate a domestic wastewater treatment facility within a water resource caution area prepare a reuse feasibility study as part of their permit application. Salient requirements under FS 403.064 for the City of Miramar WWRF are outlined below:

- Domestic wastewater treatment facilities that dispose of effluent by Class I deep well injection must implement reuse to the degree that reuse is feasible, based upon the applicant's reuse feasibility study.

- Issuance of consumptive use permits takes into consideration local reuse programs.

As the City of Miramar continues to operate a dual distribution of potable and reuse systems, it is the City's intent to expand the current facilities to serve more customers. High level disinfection of treated secondary effluent will produce more reclaimed water so that the City can eventually replace all irrigation permit holders within the reclaimed water service areas and connect them to the reclaimed water distribution system. The program will be implemented in accordance with the SFWMD permit conditions and the policies stipulated in the Comprehensive Plan Update.

IV (b). Sanitary Sewer Sub-Element

A. Existing Conditions

Wastewater Utility Areas

The City of Miramar wastewater service areas are shown in Figure 4-4. The Eastern Service Area is bounded by US 441 to the east and Douglas Road to the west and the Western Service Area encompasses property west of Douglas Road to US 27. Miramar is part of the South Broward County Wastewater Management Area, a subregional wastewater collection, treatment, and disposal system serving Dania, Hallandale, Hollywood, Miramar and Pembroke Pines.

Wastewater Treatment

Miramar residents are served both by a City-operated wastewater plant and a regional plant maintained by the City of Hollywood. The operational characteristics of these plants are detailed below.

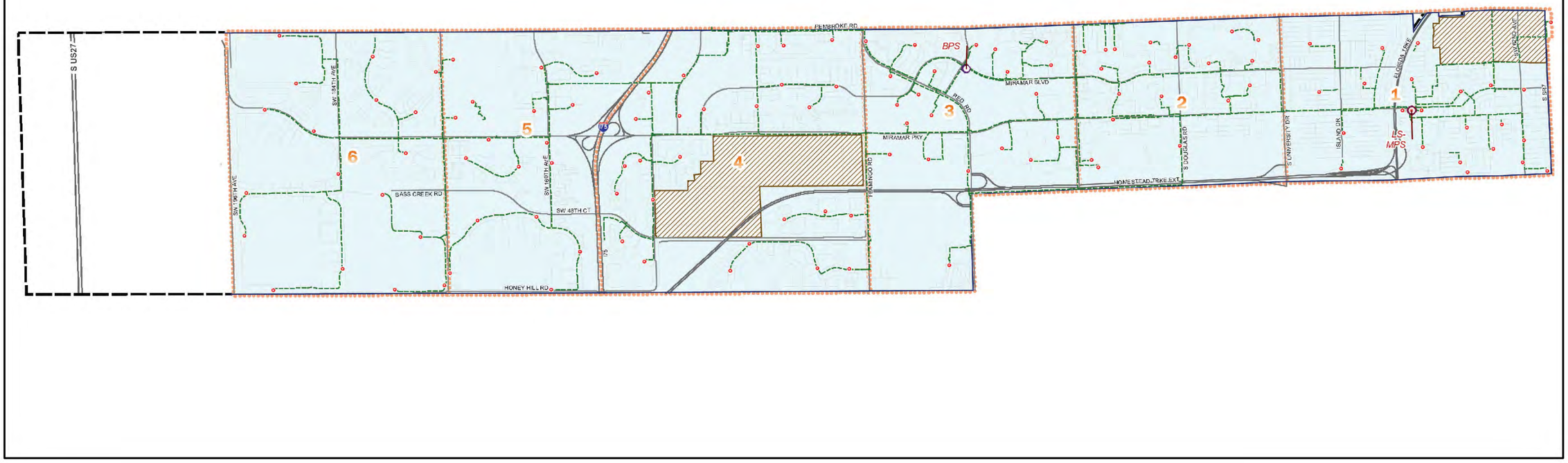
The West Wastewater Treatment Plant (WWTP), owned and operated by the City of Miramar, has a treatment/disposal capacity of 9.25 mgd and began operation in 1997. Figure 4-4 shows its location on the northern city boundary just east of I-75. It is sufficient to provide initial capacity adequate to serve the existing 29,490 ERCs in the service area. . The ultimate capacity of the western utility plant is projected to be16.0 mgd to serve the western utility area through buildout.

The City has a long term agreement with the City of Hollywood for disposal and treatment of 1.5 MGD of wastewater at the South Regional Wastewater Treatment Plant (SRWWTP). The basic agreement limits service to areas east of Flamingo Road. The Hollywood SRWWTP has a 1.27maximum month to annual average flow factor and a 2.20peak hour to annual average flow factor.

Disposal Facilities

1.5MGD of Miramar's wastewater and is permitted to discharge it to the Atlantic Ocean. The City's West WWTP utilizes a Class I deep injection well to dispose of treated wastewater.

Figure 4-2: Wastewater System Map/ Septic Tank Areas



LEGEND

- Lift Stations
- Booster Pump Station [BPS]
- Master Pump Station [LS-MPS]
- Sewer Force Main
- Sewer Zone Boundaries
- Septic Areas
- Sewer Service Area
- City Limits

Source:City of Miramar

0 0.5 1 2 Miles

May 2010

Wastewater Collection System

The existing City of Miramar wastewater collection system consists of approximately 215 miles of gravity sewers ranging in size from eight to eighteen inches in diameter, 5,300 manholes, 115 pump stations, and approximately 75 miles of force mains ranging in size from four to twenty-four inches in diameter.

Collection Facilities (Section 4.2)

As part of its Planning Review Process, the City of Miramar routinely requires that developers install local gravity collection systems and pump stations to service the entirety of their proposed improvements. The City maintains a hydraulic model and SCADA historical database of its collection system to assist with providing developers the requisite hydraulic tie-in information. Once installed, the title to the facilities is transferred to the City by the developer, and the City assumes operation and maintenance responsibilities. This process has effectively been implemented through the past ten year period as development in the City's western service area has soared. To this end, all local pump stations tying into the City's Regional Collection System are properly sized to discharge to the WWRF.

Transmission Facilities

Wastewaters generated and collected within the City of Miramar Service area are handled as follows:

- Wastewaters generated generally to the east are conveyed via gravity sewers and local pump stations to the City's Master Pump Station. This Master Pump Station subsequently discharges collected wastewaters into the City of Hollywood regional transmission system for ultimate treatment and disposal at the City of Hollywood's Southern Regional Wastewater Treatment Plant (SRWWP). As previously noted, the agreement between the cities of Miramar and Hollywood enables transfer of 1.5 mgd to Hollywood SRWWP.

- Wastewaters generated between the Florida Turnpike and 136th Street are conveyed via gravity sewers and local pump stations through the East Transmission Main System (which includes a Booster Pump Station). This Booster Pump Station subsequently discharges collected wastewaters to the WWRF.

- Wastewaters generated between 136th Avenue and 1-75 are conveyed via gravity sewers and local pump stations through the Central Transmission Main directly to the WWRF.

- Wastewaters generated between US 27 and 1-75 are conveyed via gravity sewers and local pump stations through the West Transmission Main to the WWRF.

All local pump stations are provided with emergency pump out connections for backup operation during Florida Power and Light Company power interruptions. The Master Pump Station and Booster Pump Station have dedicated emergency generators on-site in case of power interruptions. A graphic illustration of the general routing of the primary wastewater transmission mains within the City's Service Area is illustrated in Figure 4.2.

Septic Tanks

A relatively small portion of Miramar uses septic tank facilities generally because the City's wastewater collection system is unavailable in those areas. Figure 4-2 shows the primary areas of

septic tank concentration, which are in east Miramar between the Turnpike and U. S. 441 and north of SW 25 Street, and the Country Club Ranches (CCR) development south of Miramar Parkway. These areas are predominantly residential.

Soils in Miramar are generally not well suited for septic tank use except on parcels ½ acre in size or greater. If septic tanks are co-located with drinking water wells on the same parcel, then the site must be at least one (1) acre in size. All future development is required to connect to the City's treatment and collection system.

The Country Club Ranches (CCR) area consists of large lots 1-2.5 acres in size, and lots typically have both wells and septic tanks on-site. Thus, since the lots in CCR are of adequate size, septic tanks will remain as the primary facility for wastewater treatment and disposal in that development. However, the City is planning to continue, and intensify, its program to reduce the number of septic tanks in east Miramar, since lots in these areas are typically under-sized by today's standards for septic tanks. were completed in 2004.

Condition of Existing Facilities

The following presents an overview of the condition of the City of Miramar Wastewater infrastructure:

- Collection System: Groundwater and stormwater which enters a wastewater collection system through defects and/or improper connections is known as infiltration and inflow (I/I). As III increases, the amount of wastewater that must subsequently be treated and disposed also increases. From a cost efficiency standpoint, it is critical that municipalities make reasonable efforts to minimize the amount of I/I discharging into their systems. To this end, the City of Miramar implements a Sanitary Sewer Evaluation Program intended to maintain its wastewater collection / transmission systems in reasonable condition.

- Analysis of plant operating records indicate that the facilties' original 2.5 peak hour factor (PHF) remains applicable today. If I/I were a significant problem, the PHF would increase, as degradation of system joints allows more inflow into the system during rain events. The ability to demonstrate a fairly constant PHF is indicative of a well maintained system.

- During the original RTS Planning phase (1991-1995), a total of twenty local pumping stations were identified by the City for rehabilitation. To date, eighteen of the twenty stations identified for improvements have been upgraded. The two remaining pump stations are scheduled for rehabilitation by City forces in Fiscal Year 2008-2009. This work wil be funded by operations and R&R funds.

- The City's Master Pump Station improvements were completed in August 2001. This pump station transmits flow from the Eastern Service Area into the City of Hollywood system under the requirements of the Large User Agreement and is adequately sized for build-out conditions in the Eastern Service Area. As previously noted in Section 2, the wastewater flow treated by the City of Hollywood South Regional Wastewater Treatment Plant was reduced to 1.5 mgd in 2007.

- Wastewater Reclamation Facility: The City has demonstrated competent ability to properly operate and maintain the WWRF since inception of plant operation in 1997. The facility remains in suitable condition for its intended purpose. Several inspection tours performed throughout 2006 and 2007 by Hazen and Sawyer personnel indicates that reasonable and customary maintenance is performed.

- The WWRF is furnished with two Class I deep injection wells and corresponding monitor wells for treated effluent disposal. Review of operations records indicates that the wells operate within full compliance of Florida Department of Environmental Protection (FDEP) requirements. No evidence of effluent migration has been detected.

B. Projected Wastewater Treatment Demand

Historic and Projected Population Projections and Wastewater Flow Rates

(sec 2.2)

A review of operating records indicates the following wastewater generation history within Miramar service areas and the equivalent wastewater contributions on a gallon per capita per day (gpcd) basis (Refer to Table 4.1)

Table 4-1
City of Miramar Historic Wastewater Flows
2002 through 2006

Year	Total Flow (Actual)	Sewered Population	gpcd
2002	6.29 mgd	62,956	100
2003	6.88 mgd	69,738	99
2004	7.33 mgd	76,519	96
2005	7.84 mgd	83,101	94
2006	8.07 mgd	86,273	94

Based on the per capita rate over the past five years, expansion needs for the next five years will be based on 96 gpcd. Recognizing that as the system ages, the value may increase as a result of infiltration, a value of 100 gpcd will be used to establish long-term capacity needs. Table 4.2 summarizes projected contributions from Year 2007 through Buildout (2025).

Level-Of-Service

On average, the wastewater system provides service to approximately ERCs. The adopted wastewater level-of-service provided to Miramar sewer customers is 300 GPD/ERC

Table 4-2 shows the projected wastewater generation rate through the year 2025 at the 300 GPD/ERC level-of-service standard. Engineering analysis of these projections shows the West WWTP will require an ultimate capacity of 12 MGD to serve the western utility area through buildout.

Table 4-2
City of Miramar
Population and Watewater Flow Projections-East & West
Through Buildout (2025)

Year	Sewered Population	Sewered Population	gpcd

2007	91,645	96	8.798
2008	94,817	96	9.102
2009	97,988	96	9.407
2010	101,160	96	9.711
2011	102,391	96	9.830
2012	103,622	96	9.948
2013	104,853	100	10.485
2014	106,084	100	10.608
2015	107,315	100	10.732
2016	108,360	100	10.836
2017	109,405	100	10.941
2018	110,450	100	11.045
2019	111,495	100	11.150
2020	112,540	100	11.254
2021	113,393	100	11.339
2022	114,246	100	11.425
2023	115,100	100	11.510
2024	115,953	100	11.595
2025	116,807	100	11.681

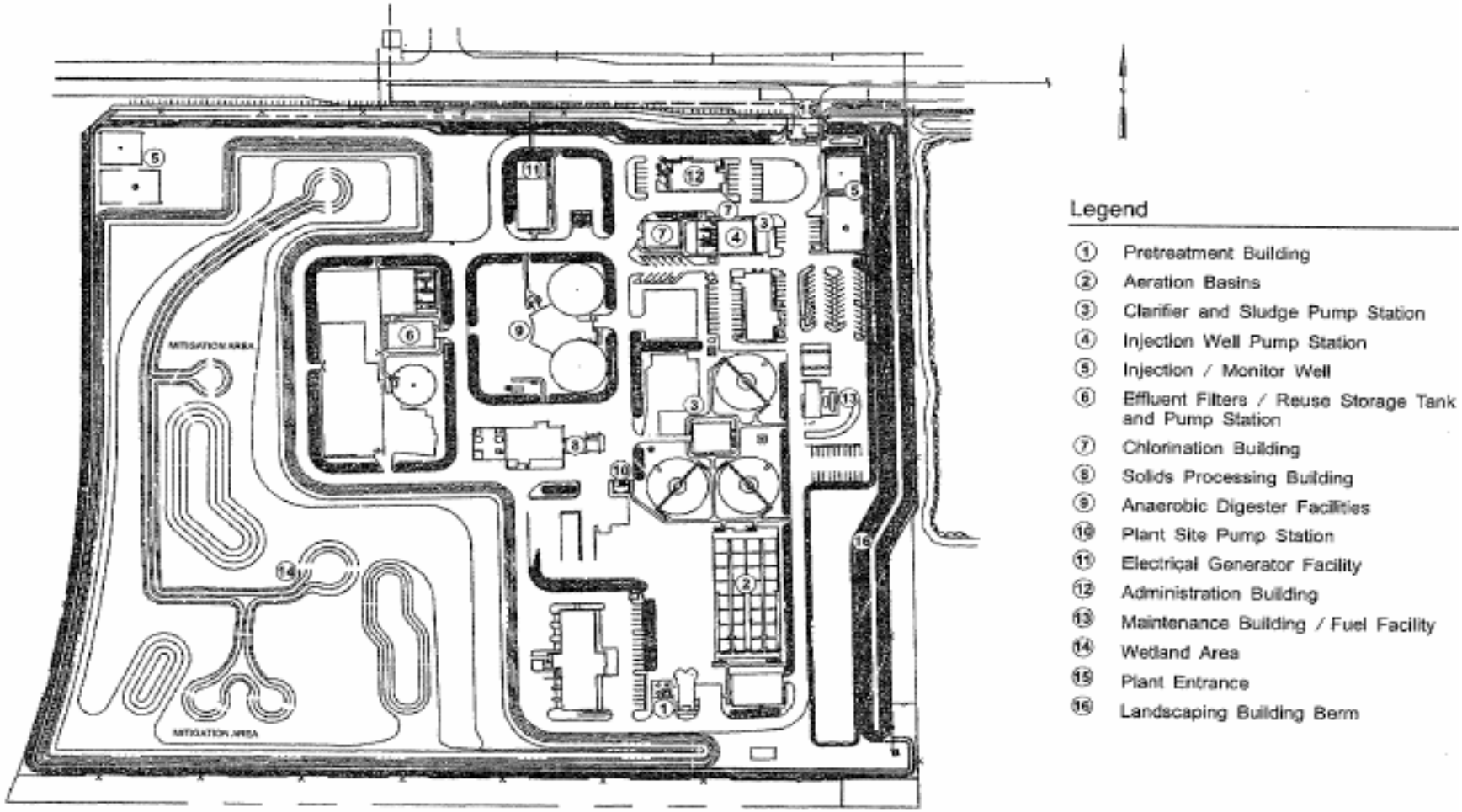
Treatment and Disposal Facilities

The City of Miramar owns, operates and maintains the WWRF located at 13900 Pembroke Road. The planning, design, construction and startup of this wastewater infrastructure was completed between 1992 and 1997 under the scope of a previous City of Miramar 5-Year Master Plan. This is a state of the art facility which provides treatment for a capacity of up to 10.1 mgd of wastewater on a maximum three-month average daily flow basis (8.4 mgd AADF). Treatment consists of the following unit processes:

· Pretreatment (Screening and Grit Removal)
· Secondary Treatment (Activated Sludge with Clarification)
· Effluent Disposal Via Deep Well Injection with appurtenant Monitoring Wells
· Biosolids Stabilzation via Anaerobic Digester to Class B Residuals
· Biosolids Dewatering by Belt Press for Disposal via Land Application at remote sites
· Effluent Reuse through filtration, disinfection and on-site storage
· Odor Control for Headworks and Biosolids Processing Facilities

A schematic layout of the facility is presented in Figure 4.3.

Figure 4-3 Existing Wastewater Reclamation Facility Site Plan



SITE PLAN

NTS

C. Future Improvement Needs

Capacity Analysis and Expansion Requirements

Section 62.600.405 of the Florida Administrative Code (F.A.C) entitled "Planning for Wastewater Facilities Expansion" Article (1) requires that the permittee provide for the timely planning, design and construction of wastewater facilities necessary to provide proper treatment and reuse disposal of domestic wastewater and management of domestic wastewater residuals. In accordance with Paragraph (3) of the Article, when the three month average daily flow for the most recent three consecutive months exceeds 50% of the permitted capacity of the treatment plant the permittee shall prepare and submit a Capacity Analysis Report (CAR). Further, if the capacity analysis report indicates that capacity of the facility will be equaled or exceeded within the next 5 years, then the report must include a signed and sealed statement from a Registered Professional Engineer noting that planning and preliminary design of the necessary expansion has been initiated.

A CAR on the City of Miramar WWRF was completed in September 2005 by Hazen and Sawyer, P.C. The CAR identified that facility expansion is needed for treatment of projected near-term and long-term wastewater flows. A document titled "Preliminary Design Report - Permit Modification for Uprating to 8.4 mgd, Hazen and Sawyer, P.C., May2007", has been submitted by the City to the FDEP. Hence, the City has complied with the F.A.C. requirements and has initiated expansion planning in a timely manner.

Based on wastewater flow projections, a nominal 2.0 mgd plant expansion is required to be constructed by 2012, which will increase the AADF capacity to approximately 10.5 mgd. The preliminary design for this facility's expansion will affect the following unit processes:

- Secondary Treatment - New Aeration Basin No.5, modifications to the existing
- Aeration System, and addition of fourth Clarifier
- Biosolids Stabilization - New Anaerobic Primary Digester
- Effluent Disposal - New Injection Well Pump

In addition, a planned expansion of the WWRF's Reuse System will be included as part of the capacity expansion. This will double the size of the Reuse System to 4.0 mgd.

The cost of the treatment capacity expansion is approximately $20M with an additional $5M required for the expansion in reuse system treatment capacity. Table 4-3 presents a breakdown of these costs.

Table 4.3
City of Miramar
Estimated WWRF Expansion Cost

WWRF Expansion	Total (In $1,000)

Aeration Basins	$5,043
Clarifer	$4,242
Injection Well Pump Station	$710
Digester	$5,769
Emergency Generator	$1,158
Subtotal 1	$16,922
Engineering and CMS (20%)	$3,384
Total WWRF Expansion	**$20,306**
Reuse System Expansion	
Reuse Expansion	$4,500
Engineering and CMS (12%)	$530
Total Reuse System Expansion	$5, 030
Total For WWRF Expansion & Reuse Expansion	**$25,336**
Round To	**$25.5 M**

An additional $1.1 M allowance is required for extension of the City's existing reclaimed water distribution system.

The City of Miramar has performed appropriate planning to address the projected capacity needs through the Year 2025. Various design projects and construction activities are included in the City's current 5-Year Capital Improvement Program, including the WWRF expansion, to effect timely construction of necessary facilities. System inspections undertaken by Hazen and Sawyer, P.C. indicate that the City's existing collection, transmission and treatment facilities are adequately maintained and are suitable for their intended purposes.

Wastewater System Capital Improvements

Historically, the City recognized the need to implement wastewater infrastructure in support of the planned Western Service Area development. To this end, the City embarked on an approximate $60 million Capital Improvement Program between 1992 and 1997 that implemented such required infrastructure as a new Regional Wastewater Collection / Transmission system, and a new state of the art wastewater treatment facility, effluent disposal works and a wastewater reuse system. All of these facilities were completed in a timely fashion, and a successful final startup of all system components was conducted in July 1999.

Wastewater projects proposed by the City for the current 5-year planning cycle (2008 through 2012) include the following:

$170,000 in updating and expanding the Hansen/PI/SCADA software capabilities (it is noted that this system serves both the water and wastewater systems).

$100,000 for incidental engineering design work in support of Broward County's efforts to connect certain existing septic tank areas to the sewage collection system.

$390,000 to install SCADA system components for newly built lift stations, as well as for ongoing maintenance and repair of existing lift station SCADA system. This capability allows real-time remote access to the City's lift station facilities for operations monitoring, historical data collection/storage, equipment/process failure notification and screening, emergency response and pump control from the SCADA server to computers 24 hours a day.

An allowance of $1.1 M is required for miscellaneous improvements to the City's exiting reclaimed water distribution system, in concert with the planned reuse treatment capacity expansion. This allowance will be allocated to extensions of the existing distribution piping network.

Expansion of the WWRF in order to increase AADF capacity to 10.5 mgd and to increase the Reuse System capacity to a nominal 3.6 mgd. The total budgeted cost for this project in the City's CIP is an estimated $25,500,000.A tabulation of the Wastewater Related Capital Improvement Program Line items for the City's Current 5-Year Plan are presented in Table 4.4.

Table 4.4
City of Miramar 5-Year Capital Improvement Project
Wastewater Related Project
Project Schedule for FY's 2008-2012
Summary by Year

(In Thousands of Dollars)

Project Title	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Utility Revenue						
Hansen/Pl/SCADA System	$170					$170
Series 2007 Bonds			$100			$100
East Redevelopment – Septic Tank Conversion	$3,187	$6,375	$6,375	$6,375	$3,188	$25,500
Improvement WWRF Expansion (including Reuse)						
Reclaimed Water Distribution	-	-	$150	$1,000	-	$1,150
CIAC Fund	$90	$90	$75	$75	$60	$390
Lift Station SCADA Installation Program						
Totals	$3,447	$6,465	$6,700	$7,450	$3,248	$27,310

IV(c). Solid Waste Sub-Element

A. Existing Conditions

Solid Waste Facilities

Miramar has a long-term interlocal agreement with the Broward County Office of Environmental Services (BCOES) to utilize the County's waste disposal system which is operated by the Broward Solid Waste Disposal District - Resource Recovery Office. There are two County solid waste service areas: the Northern Service Area and the Southern Service Area. Miramar is located within the Southern Service Area. Miramar is currently disposing of burnable waste and non-burnable waste in two separate locations, as discussed below.

Broward County has constructed two (2) waste-to-energy facilities. Miramar's burnable waste is hauled to the County's southern waste-to-energy facility, operated by Wheelabrator South Broward, Inc., located at 4400 S. State Road 7 in Ft. Lauderdale. The facility can process 2,250 tons/day of solid waste. In conjunction with the northern waste-to-energy facility, the County has the ability to process up to 1.6 million tons/year of burnable solid waste.

Non-burnable waste is disposed of at the County's Interim Contingency (BIC) Landfill in Fort Lauderdale which has a capacity of 3,800,000 cubic yards. The County constructed this interim/contingency landfill to provide for solid waste disposal in the Southern Service Area until its waste-to-energy facility became operational. The Central Disposal Sanitary Landfill in Pompano Beach provides additional backup capacity on an as needed basis in accordance with the contractual agreement with Wheelabrator.

Waste Disposal Reduction and Recycling

In order to increase its ability to comply with the 1988 Florida Solid Waste Act which mandated solid waste reduction by local governments of at least 30% by 1994, Miramar participates in the County's overall solid waste reduction program. The County program has met the 30% reduction goal through a combination of waste-to-energy facilities and local recycling programs.

City residents recycle newspapers, office paper, glass, aluminum cans, plastics and paper cartons. Curbside pick-up of recycled materials is provided on a weekly or more frequent basis. Yard waste is also picked-up on a regular basis for mulching and re-use at the South County waste-to-energy facility. Recyclables generated in Miramar are processed at the Materials Recovery Facility located at 2380 College Avenue in Davie, Florida. This recycling facility is owned and operated by Browning Ferris Industries. Table 4-10 shows the amount of recyclable materials collected in the city in. Miramar generates approximately tons per month of residential recyclable material.

Solid Waste Collection

Miramar continues to contract with a private hauler, All Services Inc), for solid waste collection and recycling.

B. Analysis of Existing Conditions

Broward County has a contractual agreement with Wheelabrator to provide 1,095,000 tons/year of solid waste for disposal at the two (2) waste-to-energy facilities. The County currently produces 1,000,000tons per year of processable solid waste and another 30,000 tons of non-processable waste for disposal in the BIC Landfill. The City of Miramar has an existing contract with Broward County for waste disposal**.**

Table 4-10 presents the current waste generation of the city. Miramar currently generates a total of tons of solid waste per year. Non-recyclable, residential waste accounts for approximately of that total which equates to a daily level-of-service of pounds per person.

Level of Service

Table 4-11 shows the adopted solid waste level-of-service (LOS) standards for the City which are consistent with the adopted Broward County standards.

C. Future Solid Waste Generation

Based on the population projections and development of non-residential land presented in the Future Land Use Element and the adopted level-of-service for solid waste, Miramar is expected to generate 62,092 tons of non-recycled solid waste per year and 2,657 tons of recyclable waste by the year 2010.

D. Future Solid Waste Needs

As mentioned earlier, the total capacity of the Broward Solid Waste Disposal System is 1.6 million tons per year at the waste-to-energy facilities, and 3,800,000 cubic yards of capacity at the BIC Landfill for non-burnable waste. Current demand is approximately 65% of capacity at the Wheelabrator plants. Each waste-to-energy facility is expandable b y 33%. A third waste-to-energy facility location is reserved at the Broward County Landfill. There are no current plans for expansion of the waste-to-energy or landfill facilities. Broward County has determined that the projected growth forecast in the City's Comprehensive Plan should not cause the County's Resource Recovery System to move beyond the design capacity or acceptable levels of service.

Based on the projections presented above and the substantial disposal capacity of the Broward County facilities, the City has sufficient disposal capacity in place to meet the demands of its residents and businesses at the adopted level of service through the planning period.

Table 4-11

ADOPTED LEVEL OF SERVICE STANDARDS
FOR BROWARD COUNTY SOLID WASTE FACILITIES

Land Use	Level of Service
Residential	8.9 lbs. per unit per day
Industrial & Commercial	
Factory/Warehouse	2 lbs. per 100 sq. ft. per day
Office Building	1 lb. per 100 sq. ft. per day
Department Store	4 lbs. per 100 sq. ft. per day
Supermarket	9 lbs. per 100 sq. ft. per day
Restaurant	2 lbs. per meal per day
Drug Store	5 lbs. per 100 sq. ft. per day
School	
Grade School	10 lbs. per room & 1/4 lbs. per pupil per day
High School	8 lbs. per room & 1/4 lbs. per pupil per day
Institution	
Hospital	8 lbs. per bed per day
Nurse or Intern Home	3 lbs. per person per day
Home for Aged	3 lbs. per person per day
Rest Home	3 lbs. per person per day

Source: Broward County Comprehensive Plan, Solid Waste Subelement, Adopted March 1, 1989.

IV(d). Stormwater Management/Aquifer Recharge Sub-Element

A. Existing Conditions

Responsible Agencies

The South Florida Water Management District (SFWMD) operates and maintains the primary canal in Miramar, the Snake Creek Canal (C-9 Canal). The City of Miramar is responsible for secondary and tertiary canals east of University Drive where most of the development has already occurred. The South Broward Drainage District is responsible for secondary and tertiary canals west of University Drive. The Broward County Department of Natural Resource Protection also monitors and regulates drainage design criteria. The specific responsibilities of these agencies are detailed below.

Area Drainage Basins

The SFWMD operates nine major canals in eastern Broward County. The canals are major surface water features in Broward County that were originally constructed as a part of the Central and Southern Flood Control Project (C&SF Project) to provide flood protection to the low-lying areas of the Lower East Coast area. The canals also provide an additional source of water supply. However, the CS&F Project altered the regional hydropatterns, which in turn, has depleted the natural regime and allowed the intrusion of exotic species such as melaleuca, brazilian pepper and kudzu. Over time these species tend to “crowd out” native plants and create a monoculture.

In addition to the canals constructed by the CS&F Project, a series of water conservation areas (WCAs) were created by levees to protect the urbanized areas along the east coast from stormwater flooding. Broward County contains WCAs 2 and 3 which cover 790 square miles, approximately 65% of the County's total area. WCA 3 is located on the City's western boundary.

Miramar is situated within the C-9 Canal Basin. This basin provides flood protection to 98 square miles in Broward and Dade Counties. The C-9 Canal supplies water to recharge wellfields and for irrigation. It controls seepage from Water Conservation Area 3B and maintains ground water elevations west of S-29 (a gated spillway) adequate to prevent saltwater intrusion from the Atlantic Ocean.

When the C9 Canal was designed, southwest Broward County was projected to remain primarily agricultural. The C-9 Basin is divided by Flamingo Road into two sub-basins, the Eastern C-9 and the Western C-9. The Eastern C-9 Basin was designed for essentially unlimited inflows. The Western C-9 Basin was only designed to drain the first three-quarters of an inch of runoff per day. The low elevations of southwestern Broward County relative to the east make the western basin prone to flooding. Since urban development is moving into the C9 basin at a rather rapid pace, flooding has become a major issue. The SFWMD is working with the South Florida Regional Planning Council to ensure that additional flooding problems are not created by new development. Local land use plan amendments and Developments of Regional Impact have several regulations

that must be complied with to ensure that appropriate levels of service for surface water management will be achieved. According to the SFWMD, unlimited gravity inflow to the C-9 is currently allowed in the western basin if development limitations are met. The conditions for issuance of permits in the western Canal 9 Basin by SFWMD under Rule 40E-41.063 are listed below.

(1) For design purposes the 100-year, 25-year and 10-year flood frequency elevations are established as 7.3 feet, 6.8 feet and 6.5 feet mean sea level, respectively.

(2) For systems designed to be pumped from fully diked areas, discharge shall be limited to three-fourths of an inch per twenty-four hours, or the criteria in Rules 40E-4.301 and 40E-40.302, F.A.C. whichever is more restrictive. In addition, no pumping shall be permitted when Canal 9 stages exceed the 24-year peak elevation of 6.8 feet mean sea level.

(3) All direct connections to Canal 9 shall be designed to prevent lowering of the groundwater table below elevation 2.5 feet mean sea level. All indirect connections to Canal 9 shall be designed to prevent lowering of the groundwater table by installing the discharge facilities at a discharge elevation no lower than six inches below average existing ground elevation for the project. Nothing in this subsection shall be construed to preclude the construction and operation of discharge facilities designed to temporarily lower the groundwater table below these elevations immediately prior to the arrival of a major storm event.

(4) Fill Encroachment Criteria

(a) The volume encroached by development between average existing ground surface and elevation 7.0 feet mean sea level shall not exceed 2.0 feet times the total area of the property.

(b) For diked areas with on-site retention of runoff, the area diked shall not exceed the encroachment volume specified in paragraph (a) divided by the difference between average existing ground elevation within the dike and elevation 5.75 feet mean sea level. This will require all such projects on land of average elevation less than 3.75 feet mean sea level to preserve some area outside of the dikes with no fill. The preserved area shall be located so as to preserve natural basin flow patterns for lands outside the dike.

C-9 Basin within Miramar

The SFWMD controls the design frequency and allowable runoff for this canal. The design frequency for the entire basin is the 100+ year storm event. The allowable discharge into the C-9 is essentially unlimited inflow by gravity connection east of Red Road; the conveyance capacity is 20 cubic feet per second per square mile pumped, unlimited gravity. West of Red Road, specific development limitations must be adhered to.

Secondary Canals and Basins

The South Broward Drainage District has its own system of basins. It controls the pumpage of six (6) basins that include all or part of Miramar from University Drive west. Table 4-12 displays the six basins and their approximate locations, sizes and control elevations.

Surface Water

Miramar does not contain any large natural lakes or rivers. However, several small man-made lakes are present as a result of local mining and land development activities.

Flooding

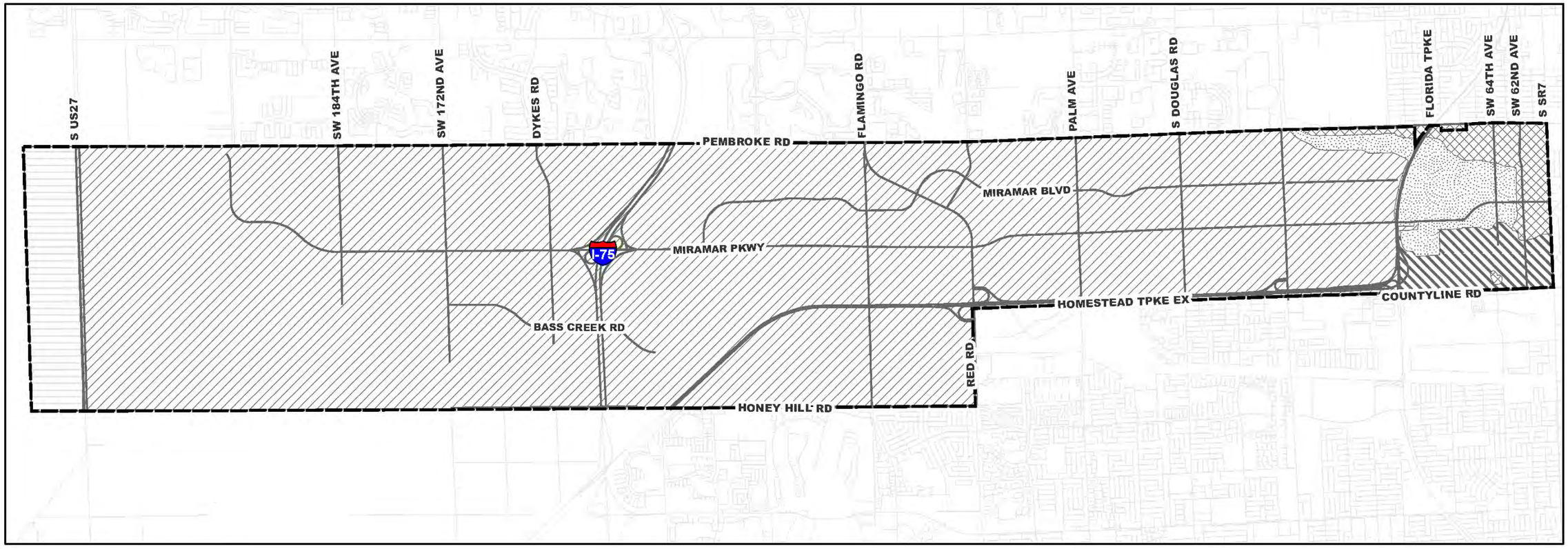
Figure 4- shows the various levels of floodplains located in the city. The areas subject to 100-year flooding are located primarily in the central and western portion of Miramar. Areas generally east of the Florida Turnpike in the northeast corner of the city are subject to flooding of a 100-500 year frequency.

Over the past five (5) years, a number of locations in Miramar have been identified in the City's Capital Improvement Program as subject to a higher frequency of flooding in less severe storms than other areas. These include:

Meadows Lake
Intersection of Arbor Drive and S.W. 67th Lane
Intersection of S.W. 25th Street and S.W. 64th Way
Intersection of Embassy Blvd. and Nassau Drive
Juniper Street
City's Public Works Compound
S.W. 37th Street
38th Street
39th Street
40th Street
40th Court
S.W. 35th Court
S.W. 41st Street

Many of these problem areas have been successfully addressed through stormwater management improvements installed by the City of Miramar, and others are being mitigated through the city's current stormwater management program.

Figure 4-4: Floodplains



LEGEND

AE	An area inundated by 100-year flooding, for which BFEs have been determined.
AH	An area inundated by 100-year flooding (usually an area of pounding), for which BFEs have been determined; flood depths range from 1 to 3 feet.
D	An area of undetermined but possible flood hazards.
X	An area that is determined to be outside the 100- and 500-year floodplains.
X500	An area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than 1 ft or with drainage areas less than 1 sq mile
CITY LIMITS	

Source: Federal Emergency Management Agency (FEMA)

COMMUNITY GIS DEVELOPMENT

0 0.5 1 2 Miles

May 2010

Aquifer Recharge
The aquifer is recharged during the dry season by flooding the Snake Creek Canal with water from the Water Conservation Areas. There are no areas in Miramar recognized or adopted as "prime groundwater recharge areas" by the South Florida Water Management District. Recharge also occurs citywide as a result of on-site retention and detention requirements in the City's Land Development Code and in SFWMD regulations for existing and new development.

Level-of-Service
The adopted drainage level-of-service (LOS) for property within the City of Miramar is given below.

Drainage LOS
Road Protection: Residential streets not greater than eighty feet wide rights-of-way to have crown elevations at or above the elevation for the respective area depicted on the ten year "Flood Criteria Map." Rights-of-way greater than eighty feet wide to have an outside edge of through lane pavement at or above the elevation for the respective area depicted on the ten year "Flood Criteria Map."

Buildings: To have the lowest floor elevation no lower than one (1) foot above base flood or 18 inches above the highest point of the adjacent road crown elevations, whichever is greater.

Off Site Discharge: Not to exceed the inflow limit of SFWMD primary receiving canal or the local conveyance system, whichever is less.

Storm Sewers: Design frequency minimum to be three year rainfall intensity of the Broward County Water Management Division rainfall intensity/duration curves.

Flood Plain Routing: Calculated flood elevations based on the ten year and one hundred year return frequency rainfall of three day duration shall not exceed the corresponding elevations of the ten year "Flood Criteria Map" and the "100 Year Flood Elevation Map," as published by Broward County.

Antecedent Water Level: The higher elevation of either the control elevation or the elevation depicted on the map "average wet season water levels," as published by Broward County.

On Site Storage: Minimum capacity above antecedent water level and below flood plain routing elevations to be design rainfall volume minus off site discharge occurring during design rainfall.

Best Management Practices (BMP): Prior to discharge to surface or ground water, BMP's will be used to reduce pollutant discharge.

City Maintenance and Enhancement Operations

In 1998, the City of Miramar enacted a new Stormwater Utility Fee and Management Program. The Utility Fee is assessed annually on all developed residential and non-residential parcels to finance the programmed improvements and operations of the Stormwater Division of the Public Works Department. Through this program, the City has established a preliminary annual maintenance schedule for stormwater facilities as outlined below.

Annual City Stormwater Facilities Maintenance Program

20 catch basins cleaned weekly.
1 french drain installed weekly.
70 hours per weekly for canal cleaning.
4 outfalls cleaned weekly.
2 miles of streets swept weekly.
8 trees removed from canals weekly.
2 catch basins retrofitted with anti-pollution baffles (as needed).
55 acres of canals sprayed monthly for aquatic weed control.
30 feet of storm drain repairs made monthly.

This schedule will be re-assessed based on the prior year experience, and adjusted, as necessary, to improve future maintenance and enhancement of the stormwater system.

B. Future Stormwater Management Needs

Following detailed analysis of drainage and aquifer recharge problem areas, the City has programmed the capital improvements shown below in the period in order to address drainage needs in the City and maintain level-of-service. The City will also continue to strictly enforce water retention and detention requirements, contained in its Land Development Code and in applicable SFWMD permitting regulations, on new development and redeveloped parcels.

The completion of these stormwater management projects over the period will enable the City to maintain the adopted level-of-service standard for this public facility system. Funding for these projects is expected from a combination of General Fund revenues and stormwater utility fees.

V. Conservation Element

Introduction

Responsibility for conserving and protecting Miramar's natural resources is divided among various federal, state, regional and local agencies. Authorization for the permitting of activities which could potentially affect the quality of air, water, or other natural resources generally lies with state and/or regional agencies, although Broward County also plays an important role.

The major conservation concern in Miramar is the protection and wise use of natural resources during existing and future periods of high growth and urbanization. The City's primary influence on conservation is through the Future Land Use Element, Intergovernmental Coordination Element, Land Development Code and Subdivision Regulations.

A. Existing Conditions

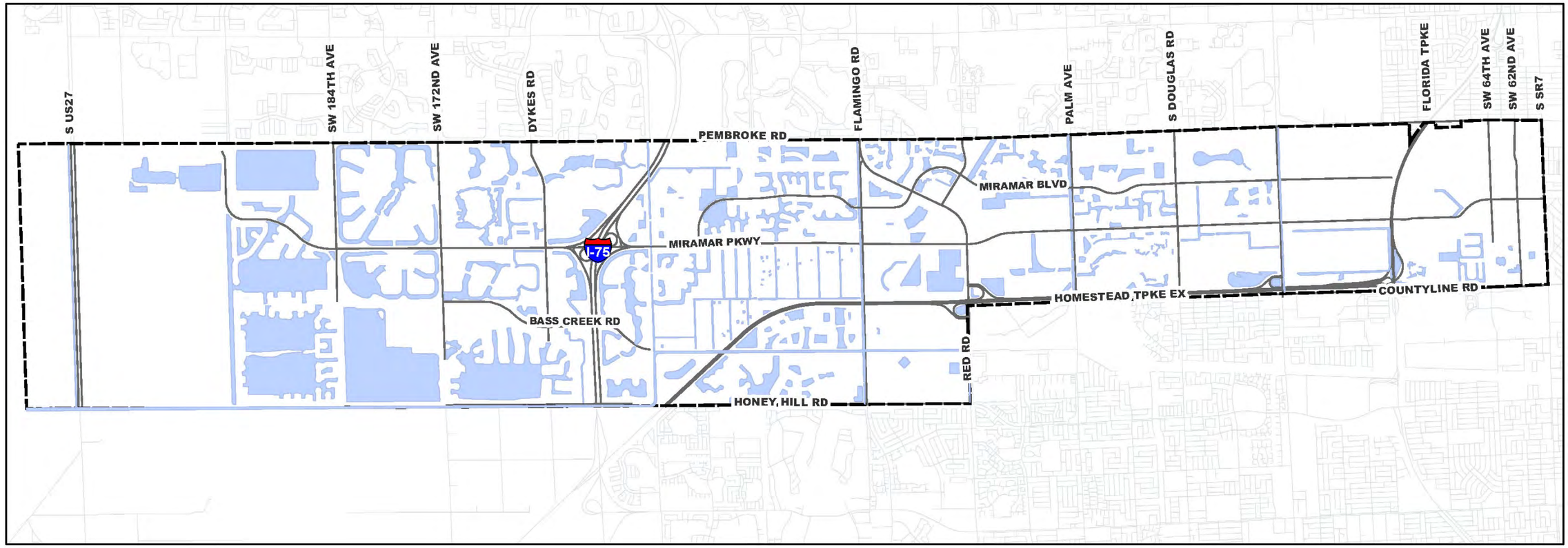
The City of Miramar is a non-coastal community having no marine or estuarine habitats. Significant man-made water bodies include the C-9 (Snake Creek) Canal, a Class III primary canal operated and maintained by the South Florida Water Management District (SFWMD). There are numerous man-made lakes and a system of secondary and tertiary canals maintained both by the South Broward Drainage District and the City.

Surface Water Bodies

There are currently no natural rivers, bays or lakes present in the City of Miramar. However, several man-made lakes have formed as a result of quarrying or other development activities within the City. These artificial lakes are depicted on Figure 5-1.

As a result of the Central and South Florida (C&SF) Flood Control Project, Miramar features a series of canals which had a primary objective of flood protection. The C-9 Canal, a major drainage facility in the South Florida Water Management District's (SFWMD) regional water control system, traverses Miramar's southern central border area from west to east. Several smaller drainage canals are laced throughout the City. These smaller canals generally interconnect the City's various drainage basins to the C-9 Canal. The C-9 Canal eventually terminates by discharging directly into the Intracoastal Waterway and eventually the Atlantic Ocean. Figure 5-1 also shows the primary and secondary canals in the city.

Figure 5-1: Waterbodies



LEGEND

DRAINAGE CANALS & LAKES

CITY LIMITS

Source: City of Miramar

0 0.5 1 2 Miles

May 2010

Groundwater Resources

There are three (3) aquifer systems underlying Broward County; the shallow Surficial Aquifer System, the Intermediate Aquifer System, and the deep Floridan Aquifer System. The principal water-bearing unit of the Surficial Aquifer System is the Biscayne Aquifer. According to the SFWMD, this is a highly productive source of high quality potable water in eastern Broward County.

Miramar secures all of its raw water from the Biscayne Aquifer. The City presently taps this aquifer with a series of well-established eastern wellfields and recently constructed west-central wellfields associated with the new western water treatment plant.

Surface Water Quality

The canal system can be used for ground water recharge because of the high permeability of the Biscayne Aquifer and the proximity of the aquifer to the surface. However, this makes the Biscayne Aquifer extremely susceptible to both saltwater intrusion and contamination from the surface.

The regional canal system is utilized to hold water at sufficient control elevations to maintain groundwater levels as a hydraulic barrier to protect wellfields from saltwater intrusion. Miramar's wellfields are currently safe from saltwater intrusion because of the distance of the City's wellfields from the more easterly saltwater intrusion line.

Surface water quality in Miramar is monitored by the Broward County Environmental Protection and Growth Management Department (EPGMD). There are currently 12 monitoring stations along the C-9 Canal in and around Miramar. The DPEP utilizes the minimum and maximum levels for surface water parameters established in the Broward County Code. Based on a single sampling event conducted in 1995 by the DPEP for the 12 stations, a total of four (4) of the 16 parameters analyzed exceeded the standards. Station 1 had violations in four areas; dissolved oxygen, ammonia (NH3), total nitrogen and total phosphorous. All remaining stations, Stations 2-12, had violations of the dissolved oxygen limits, failing to meet the required 4.0 and 5.0 mg/l. Additionally, Stations 6 and 8 each slightly exceeded the standards for total phosphorus. Obviously, few conclusions can be drawn from a single sampling event in a major regional canal, however the City continues to monitor water quality in the C-9 Canal through the DPEP program, and has also recently instituted a regular stormwater facility maintenance program which includes enhanced stormwater retention/detention and streetsweeping.

Wetlands

Approximately 65% of Broward County is contained within a South Florida Water Management District Water Conservation Area. Miramar's western border includes a portion of Water Conservation Area 3A. Originally, all of western Miramar was predominantly wetlands. The C&SF Project created a series of canals which subsequently drained most of the surface water from western Miramar.

The Broward County DPEP maintains a wetlands map that identifies several areas in Miramar. There are no wetlands identified in eastern Miramar, however seven (7).. categories of wetlands are identified in central and western Miramar, as shown on Figure 5-2. A large portion of western Miramar is currently either in the improved/unimproved pasture, under development or mitigation categories.

The SFWMD owns a large strip of land in western Miramar between U.S. 27 and Water Conservation Area 3A. This 800 acre area is considered a wetlands buffer strip for Water Conservation Area 3A. The buffer strip is used to control flood elevations and protect the native ecosystems in the Everglades.

Wellfield Protection/Groundwater Quality/Aquifer Recharge

Wellfields in Broward County are regulated by the County's Wellfield Protection Ordinance. The Ordinance restricts and regulates land uses around potable water wells to prevent contamination. Complex groundwater movement modeling is completed to determine ten day and thirty day zones around each wellfield. Different restrictions are applied to regulate land uses dependent on the proximity of the land use to the wells. Figure 4-2 in the Potable Water Sub-Element shows the various cones-of-influence around the City's wellfields.

The Florida Department of Environmental Protection (DEP) monitors the County's ground water quality with stations placed at specific wells throughout the County. The City of Miramar currently has two monitoring locations within its boundaries. DEP has a database, the Groundwater Quality Monitoring Network that updates current sampling data from these two wells. No significant, long-term water quality problems have been identified from the subject well sampling program.

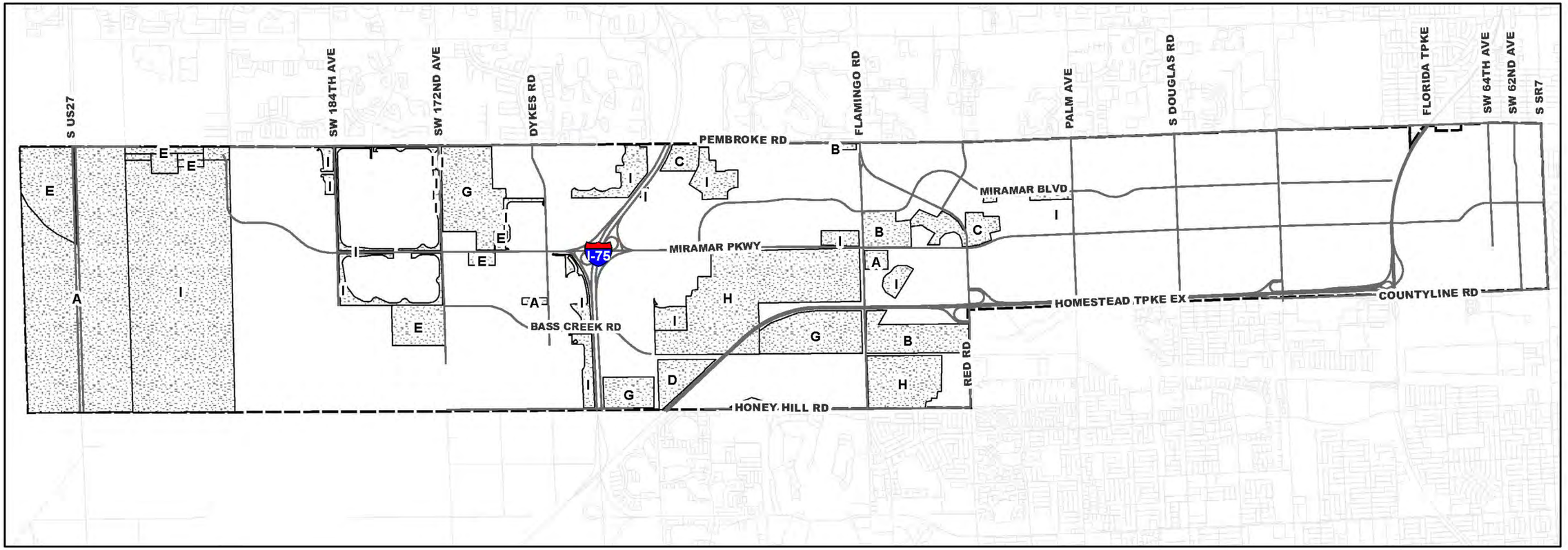
The SFWMD identifies natural recharge areas in Broward County for aquifers. According to the District, Miramar has no high or prime recharge areas for aquifers.

The regional canal system is replenished by local rainfall and from water stored in the Water Conservation Areas, which in turn, is used to recharge the urban wellfields and groundwater.

Air Quality

Miramar cooperates with Broward County in a county-wide air quality sampling program. No monitoring stations are located within Miramar. Ozone exceedances have occurred in Broward County in the past, and the annual automobile emissions testing program in combination with road and transit improvements have been used to help mitigate the ozone situation. Outside of ozone, no significant recorded air quality exceedances have occurred in the regional airshed which includes Miramar. This Plan's focus on road improvements and increased transit service concurrent with development should help maintain or improve future air quality.

Figure 5-2: Wetlands



LEGEND

- A — Freshwater Marsh/Wet Prairie. Dominant species of Sawgrass. Arrowhead. Cattail a nd a variety of herbaceous vegetation in saturated soils
- B — Wetland Improve Pasture. Disturbed and/or reseeded and regularly maintained. Contains entrained wetlands
- C — Wetland Unimproved Pasture. Disturbed and irregularly maintained with stands of trees and shrubs, contains entrained wetlands
- D — Wetland Exotic Brazillian Pepper. Predominant canopy species of Brazilian Pepper
- E — Wetland Exotic Melaleuca. Predominant canopy species of Melaleuca
- F — Wetland Shrub & Brushland. Typical dominant species such as Wax Myrtle and Willow, contains entrained wetlands
- H — Wetland/Non -Wetland Mixed Community
- G — Wetlands Under Development/Mitigation
- I — Mitigation Completed/ Monitoring/Maintenance

CITY LIMITS

Source: Broward County Department of Natural Resource Protection

COMMUNITY GIS DEVELOPMENT

0 0.5 1 2 Miles

May 2010

Floodplains

According to the countywide composite of the Federal Emergency Management Agency's Flood Insurance Rate Map, most of the City of Miramar is classified as an area of "100-year flood, base flood elevations and flood hazard factors." There are two zones with this definition in Miramar, Zone AH and AE. There is a transitional Zone X area in the northeast portion of Miramar described as an "area of 100-year shallow flooding with depth less than one foot." Finally, the northeast corner of the City is classified also as Zone X, an area "of minimal flooding." Figure 4-7 in the Stormwater Management/Aquifer Recharge Sub-Element shows the designated floodplain configurations in Miramar.

In addition to regional drainage regulations imposed by the SFWMD and South Broward Water Control District, the City has a local ordinance that regulates development practices in a designated Floodplain Management District. The boundaries of the Floodplain Management District include areas of special hazard identified by the Federal Emergency Management Agency in its Flood Insurance Study and Rate Maps, dated August, 1992. The following provisions are required in the special flood hazard areas:

- New construction and improvements must be anchored and constructed with materials resistant to flood damage.
- Manufactured homes must be anchored.
- Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities must be appropriately located to prevent water intrusion.
- New water and sewer systems must be designed to prevent flood water intrusion.
- On-site waste disposal systems must be located to prevent damage during flooding.

In addition to the above provisions, Land Development Code Section 802.7.3 regulates base floor elevations in areas of special flood hazard. New residential and non-residential construction must be no lower than one (1) foot above the base flood elevation or 18 inches above the highest point of the adjacent road crown elevations, whichever is higher. The Code contains special development conditions for subdivisions and for development in floodways.

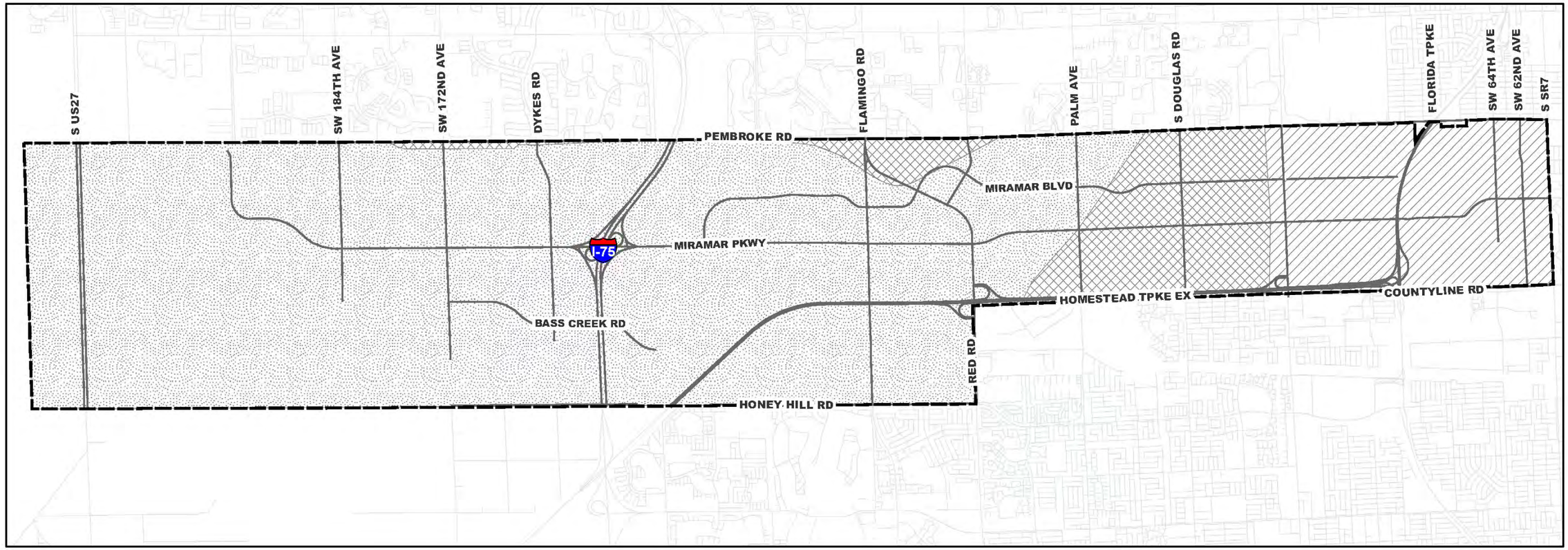
Minerals

The only commercially-valuable mineral found in Miramar is limestone. Limestone, sand, shell and marl formations are predominant in eastern Miramar, while peat covers most of central and west Miramar. Limestone also occurs at depth over most of western Miramar and is often permitted to be mined for use as fill for new development. Figure 5-3 shows the location of mineral formations in Miramar.

Soil Conditions

Soil types were determined by the United States Department of Agriculture, Soil Conservation Service. The Lauderhill-Dania Association is predominant in western Miramar. It is a hydric soil

Figure 5-3: Minerals Map



LEGEND

MINERALS

- CITY LIMITS
- PEAT
- SAND SHELL and MARL
- LIMESTONE

Source: Florida Geological Survey, Florida Department of Natural Resources

0 0.5 1 2 Miles

May 2010

that oxidizes easily when it is exposed to air. Soil erosion can become a problem, if water remains drained for long periods of time. To develop in areas where this soil is predominant, it is necessary to replace this soil with a soil type that will not be subject to subsidence. Figure 5-4 depicts the soil types within the City.

Much of central and eastern Miramar consists of the Hallandale-Margate Association. This soil association is in the same category of soils as the Lauderhill-Dania Association and is found in areas of low pine flatwoods, sloughs and marshes.

Other soils found in eastern Miramar include: the Dade-Urban Land Association, Immokalee-Urban Land-Pompano Association, and the Immokalee-Urban Land Association. These three (3) associations fall into the same category typical of low ridges, knolls, and flatwoods soils. Most of this soil association area has been developed with very few flatwoods remaining.

Flora and Fauna Conditions

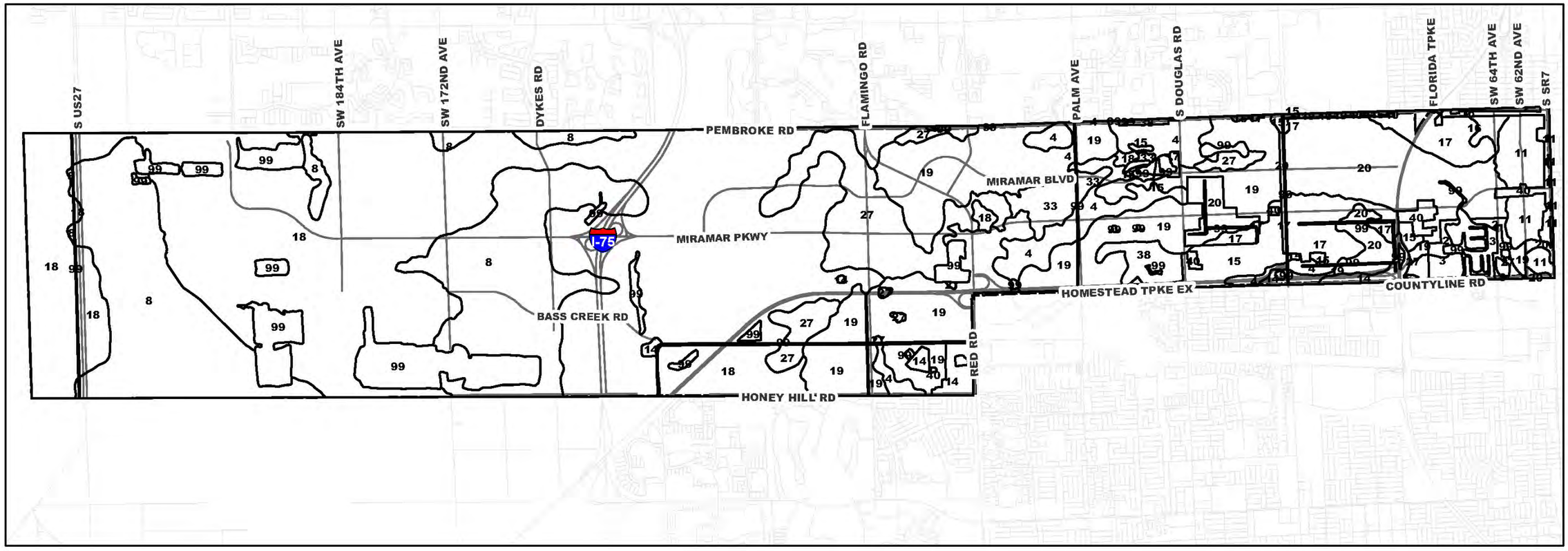
Most of Miramar's native vegetation has already been disturbed by land development in the east, and the Central and South Florida (C&SF) Project in the west that drained the natural watershed. There are a few remaining stands of pine flatwoods in the east, and wetlands in the central and western undeveloped areas.

The regional canal system has disrupted the natural hydropattern. Water Conservation Area 3A became over drained, which has lead to a loss of muck, tree islands and wet prairie due to soil subsidence. The modifications to the hydroperiod have also allowed for the invasion and succession of exotic species such as Melaleuca and Brazilian Pepper. These species create a monoculture by crowding out native plants. One of the most serious threats to the Everglades is the spread of Melaleuca. Melaleuca is resistant to fire and flooding, and cutting the roots increases its growth.

The loss of native vegetation, primarily pine flatwoods, to development means that natural habitat for native animal species is also dwindling. Those species now found in eastern Miramar are those well-adapted to urban living, such as sparrows, grackles, sea gulls, mockingbirds, cardinals, and mourning doves. Egrets and herons are found along canals and other water bodies. Gray squirrels, raccoons and opossums are among the fauna inhabiting the remaining wooded areas.

There are no animal or plant species listed by governmental agencies as endangered, threatened, or of special concern known to be present in Miramar. If any such species are identified as development occurs, all county, state and federal environmental protection regulations are required to be adhered to.

Figure 5-4: Soils Map



LEGEND

2	ARENTS-URBAN LAND COMPLEX	14	MATLASHA GRAVELLY FINE SAND, LIMESTONE SUBSTRATUM	20	MATLASHA-URBAN LAND COMPLEX
3	ARENTS, ORGANIC SUBSTRATUM-URBAN LAND COMPLEX	15	IMMOKALEE FINE SAND	27	PLANTATION MUCK
4	BASINGER FINE SAND	16	IMMOKALEE, LIMESTONE SUBSTRATUM-URBAN LAND COMPLEX	33	SANIBEL MUCK
8	DANIA MUCK	17	IMMOKALEE-URBAN LAND COMPLEX	38	UDORTHENTS, SHAPED
9	DADE FINE SAND	18	LAUDERHILL MUCK	40	URBAN LAND
11	DADE-URBAN LAND COMPLEX	19	MARGATE FINE SAND	99	WATER

CITY LIMITS

COMMUNITY GIS DEVELOPMENT

0 0.5 1 2 Miles

Source: USDA Soil Survey of Broward County, South Florida Water Management District 2002, rev 2005

May 2010

Commercial Uses of Natural Resources

Four (4) permitted active limestone quarries are located in western Miramar between Interstate 75 and U.S. 27, and one (1) inactive quarry exists east of Flamingo Road. Table 5-1 gives the location and condition of these quarries.

Table 5-1
Commercial Uses of Natural Resources
Limestone Quarries

Name of Quarry	Condition	Location
Capaletti's Pit No. 1 (June Rose)	Inactive	Southwest corner of the intersection of Hiatus Road and Miramar Parkway.
Capaletti's Pit No. 3	Inactive	South of Pembroke Road and west of 196th Avenue.
Miramar Rock (Sunset Lakes)	Incative	North of the Dade County Line and east of 196th Avenue.
Vulcan Materials (Harbour Lakes)	Incative	South of Pembroke Road and east of the 196th Avenue.
Rozzo		North of the Dade County Line and centered on southwest 172nd Avenue.

Source: Miramar Building Division.

The County Building and Zoning Enforcement Division and the Miramar Building Division monitor and permit quarrying operations. The County regulates noise levels and blasting procedures. The City's Land Development Code specifies maximum bank slopes for quarries and requires the submission of a conceptual site plan for an alternate use of the property after completion of the limestone extraction. Reclamation of quarry sites is required by Chapter 378, Florida Statutes, Resource Extraction Reclamation Act.

Conservation/Recreational Use of Natural Resources

In recent years, the City has utilized the Broward County Environmentally Sensitive Land (ESL) Program to purchase a unique 90-acre tract of slash pine flatwoods situated west of University Drive and adjacent to Miramar High School. It is the largest remaining stand of natural pine canopy indicative of Miramar's native upland ecosystem. The City has also designated this parcel as a City Area of Particular Concern on its existing and future land use map. Although the site has been disturbed by off-road vehicle traffic, it is a unique natural resource worthy of protection.

In addition, Miramar has designated the tract of land between U.S. 27 and Broward County Water Conservation Area 3A as a Conservation land use on its future land use map. This area includes approximately 800 acres of land. Limited uses are permitted in this land use category that do not impair the natural environment or further disturb the current natural ecosystem. The SFWMD uses this area as a buffer strip for the Everglades to control water levels.

Cultural Resources

Archeological sites are designated and protected as Broward County Local Areas of Particular Concern if they are identified as having local or regional site significance or preservation quality. There are five (5) conditions that can create significance for a site, and six (6) preservation quality rankings that determine the current state of the site. The Florida Master Site File contains a list of all adopted Local Area of Particular Concern - Archeological Sites. Currently, eight (8) sites have been designated in Miramar. Specific information regarding these sites is presented in Table 5-2 and their various locations are depicted in Figure 5-5.

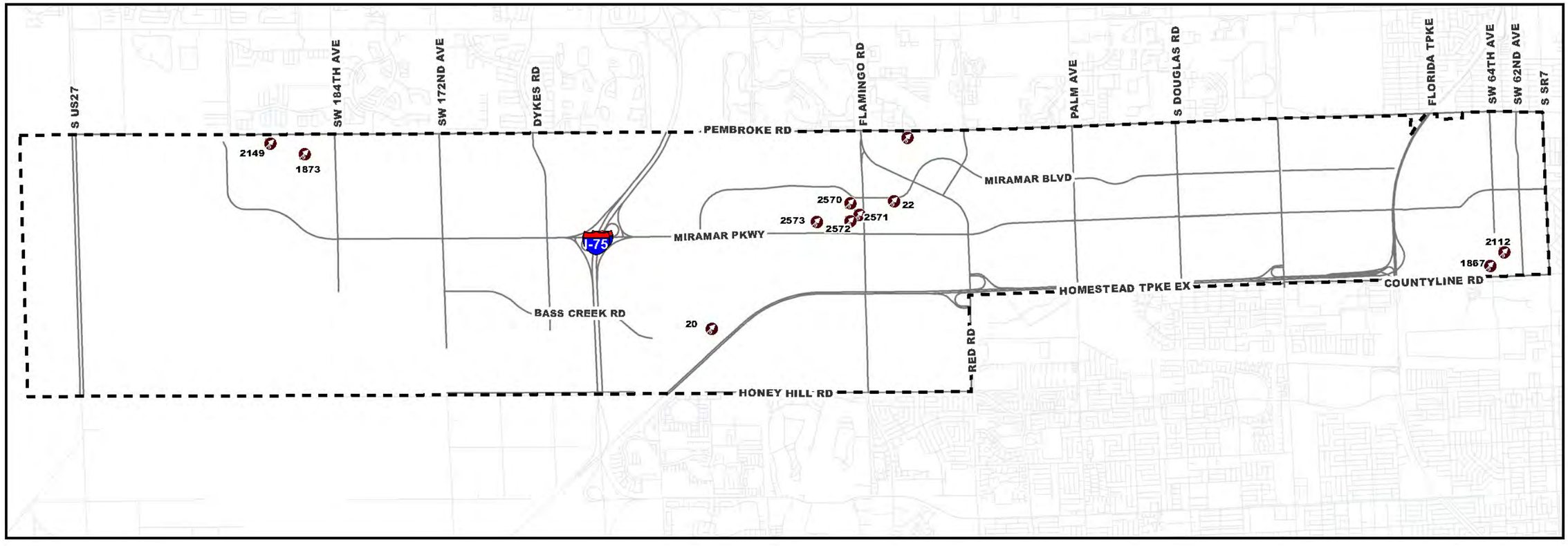
Table 5-2
Local Areas of Particular Concern
Archeological Sites

FLORIDA MASTER FILE SITE NUMBER	SITE NAME	SITE LOCA-TION	ENVIRONMENTAL SETTING	SITE TYPE	SITE FUNC-TION	PRESERVE QUALITY (1)
8BD20	C-9 Canal site	34-51-40	Everglades (tree island)	Midden	Habitation	4
8BD22	Pembroke Site	24-51-40	Everglades (tree island)	Black dirt midden	Habitation	3
8BD1867	Miramar Oaks	25-51-41	Everglades exposed limestone island	Island	Habitation, ceremonial	2
8BD2112	Miramar Oaks 2	25-51-41	Everglades limestone ridge	Midden	Habitation	3
8BD2570	Site #2420	26,27-51-40	Everglades (tree island)	Midden	Cemetery	3
8BD2571	N/A	27-51-40	Everglades (tree island)	Midden	Habitation	3
8BD2572	N/A	26,27-51-40	N/A	Midden	Habitation	1
8BD2573	N/A	26-51-40	N/A	Midden	Habitation	1

(1) Sites are given a preservation quality ranking on a scale ranging from one to six. One is an intact site that has had little or no surface disturbance. Six is a site that is covered by existing development.

Source: Florida Site File, Florida Division of Archives and Florida Department of State. Broward County Historical Commission. Ivey, Harris and Walls, Inc.

Figure 5-5: Archeological Sites



LEGEND

- CURRENTLY DESIGNATED SITES
- CITY LIMITS

Source: Florida Division of Archives and History

0 0.5 1 2 Miles

May 2010

B. Water Conservation Plan

The City of Miramar was required to develop and implement a Water Conservation Plan pursuant to its raw water withdrawal permit from the SFWMD. The key plan elements are as follows:

Permanent Irrigation Ordinance - An ordinance which restricts landscape irrigation to the hours between 4:00 p.m. to 10:00 a.m. seven days per week is in effect for the service area (Broward County Ordinance 36-55). The City of Miramar also requires that water used for irrigation be obtained from a non-potable supply, when possible.

Xeriscape Ordinance - An ordinance which requires the use of xeriscape landscape principles is in effect throughout the city (City Ordinance 93-4).

Ultra-Low Volume Plumbing Fixture Ordinance - An ordinance which requires ultra-low volume plumbing fixtures on all new construction is also enforced citywide (South Florida Building Code).

Water Conservation Rate Structure - The City has implemented a conservation-based water utility rate structure, which includes an increasing rate with increasing use, as a means of reducing demand.

Leak Detection Program - The City manages an unaccounted-for water and leak detection program, which includes water auditing procedures, infield leak detection efforts and repair. In 1997, unaccounted for water rose modestly to 21.5% of total water production and then dropped to 17.6% in 1998. Miramar's goal is to reduce unaccounted for water to below 10 percent within the next five (5) years. The SFWMD requires a month by month determination of unaccounted for losses to be submitted by the City on an annual basis.

Rain Sensor Device Ordinance - This City ordinance requires any person who purchases and installs an automatic lawn sprinkler system to have a rain sensor device which will override the irrigation system with the occurrence of adequate rainfall.

Water Conservation Education Program - The City distributes a regular newsletter to employees and customers. Information signs, press releases, and messages about water conservation in the City's utility bills are also utilized.

Reclaimed Water - The city currently transmits a portion of its wastewater within the service area to the City of Hollywood's Regional Wastewater Treatment Plant (WWTP), and the remainder to its new West WWTP. Miramar is also implementing a dual re-use system to use reclaimed, treated wastewater for irrigation and other appropriate uses. The City has programmed approximately $1.2 million in the 2000-2004 period to continue planning and construction of the "backbone" system, and is requiring developers to build dual re-use pipes into new projects and connect into the City's primary system.

VI. Recreation and Open Space Element

Introduction

South Florida residents have access to an abundance of natural recreation resources in the region. The Atlantic Ocean and its sandy beaches offer opportunities for boating, fishing, swimming and other marine activities. The Everglades, located on the western edge of Miramar, with its diverse plant and animal life provides wonderful opportunities for nature study.

The Broward County Land Use Plan requires that municipalities in Broward County provide a minimum of three (3) acres of local level parks for each 1,000 city residents. The City of Miramar has adopted a higher level-of-service standard of four (4) acres per 1,000.

The public agency primarily responsible for providing recreational opportunities and open space within the City of Miramar is the Department of Community Services which operates recreational programs for all city residents, and is responsible for the maintenance and improvement of all the municipal recreational lands and facilities.

A. Existing Conditions

Within the City limits and the immediate vicinity, there are a variety of public and private recreation sites available to Miramar residents. A listing of the existing and proposed park sites in Miramar along with an inventory of the facilities provided is contained in Table 6–1. Figure 6-1 shows the location of the larger, primary parks in the city.

City-Owned Recreational Facilities

The City currently owns 461.7 acres of park land. Of this total, approximately 364.6 acres are developed and there are 97.1 acres proposed. There are 71.8 acres of neighborhood parks, 120.7 acres of community parks, 172.1 acres of regional park land and 158 acres of open space. The City also operates recreation facilities of various types in its parks as shown in Table 6–2.

School and Church Joint-Use Sites

Through leasing arrangements with the County School Board and a local church, Miramar has supplemented its current usable park acreage with Sixteen (16) additional joint-use school sites which includes St. Bartholomew's Catholic Church/Forcina Field, which together provide 81.5 acres of active recreation facilities. The joint-use schools are:

Coconut Palm Elementary
Coral Cove Elementary
Dolphin Bay Elementary
Everglades High
Fairway Elementary
Glades Middle
Miramar Elementary

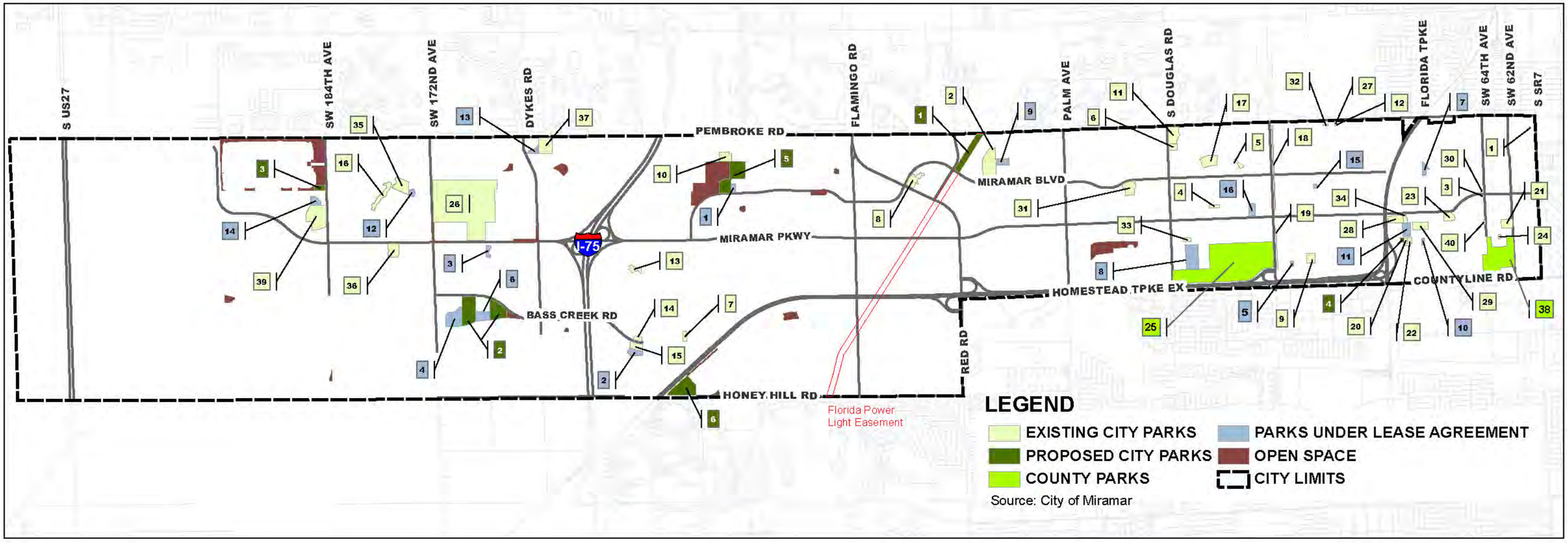
Miramar High
New Renaissance Middle
Perry Elementary
Perry Middle
Silver Lakes Elementary
Silver Shores Elementary
Sunset Lakes Elementary
Sunshine Elementary

Generally, the leasing arrangements allow city residents to use the facilities during periods when school and/or religious services are not in session.

County Park Sites

The County owns two (2) large preserve sites, Snake Warrior Island which is 55 acres and Miramar Pineslands totaling 159 acres. Snake Warrior Island is an important archeological preserve and the County has proposed plans to construct an Interpretive Center there; however the timing of this improvement has not yet been established. The Miramar Pinelands site is currently undeveloped and not accessible to the public. Miramar Pineslands was purchased as part of the County's Environmentally-Sensitive Lands (ESL) Program and the County is in the process of developing master plans for this and the other ESL sites countywide.

Figure 6-1: Parks and Facilities



EXISTING PARKS								
ID	PROPERTY	TYPE	ID	PROPERTY	TYPE	ID	PROPERTY	TYPE
1	19 St Park	Neighborhood	15	Huntington Park South	Neighborhood	29	Perry Park/Wellman Field	Neighborhood
2	Ansin Sports Complex	Community	16	Island Park	Community	30	Progress Park	Neighborhood
3	Beauty Park	Neighborhood	17	Lakeshore Park	Community	31	River Run Park	Neighborhood
4	Beekman Park	Neighborhood	18	Linear Park North	Neighborhood	32	Sawyer Park	Neighborhood
5	Bernard Park	Neighborhood	19	Linear Park South	Neighborhood	33	Sheraton Park	Neighborhood
6	Coceano Youth Center	Community Center	20	Miramar Aquatic Complex	Neighborhood	34	Shirley Branca Park	Neighborhood
7	Country Club Ranches Park	Neighborhood	21	Miramar Athletic Park	Community	35	Silver Lakes Sports Complex	Community
8	Cultural Arts Center	Community	22	Miramar Civic Center	Community	36	Silver Lakes Tennis Complex	Neighborhood
9	Fairway Park	Neighborhood	23	Miramar Multi-Service Center	Community Center	37	Silver Shores Park	Community
10	Flamingo Estates Park	Neighborhood	24	Miramar Isles Park	Neighborhood	38	Snake Warrior's Park	County
11	Forzano Field	Neighborhood	25	Miramar Pinelands	County	39	Sunset Lakes Park	Community Center
12	Frank Avalon Park	Neighborhood	26	Miramar Regional Park	Community Center	40	Veteran's Memorial Park	Neighborhood
13	Huntington Entrance Park	Neighborhood	27	Miramar Senior Center	Community Center			
14	Huntington Park North	Neighborhood	28	Miramar Youth Enrichment Center	Community Center			

PROPOSED PARKS		
ID	NAME	LOCATION
1	Ansin Parking	Miramar Blvd
2	Country Lakes Park	Bass Creek Rd
3	Harbour Lakes Park	SW 185 Ave
4	Miramar Civic Center Exp	SW 35 St
5	Monarch Lakes	Monarch Lakes Blvd
6	Vizcaya Park	14200 SW 55 St

PARKS UNDER LEASE AGREEMENT			
ID	NAME	ID	NAME
1	Coconut Palm Elementary	9	New Renaissance Middle
2	Coral Cove Elementary	10	Perry Elementary
3	Dolphin Bay Elementary	11	Perry Middle
4	Everglades High	12	Silver Lakes Elementary
5	Fairway Elementary	13	Silver Shores Elementary
6	Glades Middle	14	Sunset Lakes Elementary
7	Miramar Elementary	15	Sunshine Elementary
8	Miramar High	16	Forcina Field

COMMUNITY GIS DEVELOPMENT

0 0.5 1 2 Miles

May 2010

Table 6.1
Existing and Planned Public Parks and Facilities

Name	Location	Classification	Acreage	Owner	Use	Description of Facilities
19 St Park	SW 19 St/60 Ter	N	0.3	City	Activity	1 playground
Ansin Parking	Miramar Blvd/Hiatus Rd	C	14	City	Proposed	Proposed for overflow parking
Ansin Sports Complex	10801 Miramar Blvd	C	24.6	City	Activity	Recreation center; 4 baseball fields; playground; 1 track/stadium;1 playground; 1 netball court; 3 basketball courts; 1 cricket field
Beauty Park	Miramar Pkwy/SW 64 Ave	N	0.3	City	Passive	
Beekman Street Park	Beekman St/Tara Rd	N	1.8	City	Activity	1 basketball court; 1 playground
Bernard Park	2350 S Sherman Cir	N	1.5	City	Activity	1 playground
Coceano Youth Center	2001 Douglas Rd	C	3.2	City	Activity	Early Childhood Center
Coconut Palm Elementary	13601 Monarch Lakes Blvd		4	School Board	Activity	2 basketball courts
Coral Cove Elementary	5100 SW 184 Ave		2.5	School Board	Activity	2 basketball courts
Country Club Ranches Park	4700 SW 143 Ave	N	2.3	City	Activity	1 playground; 1 pavilion; 1 recreation center
Country Lakes Park	Bass Creek Rd	C	35.4	City	Proposed	Undeveloped
Cultural Arts Center	2100 Civic Center Pl	C	7.3	City	Activity	Cultural Arts Center, botanical garden, jogging path with exercise stations
Dolphin Bay Elementary	16450 Miramar Pkwy		2.5	School Board	Activity	2 basketball courts

Everglades High	17100 SW 48 Ct		15.5	School Board	Activity	1 track; 2 baseball fields; 8 tennis courts; 4 basketball courts
Fairway Park	3700 Largo Dr	N	5	City	Activity	1 basketball court; 1 tennis court; 4 paddleball courts; fitness trail; playground; community center; communiy garden
Flamingo Estates Park	2000 SW 137 Way	N	6.7	City	Activity	1 tennis court; 1 football/soccer field;1 baseball field; 1 playground; 1 volleyball court
Forcina Field	8001 Miramar Pkwy	N	4.7	Church	Activity	1 baseball/softball field; 1 soccer field; 1 basketball court
Forzano Park/	2001 Douglas Rd	N	9.7	City	Activity	3 baseball fields; 2 football/soccer fields; 1 Pavilion
Frankie Avalon Park	7667 Venetian St	N	0.2	City	Activity	1 gazebo;2 shuffleboard courts
Glades Middle	16700 SW 48 Ct		8	School Board	Activity	1 track; 2 baseball fields; 4 basketball courts
Harbour Lakes Park	SW 185 Avenue	N	2.8	City	Proposed	Undeveloped
Huntington Entrance Park	SW 148 Ave/Lakeside Dr	N	3.1	City	Resource	Passive use
Huntington Park North	14851 Bass Creek Rd	N	1.9	City	Resource	1 playground
Huntington Park South	14850 Bass Creek Rd	N	5	City	Resource	1 tennis court; 1 basketball court; 1 playground; 1 pavilion
Island Park	2925 SW 178 Ave	N	8.1	City	Activity	1 playground; 2 pavilions
Lakeshore Park	8501 S Sherman Cir	C	9.4	City	Activity	8 tennis courts; 4 paddleball courts; 1 netball court; 2 basketball courts; 1 pavilion
Linear Park North	Utopia Dr	N	3.1	City	Resource	Jogging Trail
Linear Park South	Utopia Dr	N	2	City	Resource	Jogging Trail
Miramar Pinelands	University Dr	C	158.2	County	Resource	Preserve; undeveloped
Miramar Aquatic Complex	6920 SW 35 St	C	1.3	City	Activity	Pool Complex
Miramar Athletic Park	6200 SW 33 St	C	5.8	City	Activity	3 baseball fields; 1 football field

Miramar Civic Center	6920 SW 35 St	C	2.5	City	Activity	Recreation center; early childhood center
Miramar Civic Center Expansion	6920 SW 35 St	C	1	City	Proposed	Old PBA Building
Miramar Elementary School	6831 SW 26 St		3.6	School Board	Activity	2 basketball courts
Miramar High	3601 SW 89 Ave	C	16.5	School Board	Activity	3 baseball fields; 3 tennis courts; 2 basketball courts; 1 tennis courts; 1 football/soccer field; 2 basketball courts; 1 track
Miramar Isles Park	SW 35 St/SW 63 Ave	N	0.6	City	Activity	1 playground; 1 basketball court
Miramar Multi-Service Center	6700 Miramar Pkwy	C	4.7	City	Activity	Recreation Center; Early Childhood Center
Miramar Regional	16801 Miramar Pkwy	R	172.1	City	Activity	Under development
Miramar Senior Center	7667 Venetian St	C	0.4	City	Activity	Recreation Center; Community Center
Miramar Youth Enrichment Center	7000 Miramar Pkwy	C	6.5	City	Activity	Recreation Center; 2 basketball courts; 1 gymnasium, 6 tennis courts
Monarch Lakes Park	Monarch Lakes Blvd	C	23.9	City	Proposed	Undeveloped
New Renaissance Middle	10701 Miramar Blvd		5.9	School Board	Activity	2 basketball; 4 tennis courts;1 track
Perry Elementary	6850 SW 34 St		2.1	School Board	Activity	1 basketball court
Perry Middle School	3400 Wildcat Way	N	2.1	School Board	Activity	5 tennis courts; 1 track; 2 basketball courts; 6 racquetball courts
Perry/Wellman Park	SW 33 St/SW 69 Ave	N	6.6	City	Activity	1 baseball field; 2 soccer fields
Progress Park	Miramar Pkwy/SW 64 Ave	N	0.5	City	Activity	Passive use
River Run Park	9400 Miramar Blvd	N	8.2	City	Resource	1 tennis court; 2 racquetball/paddleball courts; 1 playground; 1 fishing dock; 2 pavilions; trail
Sawyer Park	Venetian St/Island Dr	N	0.5	City	Activity	1 playground;

Sheraton Park	8500 Sheraton Dr	N	1.5	City	Activity	1 basketball court; equipped; 1 playground
Shirley Branca Park	6900 Miramar Pkwy	N	1.8	City	Activity	1 pavilion
Silver Lakes Elementary	2300 SW 173 Ave		2.3	School Board	Activity	2 basketball courts
Silver Lakes Sports Complex	17450 SW 23 St	C	10.3	City	Activity	5 baseball fields
Silver Lakes Tennis Complex	3302 SW 176 **Ter**	N	8.3	City	Activity	8 lighted tennis courts
Silver Shores Elementary	1701 SW 160 Ave		2.6	School Board	Activity	2 basketball courts; 1 baseball field
Snake Warrior's Island	SW 62 Ave/SW 35 Ct	C	54.7	County	Resource	Preserve
Sunset Lakes Elementary	18400 SW 25 St		4.1	School Board	Activity	2 basketball courts; 1 baseball field
Sunset Lakes Park	3601 SW 186 Ave	C	24	City	Activity	Under design: community center/gymnasium; 4 soccer/football fields
Veterans Memorial Park	6200 SW 33 St	N	0.6	City	Resource	Monument; 2 picnic benches
VizcayaPark	14200 SW 55 St	C	20	City	Proposed	Under design

Table 6-2
Miramar Owned/Operated Recreation Facilities

Facility	Number	Number of Sites
Pavilions	17	11
Playgrounds	20	19
Fishing Docks	4	3
Swimming Pools	2	2
Cultural Arts Center	1	1
Early Childhood Centers	4	4
Recreation Centers	8	8
Paddleball Courts	10	3
Netball Courts	2	2
Basketball Courts	20	13
Indoor Gymnasium	2	2
Track/Stadium	1	1
Volleyball Courts	9	4
Baseball Fields	16	7
Crickett	3	2
Tennis Courts	29	8
Football/Soccer Fields	16	8

B. Analysis of Existing Conditions

Park Facility Types

Parks are typically defined according to land area, equipment and facilities and population served. The general classification of park facilities is as follows:

Neighborhood Park
Community Park
Urban Open Space
Regional Park
School/Church

Table 6–3 presents the defining characteristics of each of the above park types.

Table 6-3

Site Guidelines For Community Outdoor Recreation Resources and Facilities

Park Facility	Location	Service Area / Population Served	Area per 1000 Population	Park Adjoining School	Separate Park	Facilities
Neighborhood Park	Neighborhood area adjacent to elementary school when feasible	1/4 ~ 1/2 miles / up to 5,000	2 acres	Min. of 2 acres	Min. of 5 acres	Play apparatus area, recreation buildings, sports fields, paved multi-purpose courts, senior citizens area, picnic area, open or free play area, landscaping
Community Park	Designed to serve residents of a group of neighborhoods adjacent to Jr. and Sr. high school when feasible	1/2 ~ 3 miles / up to 5,000	2 acres	Min. of 5 acres	Min. of 20 acres	All the facilities found in a neighborhood park plus facilities to service the entire family. Pools, softball/baseball fields, tennis courts, play areas, picnic areas, passive and active recreation building
Urban Open Space	Urban areas	1/4 ~ 1/2 mile	1 acres	-	Min. of 1/10 acre	Passive recreation area, trails, commemorative structures optional
Regional Park	On the periphery of an urban area	30 minutes to 1 hour driving time / over 100,000	20 acres	-	Min. of 250 acres upward to several thousand acres	Camping, nature and bridle paths, picnicking, and other facilities not requiring intensive developing

Level-of-Service Standards

The Comprehensive Plan establishes a level-of-service for local parks of four (4) acres per 1,000 population. It also sets minimum standards for recreation facilities based on the 2008 State Comprehensive Outdoor Recreation Plan (SCORP), which are shown in Table 6–4.

Table 6-4 2010 City-Wide Existing vs. Required Facility Quantities by Type				
Activity	**Facility Type**	**Current Number of Facilities In 2010**	**Required Number of Facilities Now**	**Selected SCORP Population Served**
Pavilion	Picnic Area	17	22.2	5,000
Baseball/Softball	Field	27	22.2	5,000
Basketball Court	Court	20	22.2	5,000
Community Building/Game Room (Recreation Center)	Community Facility	8	11	10,000
Football/Soccer/Rugby	Field	17	18.5	6,000
Racquetball/Handball/Paddleball	Court	22	11	10,000
Swimming Pool	Pool	2	2.2	50,000
Tennis	Court	37	55.4	2,000
Volleyball Court	Court	5	9.2	12,000
Fishing	Fishing Dock	4	-	
Playground		20	-	
Early Childhood Center		4	-	
Netball Court		2	-	
Indoor Gymnasium		2	-	
Track Stadium		1	-	
Cricket		3	-	
Cultural Arts Center		1	-	
Source: State of Florida SCORP, 2008				

C. Future Park and Recreation Needs

Park Land

Citywide Acreage Needs

A summary of the park acreage required to serve the existing and projected city population is provided below in Table 6–5. The population figures were obtained from the Future Land Use Element. The existing/committed park acreage was calculated based on the standards in the Broward County Land Use Plan which are adopted by reference in the Miramar Comprehensive Plan.

Table 6.5
City of Miramar Future Park Land Needs

	Population	Required Park Acreage*	Existing/Committed Park Acreage	Surplus/Deficit (in acres)
2010	115,753**	463	675	212
2015	129,180	517	675	158
2020	142,313	569	772***	203
2025	154,436	618	772	154

* Based on adopted LOS standard of 4 park acres/1000 population
** Bureau of Economic and Business Research, University of Florida
***Year 2020 Projection of park build out (addition of 97.1 Acres)

The existing/committed park acreage for 2010 identified in Table 6–5 includes the following:

All developed/committed parks owned by the City.
Thirteen (13) school sites that are leased for joint-use by the City.
Forcina Park located at St. Bartholomew Church and leased for joint-use by the City.
Credit (31 acres) for portion of Miramar Country Club (15% of required park acreage).
Miramar Pinelands (159 acres)
Snake Warrior Island Park (55 acres)
Ansin Park Parking Expansion (14 acrea)
Miramar Civic Center Expansion/Old PBA Building (1.0 acres)
Country Lakes Park/Riviera Isles (43.73 acres)
Harbour Lakes Park (2.85 acres)

Monarch Lakes Park (19.15 acres)
Vizcaya Park/Bluegrass Lakes (20.0 acres)
19 Street Park (acreage unknown)

The Year 2015 park acreage assumes all facilities accounted for in the Year

Table 6-5 shows the City currently (2010) has a surplus of 212 acres in developed and committed park acreage and, with the construction of programmed and planned park improvements over the planning period, this surplus should expand to approximately 124 acres by year 2020 and 154 acres by the year 2025. In addition, it is expected that Broward County will develop Miramar Pinelands for passive public use in the next 5-10 years which should generate an additional 15.9 acres in local park credit (10% of total site size) for Miramar

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Recreation Facilities

was deleted as the information in included in Table 6-1 which compares the number of recreation facilities provided by type in the City parks compared with to the requirement for each type of facility..

Greenways

The City of Miramar has several important existing park and open space elements which can be considered greenways. Linear Park spans approximately 1.5 miles of University Drive from Pembroke Road south to Countyline Road. This park is essentially a green pedestrian pathway fronting on Canal 1 along the east side of University with shaded benches, exercise trails and

landscaped open water view areas. Island Park in the Silver Lakes development, offers a similar potential for greenway inter-connection. It spans approximately 1,600 feet in length and connects Silver Lakes Park with a public school site.

Over the planning period, the City will work with FDOT, Broward County and neighboring municipalities to enhance greenway opportunities within Miramar, as well as, interconnect the city's system to any regional greenway projects which are planned and implemented.

Programmed Improvements 2010-2014

Based on the needs assessment presented thus far in the element, the City has planned and programmed park and recreation improvements for specific sites over the year 2010-2014 period in order to maintain the adopted park level-of-service standard. These improvement projects are shown in Table 6-10.

Table 6-10
Proposed Park Facilities Improvements
FY 2010-2014

Project Title	FY 2010	FY2011	FY2012	FY 2013	FY2014	Total
Miramar Regional Park Phase III	$ -	$ -	$350,000	$4,409,000	$ -	$4,759,000
Total	$ -	$ -	$350,000	$4,409,000	$ -	$4,759,000

These projects are described below The only project proposed is described below. Funding is programmed to come from several sources including the City's capital and general funds, and developer contributions.

Miramar Regional Park

This project will provide 2 more baseball/softball fields, pavilions, picnic areas and additional parking area**.**

VII. Intergovernmental Coordination Element

A. Existing Conditions

The City of Miramar interacts with a plethora of local, regional, state and federal agencies and entities in order to coordinate land use issues, infrastructure and service provision. For example, the City of Miramar interacts with the Florida Department of Transportation, the Metropolitan Planning Organization and Broward County directly and ad hoc on an as needed basis in the planning, construction, and maintenance of City roads. Table 7-1 details the agencies and types of coordination mechanisms with each.

The City's borders are adjacent to two other municipalities, unincorporated Broward and Miami-Dade counties, and Broward County Water Conservation Area 3A. The two local municipalities north of Miramar include the cities of Hollywood and Pembroke Pines. The Water Conservation Area 3A is managed by the South Florida Water Management District (SFWMD).

Adjacent Municipalities
The City has unofficial reciprocal agreements with the cities of Hollywood and Pembroke Pines and Broward County to provide notification of zoning alterations and land use amendments within 600 feet of common boundaries. No such agreement has been established with Miami-Dade County.

Several interlocal agreements exist with Hollywood for the provision of public services such as potable water and wastewater treatment. The Hollywood Housing Authority also provides Section 8 rental assistance to a small number of eligible Miramar residents.

Broward County
The numerous services provided to Miramar by Broward County include establishing levels of service standards for public facilities, supplying additional services to meet deficiencies, and providing forums for coordination with other municipalities in the County.

B. Intergovernmental Structure

Table 7-1 summarizes Miramar's intergovernmental relationships by subject area and the listing immediately following the table describes the responsibilities of each agency.

Table 7-1
Intergovernmental Agencies

Subject	Entity	Coordinating Mechanism	Relationship	Office of Primary Responsibility
Coordinate Utilities, Construction, Locate Easements	Cable TV - TCI and Telemedia	Utility Coordinating Committee, DRC	Committee Member	Utility Coordinating Committee
Coordinate Utilities, Construction, Locate Easements	City Gas Co.	Utility Coordinating Committee, DRC	Committee Member	Utility Coordinating Committee
Coordinate Utilities, Construction, Locate Easements	Florida Power and Light Company	Utility Coordinating Committee, DRC	Committee Member	Utility Coordinating Committee
Coordinate Utilities, Construction, Locate Easements	Southern Bell	Utility Coordinating Committee, DRC	Committee Member	Utility Coordinating Committee
Wastewater Treatment	City of Hollywood Public Works Dept.	Interlocal Agreement	Ad Hoc Contact	Miramar Public Works Dept.
Water & Air Quality, Dredge & Fill Permits	DNRPEP	Monthly DNRP Meetings	Ad Hoc Contact	DNRPEP
Water Supply System; Septic Tank Permits	Broward County Public Health Unit	Permitting Process	Ad Hoc Contact	Broward County Public Health Unit
Wellfield Protection	Broward County Water Resources Management Division	Water Advisory Board DNRP	Ad Hoc Contact	DNRP
Wetlands	FL Department of Natural Resources Environmental Protection; DNRPEP	Permitting Process	Ad Hoc Contact	FDNREP

Table 7-1
Intergovernmental Agencies

Subject	Entity	Coordinating Mechanism	Relationship	Office of Primary Responsibility
Growth Management - Local Planning	Broward County Planning Council	Land Use Plan Certification and Amendment Processes	Broward County Charter	Miramar Planning Manager
Growth Management - DRI Process	South Florida Regional Planning Council	Comprehensive Planning and DRI Processes	Broward County Appointees	SFRPC
Growth Management - Comprehensive Planning	Florida Department of Community Affairs	Comprehensive Planning and DRI Processes	Ad Hoc Contact	DCA
Historical and Archaeological Sites	Broward County Historical Commission	Land Use Plan Certification and Amendment Processes	Broward County Charter	BCHC
Historical and Archaeological Sites	Florida Department of State, Division of Historical Resources	Comprehensive Planning and DRI Processes	Ad Hoc Contact	Division of Historical Resources
Land Use, Roads	Broward County Planning Council	Trafficways Plan	Broward County Charter	Miramar Planning Manager
Land Use, Roads, Interlocal Agreements	Broward County	TAC, TCC, CCLG	Committee Member	Miramar Planning Manager
Land Use, Roads	Dade County	SFRPC	Represented on SFRPC by Broward County Appointees	SFRPC
Land Use, Roads	City of Hollywood	TAC, TCC, CCLG Interlocal Agreements	Committee Member	Miramar Planning Manager

Table 7-1
Intergovernmental Agencies

Subject	Entity	Coordinating Mechanism	Relationship	Office of Primary Responsibility
Land Use, Roads	City of Pembroke Pines	TAC, TCC, CCLG Interlocal Agreements	Committee Member	Miramar Planning Manager
Potable Water; Solid Waste	Broward County Office of Env. Services	Interlocal Agreements	Ad Hoc Contact	Public Works Dept.
Regional Parks	Broward County Parks & Recreation Division	Parks Advisory Board	Represented on committee by County Commission appointees	Broward County Parks & Recreation Division
School Locations, Lease Agreements	Broward County School Board	Tech. Advisory Comm., Interlocal Agreements	Ad Hoc Contact	City Planning Dir. and Comm. Services Dept.
Stormwater Management	South Broward Water Control Drainage District	Monthly Meeting	Board of Supervisors elected by landowners	SBWCDD
Stormwater Management, Dredge and Fill Permits	SFWMD	Permitting Process	Ad Hoc Contact	SFWMD

Table 7-1
Intergovernmental Agencies

Subject	Entity	Coordinating Mechanism	Relationship	Office of Primary Responsibility
Transportation Network	Broward County Planning Council	Broward County Trafficways Plan	Broward County Charter	Miramar Planning Manager
Transportation Plans; Transit Planning	Broward County MPO; Broward County Transit Planning	Monthly MPO Meetings	TCC Member	DPEP; TCC
Transportation	FDOT	MPO	MPO representation by Broward Commissioners and Ad Hoc Contact	DPEP

Table Note: Acronyms used in Table 7-1 are defined in the agency listing beginning on the next page.
Sources: Ivey, Harris & Walls, Inc.; HBI Planning Services, Inc.; City of Miramar staff.

Public Service Organizations

Broward County Department of Strategic Planning and Growth Management (DSPGM) Environmental Protection (DPEP)- This Office serves as the County's planning agency for the Broward County Comprehensive Plan. It is composed of seven divisions, Development Management, Building and Permitting, Code and Zoning Enforcement, Community Development, Comprehensive and Neighborhood Planning, Planning Information Technology and Transportation Planning.

Broward County Department of Natural Resource Planning and Environmental Protection (DNRP) (DPEP)- The Florida Broward DNRP DPEP provides several environmental services to Broward County municipalities. Their offices include enforcement administration, air quality, biological resources, environmental monitoring, land use and permitting, pollution prevention and remediation and water resources.

Broward County Historical Commission - All archaeological sites are ranked by site significance and preservation quality and recorded by this commission.

Broward County Mass Transit Agency - This agency plans and operates the County's transit system in Broward County including bus routes, headways, and bus stop/shelter locations.

Broward County Office of Environmental Services (BCOES) - BCOES operates and maintains solid waste disposal facilities for the entire County, and provides potable water service to unincorporated Broward County and some municipalities. The northeast corner of Miramar is provided additional potable water service by this office.

Broward County Public Health Unit, Environmental Health Section- This unit is a branch of the Florida Department of Health and Rehabilitative Services that licenses mobile homes parks and recreational vehicle parks and provides routine inspections for health and safety in the parks.

Broward County School Board - The School Board plans, operates and maintains all public school facilities and services throughout the County.

South Broward Water Control Drainage District (SBWCDD) - The SBWCDD provides operation, maintenance and control of surface water elevations for drainage basins in south Broward County.

County Coordination Organizations

Broward County Development Review Committee (DRC) - This committee implements the Broward County Land Development Code ensuring that essential services are available and meet established minimum criteria.

Broward County Intergovernmental Affairs Office (IGA) - The IGA provides information that is in the best interest of the County to lobbyists and governmental agencies.

Broward County League of Cities Technical Advisory Committee (TAC) - This committee, sponsored by the Broward County League of Cities, provides an important forum for county municipalities to discuss and consider action on planning and other policy issues of general interest.

Broward County Legislative Delegation Office -This office serves as a communication resource between Broward county citizens and federal, state and local governments.

Broward County Planning Council (PC) - This Council updates and regulates the County's land use plan. It also certifies and recertifies land use plans for municipalities in Broward County, and maintains the Broward County Trafficways Plan.

City/County Liaison Group (CCLG) - This coordinating group brings together local elected officials to discuss issues and solve problems of local governments. Transportation is a major issue for this group.

Metropolitan Planning Organization (MPO) - This organization coordinates transportation plans, programs and projects within Broward County. The Technical Coordinating Committee is the advisory body comprised of representatives from the municipalities.

Water Advisory Board (WAB) - WAB consolidated the Water Supply Advisory Board and the Water Resources Advisory Committee in 1992. This committee addresses water supply, water resource management and wellfield protection.

Miami-Dade County

No formal agreements exist with Miami-Dade County. However, the City does coordinate with Miami-Dade County on DRI amendments, future land use amendments and transportation improvements relating to areas and facilities affecting lands under County jurisdiction.

Independent Special Districts

Special Assessment Districts have been created in Miramar to require concurrency and development of necessary public facilities. There is a Water and Wastewater Assessment Area in central Miramar, administered by the City's Public Works/Utilities Department.

Water Management District

South Florida Water Management District (SFWMD) - The District provides initiatives and programs to regulate the quality of and the efficient usage of groundwater and surface water in south Florida. This includes conservation programs, designations of high and prime recharge areas, and permitting raw water withdrawals and on-site stormwater management systems.

Regional Planning Agencies

South Florida Regional Planning Council (SFRPC) - The Council was established to coordinate regional planning and growth management between Broward, Miami-Dade and Monroe Counties. Each County has appointees on the Council to represent their municipalities.

State Agencies

Florida Agency for Health Care Administration, Division of Health Quality Assurance - The agency licenses all state Assisted Living Facilities, formerly known as Adult Congregate Living Facilities, and Adult Day Care Centers.

Florida Department of Environmental Protection (FDEP) - This department has a Groundwater Quality Monitoring Network that provides information on specific wells located throughout the State. It is also responsible for the Florida Natural Areas Inventory - Ecologically significant areas are identified by this organization to be considered in the protection planning process, including Red Road, Pembroke Road, University Drive, US 27, I-75, Florida's Turnpike, and State Road 7 in the City of Miramar.

Florida Department of Health and Rehabilitative Services (HRS) - Among many responsibilities, HRS licenses group homes.

Florida Department of State, Division of Historical Resources - This office records all historical standing structures and other sites of distinction in the Florida Master Site File.

Florida Department of Transportation (FDOT) - This department provides for the planning, construction and maintenance of interstate and many intrastate roads throughout Florida.

Florida Division of the U.S. Department of Agriculture, Soil Conservation Survey - This state agency is located in Jacksonville and provides soil surveys and related services for counties within Florida.