Sponsored by: Hernstadt

Introduction Date: April 18, 2011 Public Hearing Date: April 26, 2011

May 10, 2011

Enactment date: May 10, 2011

CITY OF MARATHON, FLORIDA ORDINANCE 2011-05

AN ORDINANCE OF THE CITY OF MARATHON, FLORIDA APPROVING THE CITY'S "10-YEAR WATER SUPPLY FACILITIES WORK PLAN" AND ATTENDANT POLICY CHANGES AS REQUIRED BY THE STATE DEPARTMENT OF COMMUNITY AFFAIRS UNDER CHAPTER 163, PART II, F.S.; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF CONFLICTING PROVISIONS; PROVIDING FOR TRANSMITTAL OF THIS ORDINANCE TO THE STATE DEPARTMENT OF COMMUNITY AFFAIRS; AND PROVIDING FOR AN EFFECTIVE DATE UPON THE APPROVAL OF THIS ORDINANCE BY THE STATE DEPARTMENT OF COMMUNITY AFFAIRS

WHEREAS, the City of Marathon recognizes the vital role of fresh water in perpetuating human habitation; and

WHEREAS, the City of Marathon receives all of its fresh water resources through the Florida Keys Aqueduct Authority (FKAA); and

WHEREAS, the City of Marathon recognizes the importance of the management, protection, and conservation of all water resources within its boundaries; and

WHEREAS, the proposed plan will provide additional support, in accordance with federal guidelines and regulations, ensuring that its citizens and businesses will be allowed continued use, enjoyment, and benefits from the water resources within the City of Marathon; and

WHEREAS, the proposed ordinance will provide the opportunity for the City to come into compliance with statutory mandate,

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MARATHON, FLORIDA, AS FOLLOWS:

Section 1. The above recitals are true, correct, and incorporated herein by this reference.

Section 2. Council hereby approves and adopts the City of Marathon, Florida 10-Year Water Supply Facilities Work Plan as a stand alone addendum to the City of Marathon Comprehensive Plan and the following policies as enumerated, renumbering existing objectives and policies accordingly:

Additions to existing text are shown by <u>underline</u>, changes to existing text on second reading are shown by <u>double underline</u>, and deletions are shown as strikethrough.

Objective 3-5.1: Adopt a 10-Year Water Supply Facilities Work Plan.

The City of Marathon shall adopt a 10-Year Water Supply Facilities Work Plan in coordination with the Florida Keys Aqueduct Authority that identifies existing and proposed alternative water supply projects, traditional water supply projects, conservation methods and reuse necessary to meet the water supply needs of the City, consistent with the South Florida Water Management District Lower East Coast Regional Water Supply Plan and the Florida Keys Aqueduct Authority 20-Year Water Supply System Capital Improvement Master Plan.

Policy 3-5.1.1: Ensure Existing Concurrency for Management System is Consistent with SFWMD's Lower East Coast Water Supply Plan:

The City of Marathon shall ensure that the existing concurrency management system is consistent with the South Florida Water Management District Lower East Coast Water Supply Plan and the Florida Keys Aqueduct Authority 20-Year Water Supply System Capital Improvement Master Plan.

Policy 3-5.1.2: Interlocal Agreement with FKAA to Identify the Availability of Water Supply to Serve Existing and New Development.

By December 31, 2011 the City of Marathon shall enter into an interlocal agreement with the Florida Keys Aqueduct Authority to formulate a mechanism that will allow the FKAA and the City to identify the availability of water supply needed to serve existing and new development within the City, monitor the use of potable water, and implement such alternative water supply projects, traditional water supply projects, conservation projects and reuse necessary to meet the City's water supply needs.

Policy 3-5.1.3: Ensure Adequate Water Supply for New Development.

Prior to the issuance of a building permit for new development, the City shall receive written notification from its water utility, the Florida Keys Aqueduct Authority that adequate water to serve the new development will be available no later than the anticipated time that a certificate of occupancy is to be issued.

Policy 3-5.1.4: Update 10-Year Water Supply Facilities Work Plan.

The City of Marathon shall update the 10-Year Water Supply Work Plan every five years or within 18 months after the government board of the South Florida Water Management District approves an updated regional water supply plan.

- **Section 3.** The provisions of the City of Marathon Comprehensive Plan and all ordinances or parts of ordinances in conflict with the provisions of this Ordinance are hereby repealed for the term of this Ordinance.
- **Section 4.** The provisions of this Ordinance are declared to be severable, and if any sentence, section, clause or phrase of this Ordinance shall, for any reason, be held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining sentences, sections, clauses or phrases of the Ordinance, but they shall remain in effect it being the legislative intent that this Ordinance shall stand notwithstanding the invalidity of any part.
- **Section 5.** The provisions of this Ordinance constitute a "land development regulation" as state law defines that term. Accordingly, the City Clerk is authorized and directed to forward a copy of this Ordinance to the State Department of Community Affairs for approval pursuant to Sections 380.05(6) and (11), Florida Statutes.
- **Section 6.** This Ordinance shall be effective immediately upon approval by the State Department of Community Affairs pursuant to Chapter 380, Florida Statutes.

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PASSED AND ADOPTED ON SECOND READING the 10th day of May, 2011.

THE CITY OF MARATHON, FLORIDA

Ginger Snead, Mayor

AYES:

Ramsay, Keating, Worthington, Cinque, Snead

NOES:

None

ABSENT:

None

ABSTAIN:

None

ATTEST:

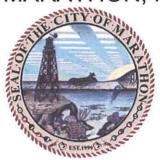
Diane Clavier

City Clerk

APPROVED AS TO FORM AND LEGAL SUFFICIENCY FOR THE USE AND RELIANCE OF THE CITY OF MARATHON, FLORIDA ONLY:

City Attorney

CITY OF MARATHON, FLORIDA



10-YEAR WATER SUPPLY FACILITIES WORK PLAN

Prepared For:

Florida Department of Community Affairs

Prepared By:

City of Marathon Planning Department

April 2011

TABLE OF CONTENTS

1.0 INTRODUCTION

- 1.1 Statutory History
- 1.2 Statutory Requirements

2.0 BACKGROUND INFORMATION

- 2.1 Overview
- 2.2 Relevant Regional Issues

3.0 DATA AND ANALYSIS

- 3.1 Population Information
- 3.2 Maps of Current and Future Areas Served
- 3.3 Potable Water Level of Service Standard (LOS)
- 3.4 Population and Potable Water Demand Projections by Each Local Government or Utility
- 3.5 Water Supply Provided by Local Government
- 3.6 Water Supply Provided by Other Entities
- 3.7 Conservation
 - 3.7.1 Countywide Issues
 - 3.7.2 Local Government Specific Actions, Programs, Regulations, or Opportunities
 - 3.7.3 Identify any Local Financial Responsibilities as Detailed in the CIE or CIS
- 3.8 Reuse
 - 3.8.1 Regional and Countywide Issues
 - 3.8.2 Local Government Specific Actions, Programs, Regulations, or Opportunities
 - 3.8.3 Identify any Local Financial Responsibilities as Detailed in the CIE or CIS

4.0 CAPITAL IMPROVEMENTS

- 4.1 Work Plan Projects
- 4.2 Capital Improvements Element/Schedule
- 5.0 GOALS, OBJECTIVES AND POLICIES

1.0 INTRODUCTION

The purpose of the City of Marathon Water Supply Facilities Work Plan (the "Work Plan") is to identify and plan for the water supply sources and facilities needed to serve existing and new development within Marathon's jurisdiction. Chapter 163, Part II, F.S., requires local governments to prepare and adopt Work Plans into their comprehensive plans within 18 months after the water management district approves a regional water supply plan or its update. The *Lower East Coast Water Supply Plan Update* was approved by the South Florida Water Management District (SFWMD) on February 15, 2007.

Residents of the City of Marathon obtain their water directly from the Florida Keys Aqueduct Authority (FKAA), which is responsible for ensuring that enough capacity is available for existing and future customers.

The City of Marathon's Work Plan will reference the data, projected supply and demand numbers, conservation initiatives and capital improvements already identified in the FKAA 20-Year Water System Capital Improvement Master Plan (the "Master Plan") since Marathon is a retail buyer and the FKAA is the sole provider of water to the City. According to state guidelines, the Work Plan and the comprehensive plan amendments must address the development of traditional and alternative water supplies, bulk sales agreements, conservation and reuse programs and concurrency issues that are necessary to serve existing and new development for at least a 10-year planning period. The Marathon Work Plan will address a 10-year planning period and identify projects from the FKAA Work Plan consistent with this planning period.

The City's Work Plan is divided into five sections:

Section 1 – Introduction

Section 2 – Background Information

Section 3 – Data and Analysis

Section 4 – Work Plan Projects/Capital Improvement Element/Schedule (FKAA)

Section 5 – Goals, Objectives and Policies

1.1 Statutory History

The Florida Legislature has enacted bills in the 2002, 2004, and 2005 sessions to address the state's water supply needs. These bills, especially Senate Bills 360 and 444 (2005 legislative session), significantly changed Chapter 163 and 373 Florida Statutes (F.S.) by strengthening the statutory links between the regional water supply plans prepared by the water management districts and the comprehensive plans prepared by local governments. In addition, these bills established the basis for improving coordination between the local land use planning and water supply planning.

1.2 Statutory Requirements

Each local government must comply with the following requirements:

- 1. Coordinate appropriate aspects of its comprehensive plan with the SFWMD's Lower East Coast Water Supply Plan, [163.3177(4)(a), F.S.]
- 2. Ensure that the Comprehensive Plan is based upon availability of adequate water supplies and public facilities and services [s.163.3177(6)(a), F.S., effective July 1, 2005]. Data and analysis demonstrating that adequate water supplies and associated public facilities will be available to meet projected growth demands must accompany all proposed Future Land Use Map amendments submitted to the Department for review. The submitted package must also include an amendment to the Capital Improvements Element, if necessary, to demonstrate that adequate public facilities will be available to serve the proposed Future Land Use Map modification.
- 3. Ensure that adequate water supplies and facilities area available to serve new development no later than the date on which the City of Marathon anticipates issuing a certificate of occupancy and consult with the applicable water supplier prior to approving building permits, to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy [s.163.3180 (2)(a), F.S., effective July 1, 2005].
- 4. For local governments subject to a regional water supply plan, revise the General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element (the "Infrastructure Element"), within 18 months after the water management district approves an updated regional water supply plan, to:
 - a. Identify and incorporate the alternative water supply project(s) selected by the local government from projects identified in the updated regional water supply plan, or the alternative project proposed by the local government under s. 373.0361(7), F.S. [s. 163.3177(6)(c), F.S.];
 - b. Identify the traditional and alternative water supply projects, bulk sales agreements, and the conservation and reuse programs necessary to meet current and future water use demands within the local government's jurisdiction [s. 163.3177(6)(c), F.S.]; and
 - c. Include a water supply facilities work plan for at least a 10-year planning period for constructing the public, private, and regional water supply facilities identified in the element as necessary to serve existing and new development. [s. 163.3177(6)(c), F.S.] Amendments to incorporate the water supply facilities work plan into the comprehensive plan are exempt from the twice-a-year amendment limitation. [s. 163.3177(6)(c), F.S.]
- 5. Revise the Five-Year Schedule of Capital Improvements to include any water supply, reuse, and conservation projects and programs to be implemented during the five-year period.
- 6. To the extent necessary to maintain internal consistency after making changes described in Paragraph 1 through 5 above, revise the Conservation Element to assess projected water needs and sources for at least a 10-year planning period,

considering the SFWMD's Lower East Coast Water Supply Plan, as well as the Florida Keys Aqueduct Authority's consumptive use permit. [s.163.3177 (6)(d), F.S.]

If the established planning period of a comprehensive plan is greater than ten years, the plan must address the water supply sources necessary to meet and achieve the existing and projected water use demand for established planning period, considering the appropriate regional water supply plan. [s.163.3167 (13), F.S.]

- 7. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 5 above, revise the Intergovernmental Coordination Element to ensure coordination of the comprehensive plan with applicable regional water supply plans and regional water supply authorities' plans. [s.163.3177(6)(h)1., F.S.]
- 8. Address in the Evaluation and Appraisal Report the extent to which the local government has implemented the 10-year water supply facilities work plan, including the development of alternative water supplies, and determine whether the identified alternative water supply projects, traditional water supply projects, bulk sales agreements, and conservation and reuse programs are meeting local water use demands. [s.163.3191 (2)(1), F.S.]

2.0 BACKGROUND INFORMATION

2.1 Overview

The City of Marathon was incorporated in 1999, making it the fifth municipality established in Monroe County. The islands of Marathon are Boot Key, Knight Key, Hog Key, Vaca Key, Stirrup Key, Crawl and Little Crawl Key, East and West Sister's Island, Deer Key and Fat Deer Key, Long Point Key and Grassy Key. The current permanent population estimate is 8,297 residents based on the Census 2010 data. The City of Marathon has a significant "seasonal visitor population" of approximately 5,078 people, according to numbers provided by the Monroe County Tourism Development Council. All of these population segments will utilize the City's potable water resources. The combined amount of all population segments represents the "functional population" of the City that will create a demand for water usage. For this Plan the functional population value is used in all per capita calculations and estimates.

The City of Marathon has a Building Permit Allocation System (BPAS) that limits new residential growth to 30 new units per year. The potential expansion of the City's current boundaries through annexations is possible, but not likely.

Tables 1, 2 and 3 show the City's permanent, seasonal and functional population projections through 2020.

TABLE 1:

Population Estimates and Projections, 2000 – 2020

Year	Total Units	Occupied Units	Persons Per Occupied Unit	Population
2000	6,791	4,597	2.19	10,067
2005	6,941	4,692	2.19	10,275
2010	6,187	3,718	2.23	8,297
2015	6,311	3,850	2.20	8,463
2020	6,437	3,927	2.20	8,632

Source: City of Marathon Comprehensive Plan Data, Inventory, and Analysis; Census 2010

TABLE 2: Seasonal Visitor Population Projections, 2000 - 2020

Year	Units	Occupancy Rate	Person/Unit	Population
2000	2,829	59.7%	2.92	4,931
2005	2,829	59.7%	2.92	4,931
2010	2,913	59.7%	2.92	5,078
2015	3,000	59.7%	2.92	5,229
2020	3,090	59.7%	2.92	5,386

Source: City of Marathon Comprehensive Plan Data, Inventory, and Analysis; Monroe County Tourism Development Council

TABLE 3: Functional Population of City and Service Area

Year	Functional Population City	Functional Population Service Area
2000	14,998	153,080
2005	13,541	155,438
2010	13,375	146,581
2015	13,541	148,043
2020	13,861	149,504

Source: City of Marathon Comprehensive Plan Data, Inventory, and Analysis; FKAA Master Plan; Census 2010

Existing Land Use Profile

The City has no current plans to acquire additional lands through annexation or purchase. Given the geographical constraint of a municipality composed of islands with finite room to accommodate growth, at some point the City will reach build out and the permanent population will cease to show any significant fluctuation. That said, the current economic downturn which began in 2008 has seen the City lose nearly 17% of its population since the 2000 Census. With this loss in mind, the City now has room for a marginal amount of population growth. The seasonal population may continue to fluctuate in the future due to economic forces such as the cost of gasoline, airfare and the ability to maintain a second or third home. The functional population, dependent on the seasonal population will continue to exhibit some change from year to year but will not continue to expand. The existing land use profile below indicates the land use categories and the percentage of gross acreage they utilize.

Existing Land Use Profile

PC Code	Description	Area (Square Feet)	Area (Acres)	<u>Units</u>	Building Size (Square Feet)	Density (DU/Acre)	FAR (SF/SF)
Single	Single-Family						
<u>01</u>	Single-Family	<u>28,616,961</u>	<u>657.0</u>	2,332	<u>n/a</u>	<u>3.5</u>	n/a
Mobile	e Homes					···	,
<u>02</u>	Mobile Homes	<u>2,920,737</u>	<u>67.1</u>	<u>501</u>	<u>n/a</u>	<u>7.5</u>	<u>n/a</u>
Multi-	Family	·					
<u>03</u>	Multi-family (10 units or more)	649,260	<u>14.9</u>	<u>5</u>	n/a	<u>0.3</u>	<u>n/a</u>
<u>04</u>	Condominum	3,977,718	91.3	<u>1268</u>	<u>n/a</u>	13.9	<u>n/a</u>
<u>05</u>	<u>Timeshare</u> Multi-family (less than	490,939	11.3	<u>6</u>	<u>n/a</u>	<u>0.5</u>	<u>n/a</u>
<u>08</u>	10 units)	8,752,444	<u>200.9</u>	<u>481</u>	<u>n/a</u>	<u>2.4</u>	<u>n/a</u>
Ψ	<u>Subtotal</u>	45,408,059	<u> 1042.5</u>	4593	n/a	<u>4.7</u>	<u>n/a</u>
Gener	al Commercial						r
11	Stores, One Story Mixed Use - Residential	1,102,215	<u>25.3</u>	<u>n/a</u>	228,050	n/a	0.2069
12	/ Commercial	1,735,231	<u>39.8</u>	<u>n/a</u>	291,578	<u>n/a</u>	0.1680
<u>13</u>	Department Store	444,312	10.2	<u>n/a</u>	91,738	<u>n/a</u>	0.2065
<u>14</u>	Supermarket Community Shopping	4,951	<u>0.1</u>	<u>n/a</u>	1,704	<u>ı√a</u>	0.3441
<u>16</u>	Center Snopping	938,120	<u>21.5</u>	<u>n/a</u>	385,075	<u>n/a</u>	0.4105

ı	Office Building, One	l	1		ı		
17	Story Office Building, Multi	795,035	18.3	<u>n/a</u>	85,322	<u>n/a</u>	0.1073
18	Story Professional Services	124,145	2.8	<u>n/a</u>	34,848	<u>n/a</u>	0.2807
19	Building	112,907	2.6	<u>n/a</u>	16,405	<u>n/a</u>	0.1453
21	Restaurant or Cafeteria	511,287	11.7	<u>n/a</u>	61,342	<u>n/a</u>	0.1200
22	Fast Food Drive Thru Restaurant	230,581	<u>5.3</u>	<u>n/a</u>	10,882	<u>n/a</u>	0.0472
23	Financial Institution	516,968	<u>11.9</u>	<u>n/a</u>	49,047	<u>n/a</u>	0.0949
<u>25</u>	Repair Shop (Not Automotive)	153,915	<u>3.5</u>	<u>n/a</u>	28,148	<u>n/a</u>	0.1829
<u>26</u>	Gas Station / Convenience Store	306,193	<u>7.0</u>	<u>n/a</u>	28,076	<u>n/a</u>	0.0917
27	Marinas	2,496,192	<u>57.3</u>	<u>n/a</u>	215,307	<u>n/a</u>	0.0863
29	Wholesale Outlet	285,051	<u>6.5</u>	<u>n/a</u>	42,067	<u>n/a</u>	0.1476
30	Florist or Greenhouse Nightclub or Lounge or	6,771	0.2	<u>n/a</u>	<u>706</u>	<u>n/a</u>	0.1043
33	Bar	28,428	0.7	<u>n/a</u>	15,255	<u>n/a</u>	0.5366
	Subtotal	9,792,301	225	<u>n/a</u>	1,585,550	<u>n/a</u>	0.1619
Comm	ercial Fishing						
44	Packing Plant, Seafood Etc.	<u>156,212</u>	<u>3.6</u>	<u>n/a</u>	<u>14,291</u>	<u>n/a</u>	0.0915
Touris	t Commercial				γ		
<u>36</u>	MH Parks, Pri. Camping, Rec. Parks	4,958,469.8	113.8	<u>n/a</u>	98,156	<u>n/a</u>	0.0198
<u>39</u>	Hotel or Motel	4,339,251	<u>99.6</u>	<u>n/a</u>	514,790	<u>n/a</u>	0.1186
	<u>Subtotal</u>	9,297,721	213.4	n/a	612,946	n/a	0.0659
Indust	<u>rial</u>		1				
41	Light Manufacturing	59,281	<u>1.4</u>	<u>n/a</u>	16,993	<u>n/a</u>	0.2867
42	Heavy Industrial	81,602	1.9	<u>n/a</u>	4,186	<u>n/a</u>	0.0513
43	Lumber Yard	35,252	0.8	<u>n/a</u>	10,500	<u>n/a</u>	0.2979
46	Other Food Processing	210,238	4.8	<u>n/a</u>	19,929	<u>n/a</u>	0.0948
47	Gravel Pit	1,961,060	<u>45.0</u>	<u>n/a</u>	3,200	<u>n/a</u>	0.0016
48	Warehousing	430,982	9.9	<u>n/a</u>	117,353	<u>n/a</u>	0.2723
<u>49</u>	Open Storage	70,841	<u>1.6</u>	<u>n/a</u>	2,412	<u>n/a</u>	0.0340
	<u>Subtotal</u>	2,849,257	<u>65</u>	<u>n/a</u>	<u>174,573</u>	n/a	0.0613
Educa							
	Private School or College / Research						
72	Conter Center	78,392	1.8	<u>n/a</u>	13,941	<u>n/a</u>	0.1778

I	1	I			1		
84	Public College	<u>371,928</u>	<u>8.5</u>	<u>n/a</u>	=	<u>n/a</u>	0.0000
83	Public School	1,936,589	44.5	<u>n/a</u>	226,274	<u>n/a</u>	0.1168
	Subtotal	2,386,908	<u>54.8</u>	<u>n/a</u>	<u>240,215</u>	<u>n/a</u>	0.1006
Institu	tional	7	,				
71	Church	1,159,277	<u>26.6</u>	<u>n∕a</u>	107,605	<u>n/a</u>	0.0928
73	Private Hospital	322,857	<u>7.4</u>	<u>n∕a</u>	28,826	<u>n/a</u>	0.0893
74	Nursing Home	<u>155,142</u>	<u>3.6</u>	<u>n/a</u>	22,434	<u>n/a</u>	0.1446
76	Mortuarie or Cemetery	14,821	0.3	<u>n/a</u>	4,560	<u>n/a</u>	0.3077
77	Club or Lodge	3,609,006	82.9	<u>n/a</u>	91,828	<u>n/a</u>	0.0254
<u>85</u>	Public Hospital	212,463	<u>4.9</u>	<u>n∕a</u>	62,467	<u>n/a</u>	0.2940
	Subtotal	5,473,568	<u>125.7</u>	<u>n/a</u>	317,720	<u>n/a</u>	0.0580
Public	Buildings/Grounds/Facilit	ies			,		
86	County (other than PC List)	18,152,665	416.7	<u>n/a</u>	350,256	<u>n/a</u>	0.0193
87	State (other than PC List) Federal (other than PC	26,310,450	604.0	<u>n/a</u>	75,943	<u>n/a</u>	0.0029
88	List) Municipal (other than	6,118,458	140.5	<u>n/a</u>	6,314	<u>n/a</u>	0.0010
89	PC List)	6,582,639	<u>151.1</u>	<u>n/a</u>	19,893	<u>n/a</u>	0.0030
91	<u>Utilities</u>	1,682,785	38.6	<u>n/a</u>	67,984	<u>n/a</u>	0.0404
94	Right of Way	4,960,710	113.9	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
	Subtotal	63,807,707	1,464.8	n/a	520,390	n/a	0.0082
Militar	<u>ry</u>	E	T				
81	Military	243,588	5.6	n/a	14,465	<u>n/a</u>	0.0594
Recrea	J		I		J		
38	Golf Course	2,523,868	<u>57.9</u>	<u>ı√a</u>	n/a	n/a	<u>n/a</u>
92	Private Park	1,020	0.0	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
_	Subtotal	2,524,888	<u>58</u>	n/a	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Conse	<u>rvation</u>						7,00,00,00
82	US Mainland Forest, Parks, Rec Area	1,663,142	38.2	<u>n/a</u>	2,784	<u>n/a</u>	0.0017
99	Nature Conservancy, Fl Keys Land Trust	3,917,739	<u>89.9</u>	<u>n/a</u>	10,282	<u>n/a</u>	0.0026
	Subtotal	5,580,881	<u>941.8</u>		13,066		0.0003
Vacan		,					
00	Vacant Residential	57,413,345	1,318.0	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>

10	Vacant Commercial	8,913,931	<u>204.6</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
70	Vacant Instituional	126,956	2.9	<u>n/a</u>	n/a	<u>n/a</u>	<u>n/a</u>
	Subtotal	66,454,232	1,525.6	n/a	<u>n/a</u>	n/a	n/a
			<u>-</u>				
	TOTAL	213,975,322	4,912.2	<u>.</u>			
Subm	erged		P				
95	Submerged Land	35,444,852	813.7	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	n/a
	TOTAL	249,420,173	<u>5,725.9</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>

Source: City Comprehensive Plan Data, Inventory, and Analysis - Future Land Use Section

2.2 Relevant Regional Issues

As the state agency responsible for water supply in the Lower East Coast planning area, the SFWMD plays a pivotal role in resource protection, through criteria used for Consumptive Use Permitting. As pressure increased on the Everglades ecosystem resource, the Governing Board initiated rule making to limit increased allocations dependent on the Everglades system. As a result, the Regional Water Availability Rule was adopted by the Governing Board on February 15, 2007 as part of the SFWMD's water use permit program. This reduced reliance on the regional system for future water supply needs, mandates the development of alternative water supplies, and increasing conservation and reuse.

3.0 DATA AND ANALYSIS

3.1 Population Information

The City's current and future population figures stated herein are derived from Monroe County Planning and Zoning Department, BEBR, and 2010 U.S. Census Data. Between 1990 and 2000, the City of Marathon's population grew from 10,404 to 10,741, an increase of 3.2%. Although the City's 2005 Objections, Recommendations, and Corrections Report (ORC) predicted a decline in population, based on the projections prepared by BEBR, in 2005 it was estimated that the City's population had increased to 10,850 residents. These estimates were revised downward for later years, leading to a BEBR-estimated population of 10,295 people in 2009. In spite of this marginal correction, these estimates stand in stark contrast to the latest census data, which became available to City Staff during the preparation of this report.

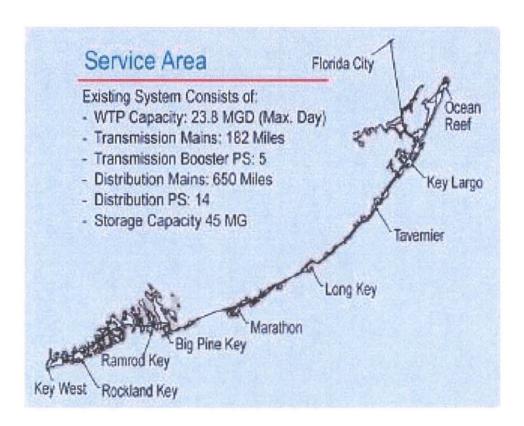
According to 2010 U.S. Census Data, the City's population had decreased to 8,297. Most of this decline occurred after 2005 as a result of the impacts of Hurricane Wilma and the 2008 downturn in the economy. Staff believes the population loss has troughed and that the City will begin to see an increase in population, albeit small and gradual. The City has no current basis upon which to project recovery and growth over the next five to ten years.

The City believes its efforts to promote hotel/motel development and redevelopment will help reverse the downward trend. Thus, we estimate a conservative baseline increase of two percent per five years. Using this baseline, population estimates for 2015 are 8,463; and 2025 to 8805 (this represents a decrease of 18 percent below the 2005 population estimates provided by BEBR). Dependent on actual economic recovery and redevelopment, this assumption of 2 percent growth may need to be adjusted.

3.2 Maps of Current and Future Areas Served.

The service area of FKAA includes all of Monroe County plus that area in Miami-Dade County within one mile of the transmission pipeline. The service area includes a mix of commercial, industrial, and residential zonings that typify the land uses of a suburban area. Minimal service exists in Miami-Dade County, consisting of service to only a ranger station just outside of the treatment plant. FKAA does not expect that the distribution facilities of the system will be significantly expanded in Miami-Dade County.

The map depicting current and future City boundaries served by the WASD are provided in Figure 1.



3.3 Potable Water Level of Service Standard

Pursuant to the Comprehensive Plan, the City has an adopted LOS for potable water of 66.5 gallons per day per capita for residential use and 0.35 gallons per square foot of nonresidential use and an overall LOS of 100 gpd per capita (See Table 6-3 Summary of Level of Service Standards, City of Marathon Comp Plan). Based on data provided by FKAA indicating actual consumption rates for the period of time 2000 – 2009, these LOS

standards are adequate. The daily water use in the City in 2005 was 110 gallons per capita per day. If the 2005 functional population was 13,541, then 900,477 gallons per day or more of water supply capacity is required to meet the adopted LOS for residential potable water.

Due to the fact that the City of Marathon remains in the process of completing its wastewater treatment system, no current data is available about the breakdown of the number of gallons of water used for wastewater versus other needs. The adopted LOS recognizes the requirement for assessing raw water supply including potable water needs; but absent the completion of the City's wastewater treatment system, there is no concrete data available regarding wastewater usage.

The FKAA Master Plan indicates that approximately 17 million gallons per day (mgd) to 20 mgd of the FKAA's future water supply will be provided by the Biscayne Aquifer, with other alternative supplies (RO, desalination, and potentially wastewater reuse) providing an additional 10 to 15 mgd. The FKAA has already made decisions to augment the Biscayne Aquifer water supply to include a 6 mgd Low Pressure Reverse Osmosis plant using the Floridan aquifer at the J. Robert Dean site. Based on these projected water supply amounts the adopted overall LOS of 110 gallons is consistent with the water supplier's projected availability of raw water. The FKAA Master Plan indicates that per capita water demand for the service area is expected to increase from approximately 116 gallons per capita per day (gpcd) in 2005 to 143 gpcd in 2025.

Census 2010 indicates that the City's household size is 2.23. An equivalent residential Unit is defined as the amount of water use (gallons per day) that is equivalent to the amount a single household would use. Per the City of Marathon's Comprehensive Plan, the Residential LOS standard is 66.5 gallons per capita per day. Therefore, total household LOS standards would be 2.23 X 66.5 = 148.3 gallons. The accepted value for residential equivalents throughout the County and the City of Marathon is 167 gallons per day predicated on the outcome of the adopted wastewater master plans.

A Note on Population Projections and Water Use for the City of Marathon: During the course of the preparation of this report, Census 2010 data became available to City Staff. Noticing the gross discrepancy between the revised numbers submitted by BEBR in 2005 and the raw data provided by Census 2010, it was the opinion of staff that City of Marathon's 2005 actual and functional population numbers needed to be revised downward significantly in order to provide a more realistic population assessment. Using the 2010 Census data as the 'trough,' staff used a metric of a 2% decrease per 5-year period in order to arrive at its 2005 figure.

In order to arrive at a 2005 population estimate more in accord with the Census 2010 data, staff took the Census 2010 estimated population of 8,297 and increased it by 2%. The result was:

Census 2010 Estimate + 2% = 2005 Population Estimate

8297 + (8297*.02) = 8463

Further, new estimates of the City's functional population for the time frame of this

work plan were recalculated using the updated population figures and the Seasonal Visitor Projections from the Monroe County Tourism Development Council shown in Table 2.

Based on these reconfigured population numbers and updated usage information obtained from FKAA by Staff, the actual gallons per capita per day (gcpd) was figured at 110 gcpd for the City using the following formula:

TOTAL ANNUAL USE/365 = PER DIEM USE.

PER DIEM USE/FUNCTIONAL POPULATION = GALLIONS PER CAPITA PER DAY
(GCPD)

Therefore, for 2005 - 541,753,100/365 = 1,484,255 Gallons Per Day 1,484,255 Gallons Per Day/13,541 = 109.61 GCPD

The proposed LOS standards for residential, non-residential, overall and the equivalent residential unit are displayed below.

MEASURE	LOS STANDARD			
Residential LOS	66.5 gal/cap/day (167 g/ERU/day)			
Nonresidential LOS	0.35 gal/sq.ft./day			
Overall LOS	110 gal/day			
Minimum Pressure	20 PSI per customer			
Minimum Quality	Shall be defined by the USEPA (part 143 National Secondary Drinking Standards, 40 CFR 143, 44FR 42198).			

3.4 Population and Potable Water Demand Projections by Each Local Government or Utility

The FKAA 20-Year Water System Capital Improvement Plan's *Projected Finished Water Demand* compares projected population and potable water demand for the period of 2005-2025 for the FKAA service area. In summary, FKAA's average daily raw water demand is expected to increase from 17.73 mgd in 2005 to 20.07 mgd in 2010, 22.08 mgd in 2015, 23.41 mgd in 2020, and 23.88 mgd in 2025.

While this number differs from the City's adopted LOS of 110 gal/day, this new figure more closely mirrors FKAA's per capita use projections as illustrated below. This 2005 calculation was the baseline from which Staff updated gcpd usage information for the City in Table 5.

Table 3					
PROJE	CTED WATER DEMANDS 2	<u> 1005-2020: FKAA SEF</u>	RVICE AREA		
YEAR	Per Capita (gcpd)	Max Day (mgd)	Avg. Day (mgd)		
2005	114.08	22.39	17.73		
2010	127.08	25.09	20.07		
2015	139.30	27.60	22.08		
2020	147.15	29.26	23.41		

Source: FKAA 20-Year Water System Capital Improvement Master Plan 2006.

	T	ABLE 4		
PROJECTE	D POPULATION and WATER	DEMANDS 2005-2	020: FKAA SEI	RVICE AREA
POPULATION FINISHED WATER DEMANDS				
YEAR	Functional	Per Capita (gpcd)	Max Day (mgd)	Avg. Day (mgd)
2005	155,438	114.08	22.39	17.73
2010	157,933	127.08	25.09	20.07
2015	158,511	139.30	27.60	22.08
2020	159,091	147.15	29.26	23.41
2025	159,674	149.55	29.85	23.88

Source: FKAA 20-Year Water System Capital Improvement Master Plan 2006.

PROJECTED POPI	TAB	LE 5	RATHON
	PULATION	FINISHED WAT	
YEAR	Functional	Per Capita (gpcd)	Avg. Day (mgd)
2005	13,541	109.61	1.48
2010	13,375	121.33	1.62
2015	13,541	132	1.79
2020	13,861	139.13	1.93
2025	14,191	142.89	2.03

Source: City Comprehensive Plan, FKAA Master Plan, FKAA Per Annum Water Consumption Data, and Census 2010 Data.

Note: For detailed information on population and water usage calculations, please see previous page. The increases in gcpd per year are taken from the FKAA's data provided in Table 4.

TABLE 6			
PER ANNUM WATER CONSUMPTION, 2000-2009: CITY OF MARATHON			
Year	Water Consumption		
	(gal)		
2000	553,866,000		
2001	491,828,300		
2002	574,593,100		
2003	540,624,700		
2004	541,537,200		
2005	541,753,100		
2006	554,880,600		
2007	487,415,400		
2008	493,728,120		
2009	469,846,690		

Source: Florida Keys Aqueduct Authority

Based on the data and projections in Tables 3, 4, 5 and 6 the primary conclusions found in the FKAA Master Plan are:

- Water demand in the FKAA service area will continue to increase at a rate higher than that of the Monroe County population projections because of changing demographics and assumed increase in day-trip visitors.
- · Annual raw water demands are expected to increase from 18.08 mgd in 2005 to 22.79

mgd in 2025.

• Per capita water demand for **Monroe County** was expected to increase from approximately 116 gallons per capita per day (gpcd) in 2005 to 143 gpcd in 2025.

Based on the conclusions above it is reasonable to assume that the City of Marathon will exhibit a similar increase in per capita water use and demand.

3.5 Water Supply Provided by Local Government

The City does not provide water. The FKAA is the area service provider.

3.6 Water Supply Provided by Other Entities

The FKAA is the sole provider of water for the City.

The FKAA was created in 1937 by the State of Florida to be the sole provider of all water including potable water for all residents of the Florida Keys. The FKAA presently serves more than 44,000 customers within Monroe County. Potable water is transported to the Keys through a 130-mile-long transmission pipeline, with an additional 649 miles of distribution pipelines that deliver water to the customer's property. In 1998 and 2002, FKAA's Enabling Legislation was amended to redefine the primary purpose of the FKAA to include collecting, treating, and disposing of wastewater in certain areas of the Florida Keys.

Consumptive Use Permit (CUP) Information provided by FKAA

October 2002	SFWMD's water use permit 13-00005-W is renewed. Limiting Condition #30 requires that a renewal application be submitted by March 30, 2005. Limiting Condition #33 limits dry-season (December through May) withdrawals to an average of 17 mgd.
October 2003	SFWMD changes its rules to allow issuance of a 20-year permit for a user's current water use.
December 2004	FKAA applies for a 20-year allocation based on its current (2004) use.
March 2005	Renewal and modification application submitted to SFWMD.
September 2005	SFWMD approves FKAA's 20-year allocation of 6,442 MG or 17.65 mgd, for current water use.

Additional Information on FKAA's Service Area

Current CUP Number	WUP13-00005-W
Raw Water Allocation Information: Average Annual	Avg. Daily = 19.93mgd
Daily and Maximum Monthly (Daily) Allocations	Max Monthly (Daily) = 23.79mgd
Applicable Source Limitations (dry season, wellfields,	Dry Season limit from Biscayne Aquifer

and priority)	(Dec.1-Apr. 30) 17.0 mgd
Required Off-sets	See FKAA 20-Year Master Plan
Expiration Date(s) by Source	September, 2025
Treatment Facilities and Planning Schedules	J. Robert Dean Water Treatment Facility; Floridan Aquifer Reverse Osmosis Plant; See FKAA 20-Year Master Plan for complete list.
Methods and Treatment Losses in the CUP	See FKAA 20-Year Master Plan for complete list.
Permitted Florida Department of Environmental Protection (FDEP) Capacities	See FKAA 20-Year Master Plan for complete list.
Storage Facilities	45.2 Million gallons system wide; See FKAA 20-Year master Plan for locations on all storage facilities.
Interlocal agreements and bulk sales	See FKAA 20-Year Master Plan for this information.
Interconnects, Distribution and Associated Responsibilities (emergency or on-going)	See FKAA 20-Year Master Plan for this information
Treatment and Distribution System Losses	See FKAA 20-Year Master Plan for this information
Outstanding Compliance Issues (required upgrades or expansion etc.)	See FKAA 20-Year Master Plan for this information.

All potable water within the City is supplied by the FKAA via a central distribution system. The FKAA 20-year Water System Capital Improvement Plan is attached as Attachment B. The intent of the City's Work Plan is to meet the statutory requirements listed in this plan and to coordinate the FKAA's water supply initiatives with the SFWMD's *Lower East Coast Water Supply Plan Update*. FKAA's 20-Year Capital Improvement Plan includes project costs and anticipated inflation impacts. A summary of the improvements include:

- · Water supply improvements to J. Robert Dean WTP
- Water treatment improvements to J. Robert Dean WTP
- Transmission mains and pump stations
- Distribution mains
- Distribution pump stations and storage
- Facilities and structure

The FKAA is committed to meeting the water demand for the service area including the City. The FKAA withdraws the majority of its water from its ten Biscayne Aquifer wells at the J. Robert Dean water treatment plant (WTP). A Floridan aquifer exploratory well at the WTP is used for blending purposes up to a maximum of four percent of the Biscayne Aquifer flow. Raw water for each Biscayne Aquifer well at the WTP is routed from each well through a 12-inch diameter ductile iron pipeline. The 12-inch pipes increase to 24-inch piping at the raw water metering facility.

FKAA is in the process of designing a 4.5 mgd Low Pressure Reverse Osmosis WTP (expandable to 6 mgd by 2013) to be located at its Florida City facility. In a partnership with North Key Largo Utility Authority, FKAA is also considering construction of another 4.5 mgd brackish water RO plant at Ocean Reef. Of the total plant capacity of 4.5 mgd, FKAA

will share a portion of the cost and receive 1.5 mgd of finished water to offset the facilities at the J. Robert Dean plant in Florida City and serve the Ocean Reef community with the other 3.0 mgd for potable and irrigation purposes. Currently, the transmission line from the Florida City WTP to Ocean Reef is a relatively old 12-inch-diameter line, and high pressure is required to supply Ocean Reef from the main transmission line. Constructing a RO brackish WTP at Ocean Reef would eliminate the costs of expanding approximately 65,000 feet of the existing transmission line from Key Largo to Ocean Reef and would allow pressure to be reduced on the main transmission line as well.

3.6.1 Water Supply Summary

FKAA's projected 2025 average-day finished water demand is 23.88 mgd, and the projected 2025 maximum-day finished water demand is 29.85 mgd. Assuming that Biscayne Aquifer withdrawals are limited to 17.0 mgd during the dry season, 6 mgd can be provided by an LPRO WTP at Florida City; 1 mgd of Floridian aquifer water can be blended at Florida City, which totals approximately 24 mgd. The additional treatment capacity to meet the 29.85 mgd projected demand would need to come from additional LPRO at Florida City, seawater desalination facilities in the lower Keys and Ocean Reef, or potentially subsidized wastewater reuse.

3.7 Conservation

The City currently coordinates with the FKAA to assist with water conservation and reuse efforts per Comprehensive Plan Objective 4-5.2 *Promote Water Conservation*. The City also actively participates in implementing the FKAA's Water Conservation Plan consistent with SFWMD's Water Shortage Plan and Water Conservation Program. Comprehensive Plan Policy 6-1.2.2: *Protect and Conserve Potable Water Supply* states:

- 1. Potable water shall be conserved through enforcement of conservation measures;
- 2. The City shall require the use of alternative water supplies such as treated wastewater, stormwater, cisterns and reverse osmosis systems for landscape irrigation; and
- 3. The City shall require the use of water-saving plumbing fixtures on all new development.

Additional conservation measures are mandated by state regulations such as ultra low volume fixtures and rain sensor devices and are currently utilized by the City. The Comprehensive Plan shall reflect all conservation measures contained within the Lower East Coast Water Supply Plan except those measures that are solely the responsibility of the provider, FKAA such as establishing rates and leak detection and repair. Additionally the City enforces all FKAA or SFWMD mandates for restricted water use. The City is supportive of all measures the FKAA implements to conserve water including a leak detection program, conservation-based rate schedule and the use of reclaimed water/ Grey water use in the City. The City has reviewed the possibility of requiring reuse of water. City-wide reuse does not appear to be feasible at the current time based on the existing infrastructure that is operated and maintained by the FKAA.

The City's existing policies and the proposed new policies that support water conservation provide a good baseline for moving toward the goal of reduced consumption and usage of water. The City acknowledges that there are numerous variables that may affect the use

and conservation of water but the framework provided is anticipated to lessen overall consumption and reduce the LOS standard over a 20-year horizon.

3.7.1 County-wide Issues

Currently the FKAA utilizes best management practices throughout the service area with the intent of reducing the total amount of water consumed.

3.7.2 Local Government Specific Actions, Programs, Regulations, or Opportunities

The City will continue to coordinate future water conservation efforts with the FKAA and the SFWMD to ensure that Best Management Practices (BMP) are utilized. The City will continue to implement the existing goals, objectives and policies in the comprehensive plan that promote water supply and conservation in a manner that will satisfy consumer demand while creating no adverse impacts to the environment. The City will participate in the Interlocal Agreement between Monroe County and the other municipalities that will ensure the availability of potable water prior to the issuance of a building permit. Currently the City requires a letter of coordination from FKAA stating that water will be available for all development prior to the issuance of a building permit.

3.7.3 Local Financial Responsibilities as Detailed in the CIE or CIS

The City of Marathon has no responsibility as a utility for providing potable water. The entire responsibility lies with the Florida Keys Aqueduct Authority.

3.8 Reuse

The cost of developing a centralized collection, treatment and distribution system for recycled water separate from the FKAA infrastructure in the City shall be reviewed for financial feasibility.

3.8.1 Regional and County-wide Issues

At the regional level the SFWMD has incorporated reuse strategies into the *Lower East Coast Water Supply Plan*. The intent of the strategies is to implement water reuse programs that increases the volume of reclaimed water used and promotes public acceptance of reuse programs. In addition to the public and private efforts, Section 373.250(1) F.S. states that "water reuse programs designed and operated in compliance with Florida's rules governing reuse are deemed protective of public health and environmental quality." Section 403.064(1) F.S., concludes that "reuse is a critical component of meeting the state's current and future water supply needs while sustaining natural systems." The City supports water reuse initiatives under consideration by SFWMD and FKAA. Section 3.5.4 of FKAA's Work Plan states:

"FKAA is currently, and will in the future, evaluate the feasibility of implementing wastewater reuse to offset some of the increasing potable water demands. However, the cost associated with the lack of large-volume Keys irrigation users (such as golf courses), and the limited availability of smaller Keys irrigation users who have suitable areas to irrigate make this alternative a challenge to implement in the Keys. Wastewater reuse

would need to be subsidized for reuse to be a viable alternative water supply source to help offset increasing potable water demands. Although subsidized wastewater reuse is considered to have great potential to help offset increasing potable water demands, wastewater reuse is not currently included in this Master Plan as an alternative water supply source because actual quantities of reuse water have not been fully evaluated."

3.8.2 Local Government Specific Actions, Programs, Regulations, or Opportunities

The City will support the SFWMD and Monroe County water reuse projects, and implementation of new regulations or programs designed to increase the volume of reclaimed water used and public acceptance of reclaimed water.

3.8.3 Identify any Local Financial Responsibilities as Detailed in the CIE or CIS

4.0 CAPITAL IMPROVEMENTS

The FKAA 20-Year Water System Capital Improvement Plan (the "FKAA CIP") identifies all proposed work projects affecting the City of Marathon.

4.1 Work Plan Projects

See FKAA CIP Plan (Available at www.fkaa.com/reports).

4.2.1 Capital Improvements Element/Schedule

Due to the FKAA's role as sole provider of potable water, the City's Capital Improvements Element does not include any itemized projects or expenditures. However, Comprehensive Plan Objective 9-1.2: *Develop and Implement a Concurrency Management System* states "Pursuant to Ch. 163, F.S., and Rule 9J-5.0055 F.A.C., the City shall develop and implement a Concurrency Management System, which shall ensure that facilities and services needed to support development are available concurrent with the impacts of new development and redevelopment."

The City will adopt by reference the FKAA CIP thus linking water availability and programmed improvements with the City's Concurrency Management System to continue the permit review and approval process that requires evidence of water supply availability prior to the issuance of a building permit and certificate of occupancy.

5.0 GOALS, OBJECTIVES AND POLICIES

Staff has formulated one new objective, and four new policies to meet the statutory requirements regarding potable water supply. The proposed new policies are listed below:

Objective 3-5.1: Adopt a 10-Year Water Supply Facilities Work Plan.

The City of Marathon shall adopt a 10-Year Water Supply Facilities Work Plan in coordination with the Florida Keys Aqueduct Authority that identifies existing and proposed alternative water supply projects, traditional water supply projects, conservation methods and reuse necessary to meet the water supply needs of the City, consistent with the South Florida Water Management District Lower East Coast Regional Water Supply Plan and the Florida Keys Aqueduct Authority 20-Year Water Supply System Capital Improvement Master Plan.

Policy 3-5.1.1: Ensure Existing Concurrency for Management System is Consistent with SFWMD's Lower East Coast Water Supply Plan:

The City of Marathon shall ensure that the existing concurrency management system is consistent with the South Florida Water Management District Lower East Coast Water Supply Plan and the Florida Keys Aqueduct Authority 20-Year Water Supply System Capital Improvement Master Plan.

Policy 3-5.1.2: Interlocal Agreement with FKAA to Identify the Availability of Water Supply to Serve Existing and New Development.

By December 31, 2011 the City of Marathon shall enter into an interlocal agreement with the Florida Keys Aqueduct Authority to formulate a mechanism that will allow the FKAA and the City to identify the availability of water supply needed to serve existing and new development within the City, monitor the use of potable water, and implement such alternative water supply projects, traditional water supply projects, conservation projects and reuse necessary to meet the City's water supply needs.

Policy 3-5.1.3: Ensure Adequate Water Supply for New Development.

Prior to the issuance of a building permit for new development, the City shall receive written notification from its water utility, the Florida Keys Aqueduct Authority that adequate water to serve the new development will be available no later than the anticipated time that a certificate of occupancy is to be issued.

Policy 3-5.1.4: Update 10-Year Water Supply Facilities Work Plan.

The City of Marathon shall update the 10-Year Water Supply Work Plan every five years or within 18 months after the government board of the South Florida Water Management District approves an updated regional water supply plan.