CITY OF SUNRISE FLORIDA

10 - Year Water Supply Facilities Work Plan

Presented on April 3, 2008

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Section 1

Section 1
Introduction

1.0 INTRODUCTION

The State of Florida has introduced revised legislation over the past few years to strengthen the linkage between growth and water availability based on specific demands identified in the water supply planning process. This 10-Year Water Supply Facilities Work Plan (Work Plan) has been prepared for the City of Sunrise (City), located within Broward County (County). It has been prepared in response to the requirements for local governments to incorporate the Work Plan into the Comprehensive Plan. Local governments are required to revise the "Infrastructure Element" of their Comprehensive Plan within 18 months after the date their Regional Water Supply Plan is adopted along with a submittal for Comprehensive Plan Amendments for review by the Department of Community Affairs (DCA).

1.1 BACKGROUND

Beginning in 2002 and continuing in 2004 and 2005, the State of Florida Legislature has taken steps to improve the coordination between the Regional Water Supply Needs and Sources Plan developed by the South Florida Water Management District (SFWMD) and local government land use planning activities. This strengthened coordination started requiring local governments located within an area that had a Regional Water Supply Needs and Sources Plan, to prepare a 10-Year Water Supply Facilities Work Plan (Work Plan) that ensured linkage between the Regional Water Supply Plan and their individual comprehensive plans. Each Work Plan is required to address infrastructure, conservation, capital improvements, and intergovernmental coordination in addition to water supplier coordination.

Appendix A; Growth Management Statute and Rule Requirements Related to Water Supply Planning, provides a summary of regulatory requirements that impact local governments and their water supply planning efforts.

As a result of their required regional water supply planning efforts, the South Florida Water Management District (SFWMD) evaluated the adequacy of existing water supplies to meet existing and future water demands and determined that traditional water supply resources from the Biscayne Aquifer will not be adequate to meet future demands. Their Lower East Coast Regional Water Supply Plan (LEC Plan) adopted, February 15, 2007, indicates most future water supply needs will need to be met by the implementation of alternative water supply sources. All local governments located within the LEC Plan regional area are now required to develop a Work Plan to ensure linkage

between the regional water supply plan and their individual comprehensive plans by August 15, 2008.

1.2 PURPOSE

The purpose of this Work Plan is to assess the City's current water sources and the associated facilities and evaluate their adequacy to meet the projected future raw and treated water demands. The Work Plan will outline alternative water supply sources required to meet projected shortfalls and will present an implementation plan that will guide the City's efforts to develop and maintain sustainable water sources for its overall service area. The work plan will identify the major capital improvements needed for alternative water supply needs and will be incorporated into the City's five year CIP. The Work Plan development will facilitate the required coordination efforts for water supply and land use planning between the City's Planning and Development Department and Utility Department, the South Florida Water Management District (SFWMD), and each of the water receiving local governments (City of Sunrise, Town of Davie, City of Weston, Town of Southwest Ranches and unincorporated Broward County). As required, it is anticipated that this Work Plan will be updated every five years or within 18 months of a revision to the LEC Plan.

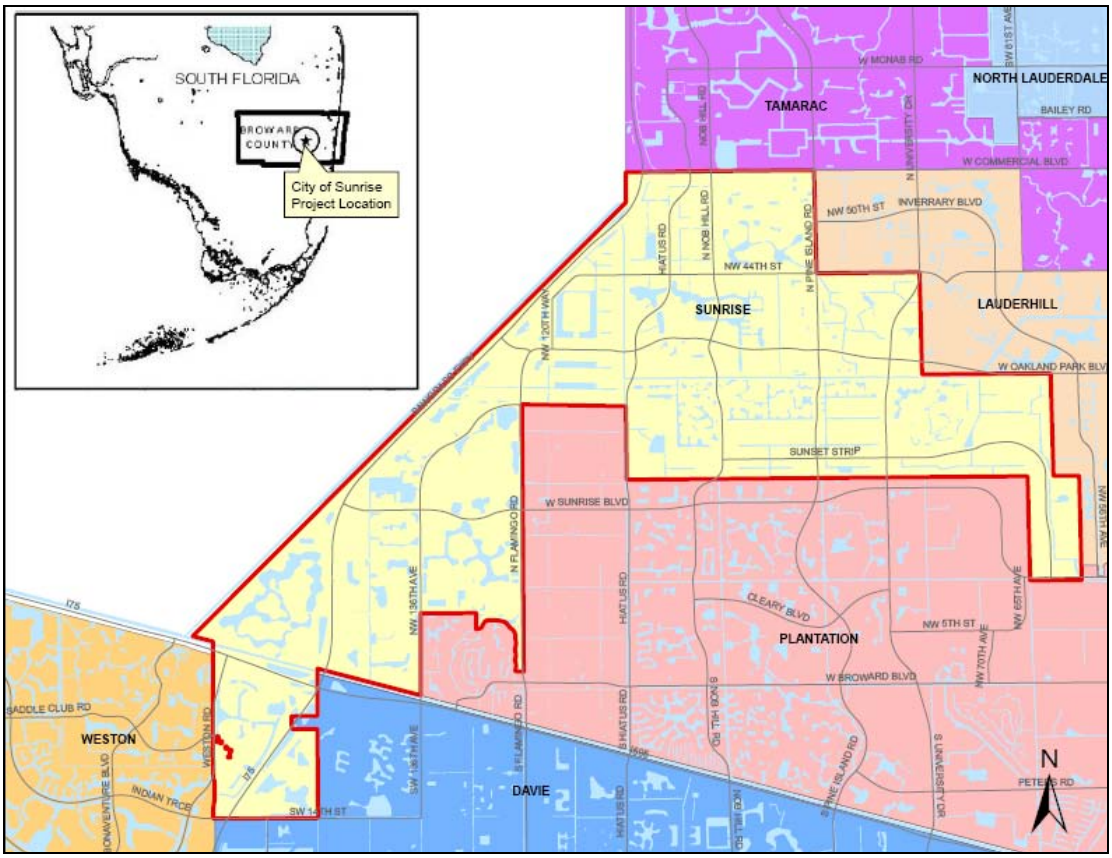
Section 2

Section 2
Water Service Area

2.0 INTRODUCTION

The City's Water Service Area began being established between 40 and 50 years ago. As development began in the area, private water systems located inside and outside the City Limits were acquired and assembled to become an integrated water service area by the City. Through time, the Utility service area boundaries were expanded to encompass an area of more than 70 square miles. The location map is shown in **Figure 2-1.**

Figure 2-1
City of Sunrise Location Map

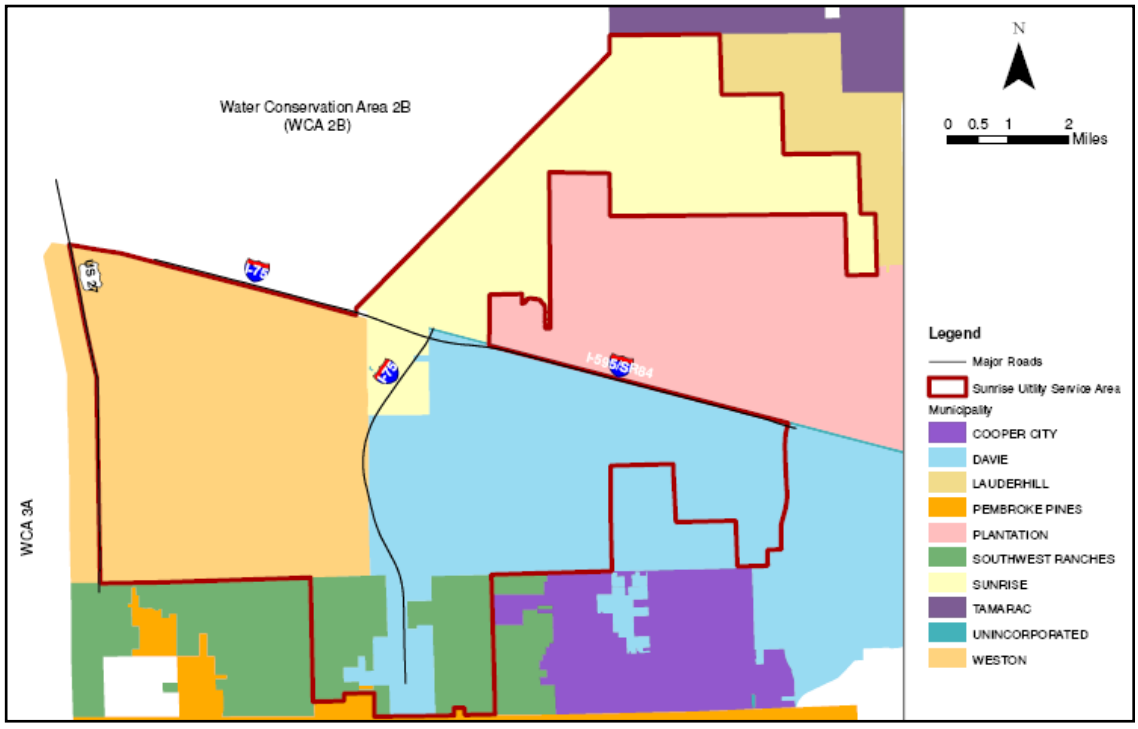


2.1 WATER SERVICE AREA

The City of Sunrise is located in western Broward County, the City's regional utility provides water service to approximately 215,000 people. The City's Utility service area is bounded by Plantation and Lauderhill utility service areas to the east and south, the Tamarac service area to the north and the

Davie, Cooper City and Pembroke Pines service areas to the south. The western boundary of the service area adjoins the South Florida Water Management District (SFWMD) Water Conservation Areas 2B and 3A. The extent of the utility service area is shown in **Figure 2-2**.

Figure 2-2
City of Sunrise Utilities Existing Service Area



2.2 SERVICE WITHIN OTHER LOCAL GOVERNMENT JURISDICTIONS

The City of Sunrise regional utility currently is the sole service provider within the Cities of Weston and Sunrise. It also serves approximately 40 percent of the area encompassed by the Town of Southwest Ranches, roughly 60 percent of the area of Town of Davie and smaller areas of Unincorporated Broward County. These are six individual homes located within unincorporated Broward County, they are listed in **Appendix I**.

Currently, a portion of the Southwest Ranches area uses private wells and septic systems. This area could potentially become part of the City's future retail service area. **Figure 2-3** shows the potential Future Service Area.

Currently, the City is responsible for planning, financing, constructing, operating and maintaining the utilities and public water supply systems that serve the areas shown within **Figure 2-2** and will continue to have total responsibility over the withdrawal, treatment and distribution of potable water within this area.

2.3 PRIVATE SUPPLIERS

Non-municipal water service providers require Water Use Irrigation Permits, Major General Water Use Irrigation Permits, Individual permits, or Major Water Use permits granted by SFWMD. Permits are issued to allow users to withdraw a specified amount of water, either from the ground, canals, lakes or rivers. This water is typically used to irrigate golf courses, crops, nurseries, residential landscaping or for industrial uses. Individual users withdrawing Biscayne Aquifer water within the City are identified in **Figure 2-4**. The City does not have any involvement in the planning, financing, construction or operation of the facilities of self supplied users except for the City owned golf course and City greenspace. The City of Sunrise Utility is responsible for obtaining the Springtree Golf Course water use permit which withdraws water from an onsite canal. **Appendix B** includes an inventory of potable and non potable water service providers in addition to self supplied individuals.

Figure 2-3
City of Sunrise Utilities Potential Future Service Area

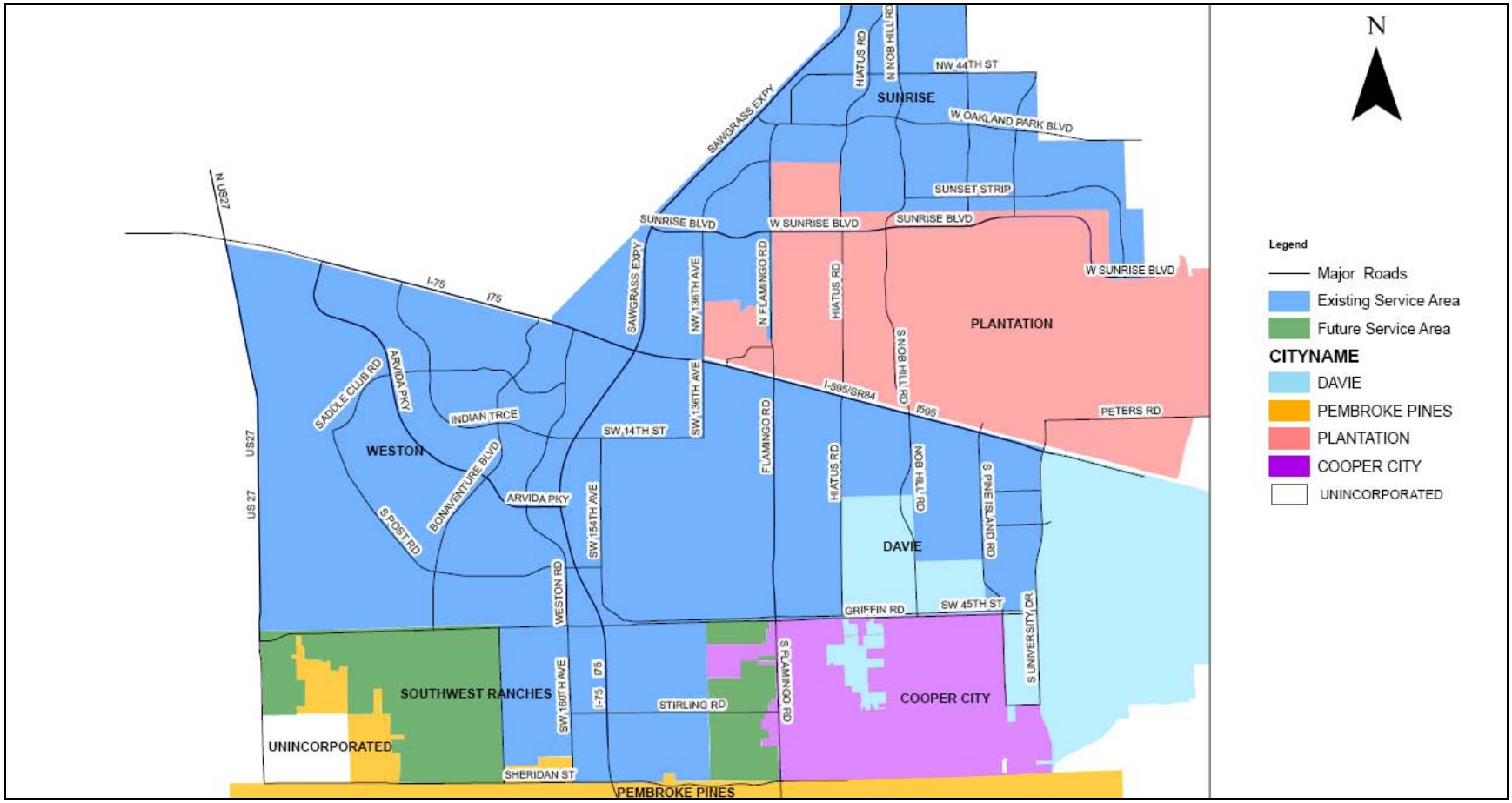
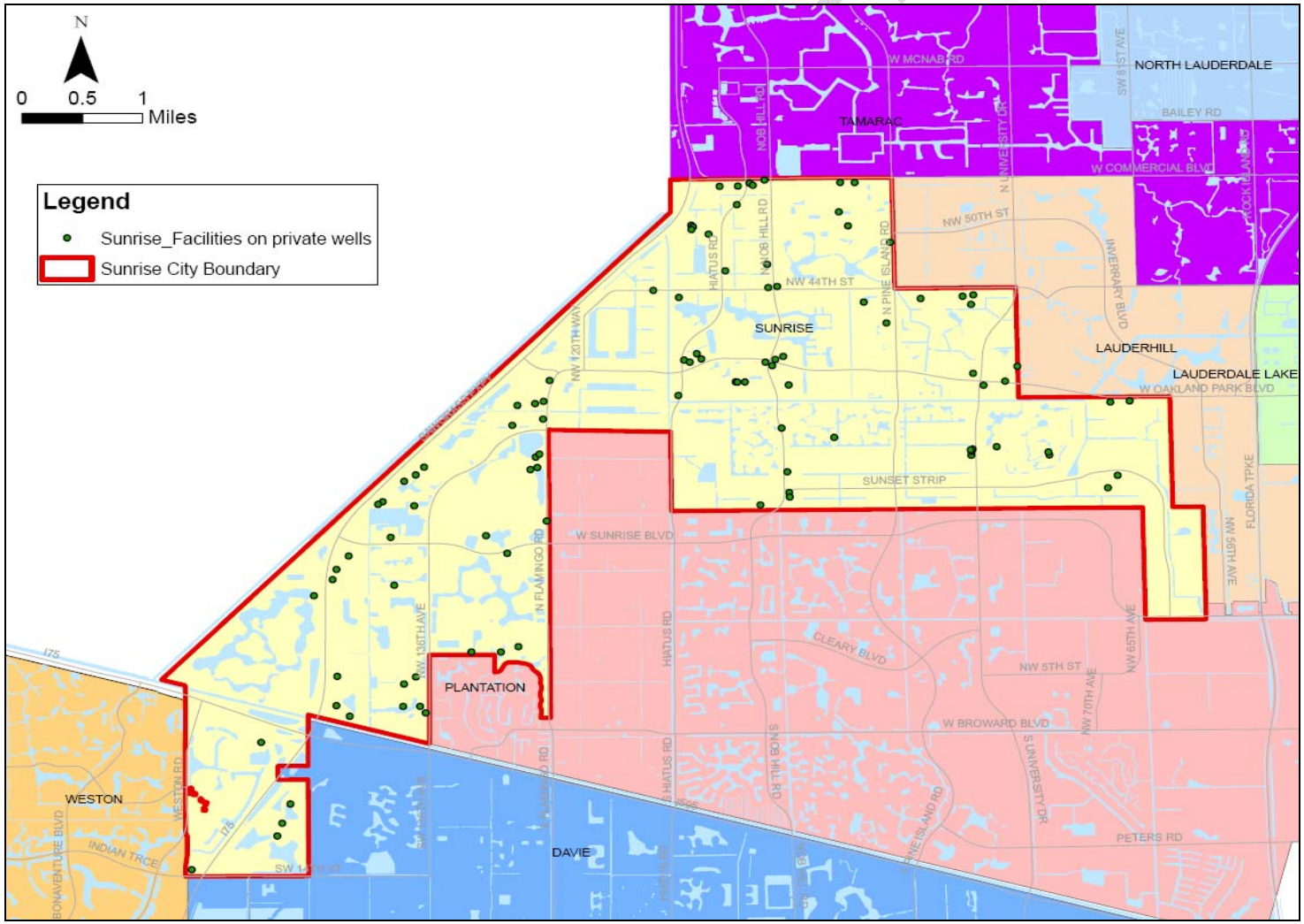


Figure 2-4
Potable and Non-Potable Users within City of Sunrise



Section 3

Section 3
Existing Water Supply, Treatment, Storage and Transmission, and Distribution Facilities

3.0 INTRODUCTION

The City of Sunrise water supply system includes four active wellfields, three water treatment plant sites, two active remote storage and re-pump facilities, and one Aquifer Storage and Recovery (ASR) facility. The Utility's water transmission and distribution system includes approximately 750 miles of water mains ranging in size from 48 to 2 inches in diameter. The City currently has emergency interconnections with the City of Lauderhill, the Town of Davie, the City of Plantation, the City of Pembroke Pines and the City of Cooper City. This section will provide an overview of the City's water supply system, water treatment facilities, and transmission and distribution system.

3.1 WATER SUPPLY FACILITIES

The City of Sunrise Utilties water supply system withdraws from the Biscayne Aquifer and has a total capacity of 63 mgd. The City owns the following six wellfields: Springtree, Sawgrass (Arena), Flamingo Park, Melaleuca, Park City and Southwest. The Springtree, Sawgrass (Arena) and Southwest wellfields are active wellfields. Park City and Melaleuca wellfields are out of service. The newly constructed Flamingo Park wellfield is scheduled to be fully operational in 2008. Wellfield locations are shown in **Figure 3-1**. The Sawgrass and Springtree facilities and wellfields each supply about 48 percent of the entire system demand, while the remaining 4 percent is provided by the Southwest Facility. **Table 3-1** presents the capacity of the wellfields that supply each facility.

Figure 3-1
Wellfield Locations

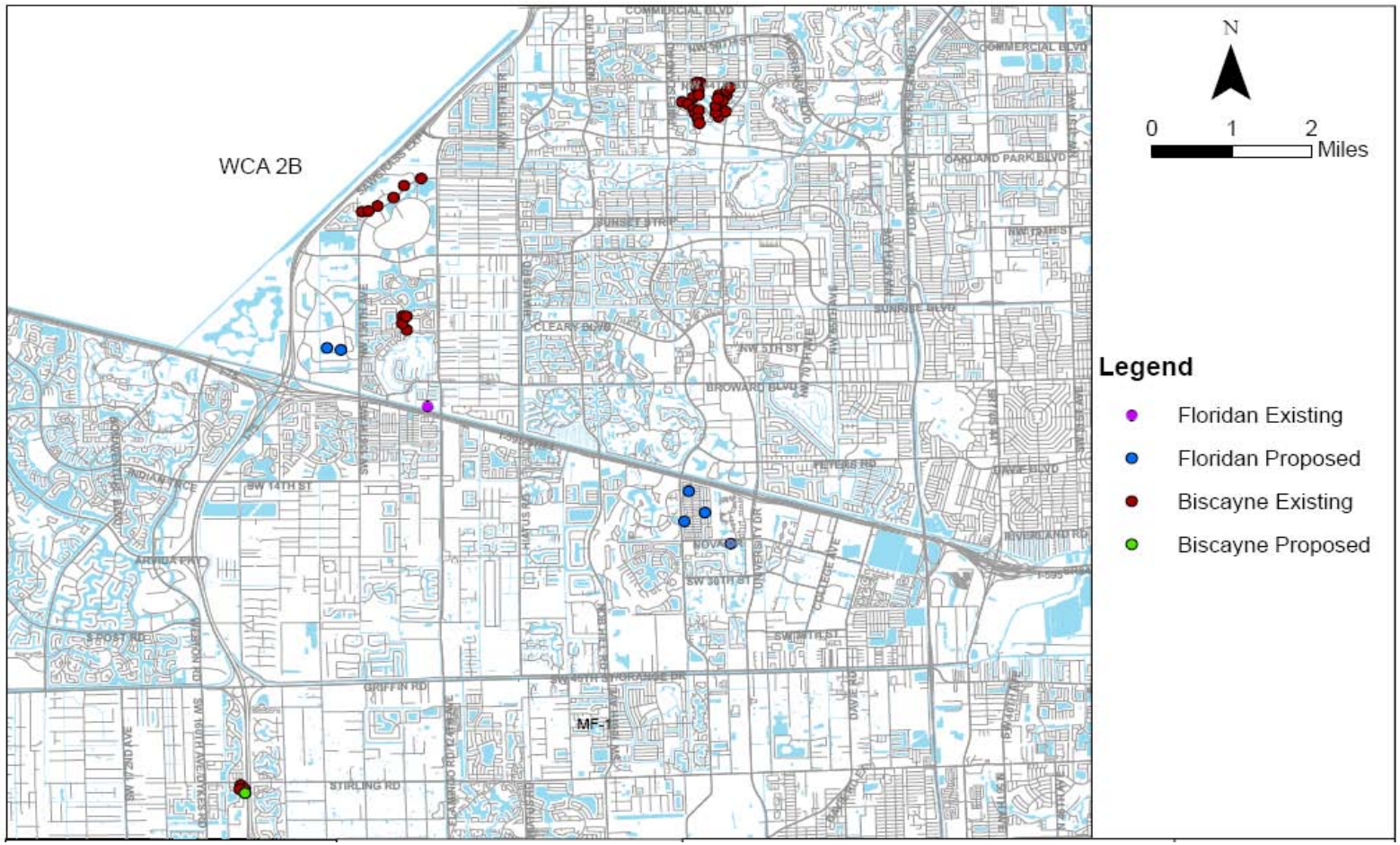


Table 3-1
Wellfield Capacity

Wellfield Location	WTP Served	Total* Installed Capacity (mgd)	Total Installed Firm Capacity (mgd)
Springtree	Springtree	27	25
Sawgrass (Arena)	Sawgrass	18	15
Flamingo Park	Sawgrass	15	11
Melaleuca**	Sawgrass	**	0
Park City**	Park City	**	0
Southwest	Southwest	3	2
TOTAL		**63**	**53**

*Wellfield Total Capacity includes the Standby Capacity.
**Park City and Melaleuca are currently not in service.

3.1.1 Springtree Wellfield

The Springtree wellfield is located South of NW 44th Street, east of Pine Island Road and west of University Drive. The wellfield consists of a total of 24 production wells with 17 wells in operation and 7 wells that have been abandoned. This wellfield has a total installed pump capacity of 27.3 mgd.

3.1.2 Sawgrass Arena Wellfield

The Sawgrass wellfield is located near or adjacent to the Bank Atlantic Arena, west of NW 136th Avenue and east of the Sawgrass Expressway (State Road 869). This wellfield was constructed in 1998 and is comprised of six Biscayne wells with a total raw water capacity of 18 mgd. This wellfield supplies raw water to the Sawgrass Water Treatment Plant (WTP).

3.1.3 Flamingo Park Wellfield

The Flamingo Park wellfield is located between NW 136th Avenue and Flamingo Road North of NW 8th Street. The wellfield consists of four existing wells with a total raw water capacity of 15 mgd. These wells add flow to the Sawgrass WTP.

3.1.4 Melaleuca Wellfield

The Melaleuca wellfield was located northwest of Flaming Road and north of State Road 84. The Melaleuca wellfield consisted of three small Biscayne aquifer wells; however, these wells are no longer in use. There is a Floridan aquifer well at this site that is not in use and is not currently equipped.

3.1.5 Park City Wellfield

The Park City wellfield was located at SW 21st Street and Pine Island Road. This site consisted of seven Biscayne Aquifer wells. The wellfield served the Park City Water Treatment Plant until 2002. Both the wells and the WTP are out of service.

3.1.6 Southwest Wellfield

The Southwest wellfield is located south of Stirling Road, west of Interstate I-75 on the South West Water Treatment Plant site. The wellfield consists of three Biscayne Aquifer wells with a total raw water capacity of 3.0 mgd.

3.1.7 Aquifer Storage and Recovery (ASR)

The City has one Aquifer Storage and Recovery (ASR) well located at the Springtree WTP facility. The well is designed to store treated Biscayne Aquifer water in the shallow zone of the Floridan Aquifer during periods when excess water is available from the natural system. Stored water is then recovered during times of high water demand. With an average Total Dissolved Solids (TDS) concentration of 2,821 mg/L, the ASR recovery flow rate is approximately 2.0 mgd.

3.1.8 Consumptive Use Permit Conditions

The SFWMD regulates the volume of water that can be withdrawn from surface and groundwater through the use of a Consumptive Use Permit (CUP) pursuant to Part II of Chapter 373 of the Florida Statutes. The last CUP issued to the City by the SFWMD was in July, 2001. A new CUP application was filed with the SFWMD in 2004 and is in final review. The City is closely working with the SFWMD on alternative water supply projects in conjunction with the renewal of the permit. The last Permit No 06-00120-W included the Springtree, Sawgrass (Arena), Southwest, and Flamingo Park wellfields and allowed a combined average withdrawal of 29.09 mgd from the four wellfields and a maximum day withdrawal allocation of 37.82 mgd. In addition to a system-wide maximum day

allocation, the CUP also identifies a maximum day withdrawal for each wellfield as described in **Table 3-2.**

Table 3-2
CUP Wellfield Maximum Withdrawal

Wellfield Locations	Maximum Permitted
Sawgrass Arena (only)	15.26 mgd*
Sawgrass and Flamingo Park (combined)	22.50 mgd
Springtree	22.48 mgd
Park City (decommissioned) Southwest Facilities	2.33 mgd
Total Max Day Permitted Withdrawal	**37.82 mgd**

*To Minimize an Adjacent Wetland Impact

3.2 WATER TREATMENT FACILITIES

The City of Sunrise currently operates three water treatment plants with a total permitted design treatment capacity of 44 mgd. The Springtree, Sawgrass, and the Southwest Utilities Water Treatment Plants are currently active, while the Park City WTP is decommissioned and not included in capacity analysis. **Figure 3-2** shows the location of the active WTPs. **Table 3-3** includes the treatment facilities design capacity, treatment facilities permitted capacity and system wide average day treated water supply in 2006, from each active facility.

3.2.1 Springtree Water Treatment Plant

The Springtree WTP is located on a 20.6-acre site located south of NW 44th Street and east of Springtree Drive. The water treatment facility is a conventional lime-softening treatment facility followed by disinfection and has undergone several expansions since its purchase. This facility is composed of two plants, A and B, with a total design and permitted treatment capacity of 24 mgd. Lime sludge residuals generated from the softening process are separated from the main process flow and dewatered for ease of handling and disposal. Water extracted in the dewatering process is reprocessed for use.

3.2.2 Sawgrass Water Treatment Plant

The Sawgrass WTP, located at NW 8th Street within the Sawgrass Corporate Park, was constructed in 2000 and expanded in 2003. The plant uses nanofiltration as the primary treatment process with post treatment degasification and disinfection. The plant has a permitted treatment capacity of

18 mgd and a design capacity of 24 mgd. The concentrate produced from the membrane softening process is pumped to a concentrate disposal well located on site.

Figure 3-2
Water Treatment Plant Locations

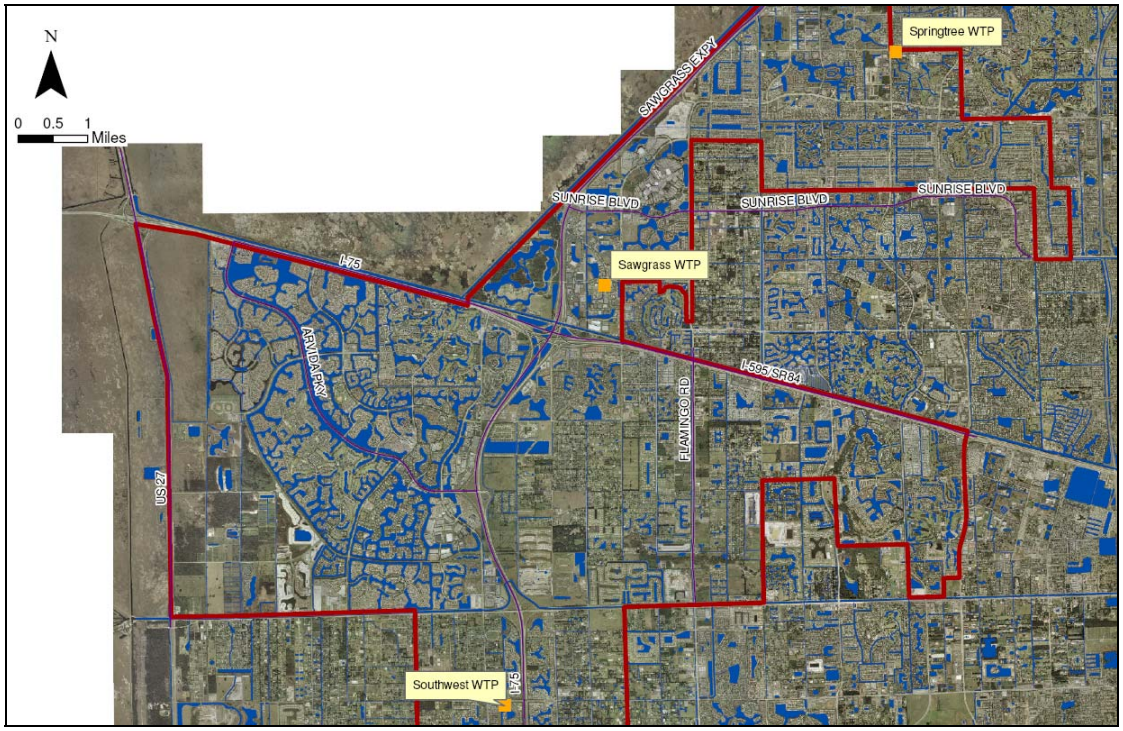


Table 3-3
Water Treatment Facility Capacity

	Springtree WTP (mgd)	Sawgrass WTP (mgd)	Southwest WTP (mgd)	System Total (mgd)
Treatment Design Capacity	24	24	2	50
Treatment Capacity (Permitted) MGD	24	18	2	44
Ave Day Treated Water Supplied MGD	16.5	9.9	1.2	27.6

3.2.3 Southwest Water Treatment Plant

The Southwest WTP was built in 1988 and is located near the intersection of Interstate 75 and Stirling Road. The water treatment facility is a conventional lime-softening treatment plant with a treatment capacity of approximately 2 mgd. The residual handling systems for this facility consist of one wash water recovery basin (Sav-All Tank) and two sludge lagoons.

3.3 WATER STORAGE FACILITIES

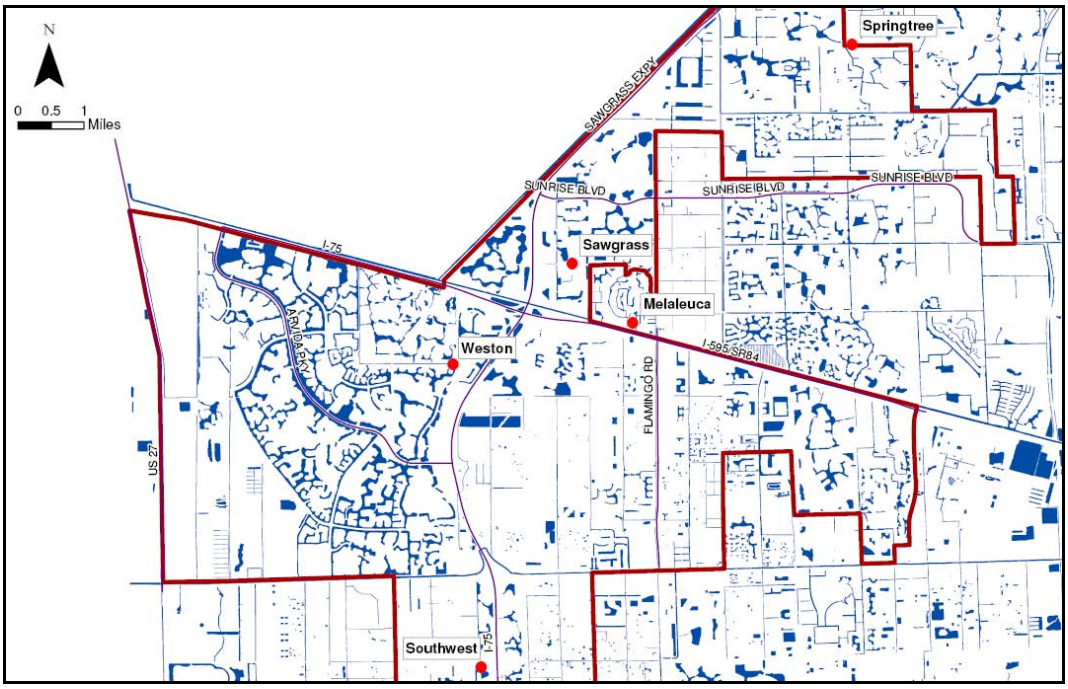
The three water treatment plants each have two ground water storage tanks each designed to buffer the water production process from the water distribution system. In addition to the water treatment plant storage, the City maintains two offsite storage facilities. These offsite facilities are comprised of ground storage tanks, re-chlorination systems and high service pumps that assist with meeting peak hourly flow and fire flow requirements. **Table 3-4** lists the storage capacity at each location and **Figure 3-3** shows the location of the storage tanks.

Table 3-4
Storage Capacity

Facility	Capacity (MGD)
Sawgrass	10.0
Springtree	9.0
South West Utilities	1.5
Weston (Indian Trace)	2.0
Melaleuca	2.3
Bonaventure*	0.0
Total	**24.8**

*Out of Service

Figure 3-3
Storage Locations

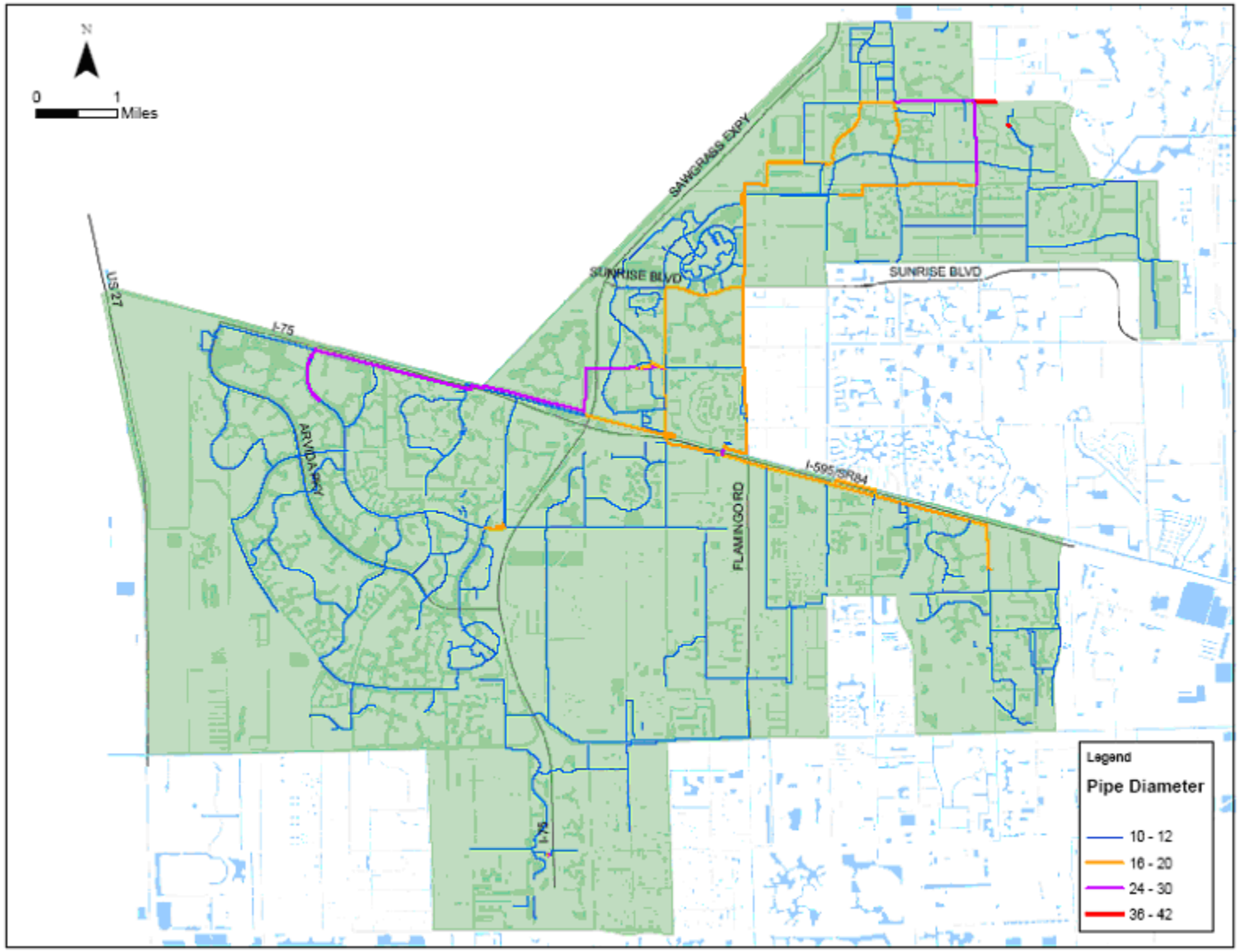


3.4 WATER TRANSMISSION AND DISTRIBUTION SYSTEM

The potable water transmission and distribution system for the City of Sunrise Utilities service area is comprised of over 750 miles of water lines ranging from 2 to 48 inch in diameter. A transmission network of 30 and 24 inch mains runs from the Springtree high service pumps in the north of the City, south to the Sawgrass WTP and Melaleuca Storage and Re-pump Facility. The transmission network then branches east and west along I-75 and I-595. No lines larger than 24 inch extend south of the Weston (Indian Trace) storage re-pump facility. The area south of Weston (Indian Trace) is served by mains 16 inches and smaller. **Figure 3-4** illustrates the location of transmission mains.

The City maintains water supply system interconnection for emergency with the City of Lauderhill, City of Plantation, Town of Davie, City of Pembroke Pines and Cooper City. Appendix **C** includes the details of the system interconnections.

Figure 3-4
Transmission System



Section 4

Section 4
Population Projections

4.0 INTRODUCTION

This section evaluates the historical and future population projection for the City of Sunrise regional utility Service Area. The development of population projections is a collaborative effort between the City of Sunrise, the City of Weston, the Town of Davie and the Town of Southwest Ranches. Population projections have also been developed for the preparation of the renewal application of the consumptive use permit from the SFWMD.

4.1 HISTORIC POPULATION DATA

Population within the City of Sunrise Utilities Service area has increased by 30% in the last decade. Between 1990 and 2000 significant growth was experienced in western communities in Broward County such as the City of Weston, the City of Davie, and the City of Sunrise. **Table 4-1** presents the estimated historical population within the City's service area.

Table 4-1
City of Sunrise Service Area Estimated Historical Population

Year	Population
1997	166,000
1998	173,000
1999	179,800
2000	186,800
2001	190,700
2002	194,600
2003	198,500
2004	204,300
2005	210,000
2006	211,200
2007	215,500

4.2 EXISTING AND FUTURE POPULATION DATA

Currently, the City of Sunrise Utilities uses population projections developed by Broward County. The County's rate of population growth is predicted with the use of the Broward County Population Forecasting Model (BCPFM) which uses the 2000 Census data as a base and projects future population at 5-year intervals by the Cohort-Survival Methodology. This methodology projects population by

assuming that future population is equal to present population plus births, minus deaths, and net migration. This assumption is applied to various segments of the population based on age, gender, race and ethnicity. Domestic migration rates are obtained from the United States Department of the Treasury's Internal Revenue Service (IRS) and the United States Immigration and Naturalization Service (INS) records and both are used to estimate international migration. The model methodology has been approved by the State of Florida Department of Community Affairs.

Furthermore, Broward County allocates the population forecast model results into the County's Traffic Analysis Zones (TAZ). TAZ areas provide a small geographic area that allows for allocation flexibility in addition to being the accepted method for transportation and water supply planning. Unlike municipal boundaries, TAZ boundaries are usually bounded by a major roadway or natural features and are relatively consistent in size. Population projections are further allocated by municipality based on the results gathered from the BCPFM and the review of roundtable panel discussions with City and County officials.

4.3 POPULATION PROJECTIONS

Broward County Traffic Analysis Zone (BCTAZ) model results dated from September 2007 were used as the basis of population projections for this water supply facility work plan. The existing and future service areas boundaries were juxtaposed with the TAZ areas and the population was calculated based on the intersecting area. Linear Interpolation was conducted to project intermediate year populations that were not included in the TAZ projections. Based on this method, the population projections for the City of Sunrise Utilities and the adjacent local governments within the City Service Area are shown in **Table 4-2**. **Appendix D** provides the detail population projections by TAZ for each municipality.

Approximately one half of the Town of Southwest Ranches is currently on private wells and is not expected to be on municipal water supply in the near future, as that decision will be driven by customer/residents discretion.

Table 4-2
City of Sunrise Service Area Population Projections

YEAR	2008	2013	2015	2018	2030	Service Area
Weston	63,200	65,500	66,100	66,900	68,500	Existing
Davie	55,700	59,400	60,800	62,500	65,200	Existing
Sunrise	92,800	101,800	106,000	110,400	119,000	Existing
SW Ranches	4,900	5,500	5,700	6,000	6,300	Existing
SW Ranches	5,300	5,600	5,700	5,900	6,000	Future*
Total**	**221,900**	**237,800**	**244,300**	**251,700**	**265,000**	

* The Potential Future Service Area in SW Ranches is derived from Broward County TAZ (Sep 07) population projections.

**These population numbers are rounded to the nearest hundred for individual local governments, thus there is a variance to the populations to the degree of 100 between Table 4-2 and Appendix D.

4.4 POPULATION PROJECTIONS VERIFICATION

Population projections computed for this work plan were shared and agreed upon with these local governments in the City of Sunrise Utilities service area as part of the intergovernmental coordination element of this work plan. The meeting minutes for these meetings are found in **Appendix E**.

Population projections developed within this work plan were verified with the projections used in the Consumptive Use Permit (CUP) as well as with the projections performed by SFWMD for the Lower East Coast Water Supply Plan (LECWSP).

The results of the population projections published in the LEC for the City of Sunrise regional utility is shown in **Table 4-3**.

Table 4-3
LEC WSP Population Projections for Sunrise Utilities

2010	2015	2020	2025
243,500	252,000	257,400	260,600

Population estimates included in the LECWSP used the BCTAZ 2004 population forecast as a basis for population projections, while the population projections presented are based on the published County projections as of September 2007. The population projection variation between this work plan and LECWSP is less than 5%.

Population projections for the CUP application (modified application as response to SFWMD RAI # 7 submitted in June 19, 2007) were based on BCTAZ February 2007 projections as shown in **Table 4-4**. The projections used in the Water Supply Facilities Work Plan are consistent with the population projections included in the CUP application.

Table 4-4
Sunrise Utilities CUP Population Projections

2007	2010	2015	2020	2025	2030
218,840	228,200	244,400	256,500	261,700	265,000

Section 5

Section 5
Water Demands

5.0 INTRODUCTION

The treated and raw water needs for the City of Sunrise Utilities Service Area in the future are compiled in this section. The population projections presented in the previous section were used to project raw and potable water needs for the future.

5.1 HISTORICAL WATER USE

The system-wide potable water production recorded in the beginning of year 1997 was an average of 19.8 mgd and was on average, approximately 27.6 mgd in 2006 which represents an increase of over 39 percent in the past ten years. In 2007, due to emergency water restrictions by SFWMD for irrigation, the demand was reduced to 25.7 mgd. System wide historic raw and treated water data are presented in **Table 5-1**.

Table 5-1
System Wide Historic Raw Water and Treated Water Records

	Treated Water				Raw Water				
Date	Total (mgy)	Average Month (mgm)	Max. Month (mgm)	Max.Mo./ Avg. Mo. Ratio	Total (mgy)	Raw/ Treated Ratio	Average Month (mgm)	Max. Month (mgm)	Max/Avg Month Ratio
1997	7,228	602	667	1.11	7,313	1.01	609	674	1.11
1998	8,275	690	804	1.17	8,359	1.01	697	809	1.16
1999	8,271	689	844	1.23	8,474	1.02	706	860	1.22
2000	8,674	723	847	1.17	8,945	1.03	745	862	1.16
2001	8,398	700	768	1.10	8,626	1.03	719	806	1.12
2002	9,525	794	955	1.20	10,110	1.06	843	1,037	1.23
2003	9,946	829	873	1.05	10,948	1.10	912	987	1.08
2004	9,934	828	933	1.13	11,141	1.12	928	1,038	1.12
2005	9,834	819	902	1.10	11,111	1.13	926	1,015	1.10
2006	10,062	838	955	1.14	11,314	1.12	943	1,060	1.12
2007	9,412	784	909	1.16	10,646	1.13	887	1,026	1.14

Based on historical seasonal treated water demands from year 2004 to 2007, the maximum month is normally 1.05 to 1.20 times the average month. Generally, the maximum month occurs between March and May and the minimum month occurs in September. Historic facility wide peak factors for raw to treated, maximum day raw water to average day raw water and maximum month raw water to average month raw water for the past 10 years is shown in **Table 5-2**. As seen in **Table 5-2**, the system wide treatment efficiency is approximately 89 to 99%.

Table 5-2
Historic Peak Factors

Date	Springtree WTP			Southwest WTP			Sawgrass WTP			System Totals		
	Treated/ Raw Ratio	Max/ Avg Day Ratio	Max/Avg Month Peaking Factor	Treated/ Raw Ratio	Max/ Avg Day Ratio	Max/Avg Month Peaking Factor	Treated / Raw Ratio	Max/ Avg Day Ratio	Max/Avg Month Peaking Factor	Treated/ Raw Ratio	Max/ Avg Day Ratio	Max/Avg Month Peaking Factor
1997	0.99	1.37	1.12	---	---	---	---	---	---	0.99	1.42	1.11
1998	1.00	1.22	1.09	0.89	2.04	1.45	---	---	---	0.99	1.29	1.17
1999	0.98	1.33	1.12	0.85	4.10	2.94	---	---	---	0.98	1.37	1.23
2000	0.97	1.20	1.13	0.89	2.34	1.84	---	---	---	0.97	1.32	1.17
2001	0.98	1.20	1.13	0.82	1.85	1.43	---	---	---	0.97	1.27	1.10
2002	1.00	1.33	1.21	0.82	3.66	2.08	0.80	2.00	1.22	0.94	1.39	1.20
2003	0.97	1.24	1.06	1.06*	3.47	1.31	0.80	1.39	1.28	0.91	1.21	1.05
2004	0.93	1.21	1.07	1.00	2.97	1.17	0.80	1.47	1.28	0.89	1.24	1.13
2005	0.93	1.33	1.08	0.99	2.07	1.68	0.80	1.37	1.17	0.89	1.33	1.10
2006	0.95	1.33	1.20	0.97	1.72	1.15	0.80	1.48	1.18	0.89	1.31	1.14
2007	0.93	1.14	1.09	1.06	1.61	1.30	0.80	1.57	1.32	0.89	1.24	1.12

* Probable Data Error

5.2 PER CAPITA USAGE

Based on the total water metered to customers, and the estimated historical population the treated water, system wide, per capita usage computed for year 2006 was 127 gpcd (gallons per capita per day). This per capita usage rate is consistent with the LECWSP which also shows a treated water per capita rate of 127 gpcd for the City of Sunrise regional utility.

5.3 WATER LOSS

Losses considered in the City of Sunrise Utility system were of two types, treatment loss and distribution loss. As seen in **Table 5-2**, the system wide treatment loss is approximately 11 to 12%. This system wide treatment loss comprised of losses from two treatment processes; lime softening and nano filtration. Lime softening process offers the lowest loss. These losses are expected to increase for the Sunrise Utility as use of alternative water sources such as Floridan brackish water increases.

The distribution system losses were computed based on the amount of treated water leaving the plant and the amount of water metered to the customers. The customer water usage was computed from the billing database. While computing the distribution loss, flushing for maintenance was assumed in the range of 3% to 4%. **Table 5-3** shows the system wide transmission and distribution water loss data.

Table 5-3
System Wide Transmission and Distribution Loss

	Total Treated	Plant Water Use	Metered to Customers	Total Accountable*	Unaccounted for Loss
	mgy	mgy	mgy	mgy	%
2002	9,516	612	8,703	8,989	5.55%
2003	9,950	1,068	8,695	8,994	9.60%
2004	9,997	1,256	8,830	9,130	8.68%
2005	9,840	1,359	8,731	9,026	8.27%
2006	10,066	1,414	9,048	9,349	7.12%
2007	9,411	1,368	8,138	8,514	9.53%

* Total accountable water was computed as a total of water metered to customers and flushing as maintenance of mains, where flushing was assumed in the range of 3 to 4 % system wide.

5.4 WATER DEMAND PROJECTIONS AND FORECAST METHODOLOGY

The forecast of future water demands for this Work Plan is based on future population forecasts and per capita demand.

The system-wide demand projections were based on 127 gpd per capita applied to population forecast for each TAZ for each year until 2030. Using GIS technology, the City of Sunrise Utilities water billing accounts were spatially allocated within the BCTAZ to obtain per capita water use by TAZ for existing customers. These demands were also categorized by local governments.

Meetings were held with the planning departments for the various local governments serviced by the City of Sunrise Utilities. The Town of Southwest Ranches indicated that they do not anticipate any major land use changes impacting future population projections. The Town of Davie expects a development known as the "The Commons" to be developed as a Development of Regional Impact (DRI); the net increase in water demand is projected to be 0.22 mgd. The City of Weston does not expect any major land use changes impacting future population projections. The City of Sunrise expects developments known as "Metropica" and "Westerra" to be developed as a Development of Regional Impact (DRI). The net increase in water demand from these developments is projected to be 0.17 mgd. These additional demands expected to be placed upon the City of Sunrise Utilities will be in addition to projected water demands based upon population projections by the County. Meeting minutes for the intergovernmental coordination effort are shown in **Appendix E**.

Changes in land use besides the DRIs are not expected to be significant, so water demand projections were based on population projections and per capita demands. Demand forecast was completed by multiplying the 2006 per capita water use in each TAZ by population forecast within that TAZ for the years 2008, 2013, 2015, 2018, and 2030. **Appendix F** shows the demand projections per BCTAZ.

Table 5-4 shows demand projections for each municipality serviced by the Sunrise Utilities for year 2008, 2013, 2015, 2018 and 2030.

Table 5-4
Average Annual Day Demand Projections for Local Governments

YEAR	2008	2013	2015	2018	2030	Service Area
Weston	10,916,000	11,301,600	11,418,000	11,553,300	11,915,300	Existing
Davie	6,174,300	6,543,400	6,682,600	6,839,200	7,169,300	Existing
Sunrise	10,418,000	11,652,600	12,200,800	12,812,600	13,799,400	Existing
SW Ranches	328,500	352,200	362,600	378,300	397,100	Existing
SW Ranches	664,700	701,200	719,800	740,000	764,300	Potential Future Area*
Total**	**28,173,000**	**30,198,800**	**31,021,200**	**31,945,100**	**33,648,300**	

* The Potential Future Service Area in SW Ranches is derived from Broward County TAZ (Sep 07) population projections. The demand projections are computed using the system wide per capita demand of 127 gpcd for potential future area.
**These demand numbers are rounded to the nearest hundred for individual local governments, thus there is a variance to the demands in the order of a hundred between Table 5-4 and Appendix F.

In addition to the demand projections shown in **Table 5-4**, the net increase in demands by current DRI applicants is approximately 0.4 mgd.

Section 6

Section 6
Water Supply Facilities Work Plan

6.0 WATER SUPPLY FACILITIES WORK PLAN

The future source water, treatment schemes and distribution system improvements for the City of Sunrise Water Utility Service Area are compiled in this Section. The population projections presented in Section 4 and the raw water demands presented in Section 5 were used as the basis for this Water Supply Facilities Work Plan. This Water Supply Facilities Work Plan is developed from the existing Consumptive Use Permit (CUP) application which is currently under review by the South Florida Water Management District (SFWMD). The City of Sunrise has been constantly coordinating all the projects listed within this plan with the SFWMD.

6.1 TRADITIONAL WATER SUPPLY PROJECTS

The City has existing Biscayne Aquifer wells that provide a sustainable yield of 39.5 mgd and a firm permitted treatment capacity of 44.5 mgd. Since the SFWMD has recently enacted a water supply availability rule in 2007 that limits the use of the Biscayne Aquifer as a water source to the utility's historical withdrawals, the City will be limited to 29.09 mgd of raw water withdrawals through its exiting water supply facilities.

In 2008, the City completed its last traditional water supply source project with the addition of four Biscayne wells capable of producing 15 mgd at Flamingo Park. No additional new Biscayne water source projects are planned and the future Biscayne projects will be considered for renewal and replacement only if corresponding reuse offsets are agreed to by the Water Management District.

6.2 ALTERNATIVE WATER SUPPLY DEMANDS

Table 6-1 Illustrates the Plan by which the City meets future demands by alternative water supply source category. This table shows the planned growth using the Broward County population projections and the average system wide per capita demands as referenced in the South Florida Water Management District's Lower East Coast Plan.

Table 6-1 shows increasing water demands from 2008 thru 2030. These demands are computed as treated water to the utility customers. The approach taken by the City in dealing with future demand and population growth assumes that future growth does not include land use changes, so the future demands were distributed by Traffic Analysis Zones (TAZ) using the approximate population densities as zoned today. Future Land Use Changes will require updates as

Land Use Plan Amendments and Developments of Regional Impact (DRIs) are processed.

Table 6-1, as shown, accounts for three pending DRIs resulting in a slight increase in water demands over those computed using only population growth and per capita use. The total water demand is then allocated by source category within the table.

The existing Biscayne source category is fixed by historic use and the Water Management District water supply availability rule. The other demands are met by a variety of alternative water supply options including treating brackish water from the Floridan Aquifer, conserving water by increasing plant treatment efficiencies and reuse of highly treated wastewater.

This table also includes a demand contingency that is programmed into the plan to accommodate additional water supply development to meet unknown future demands. The table also includes water temporarily "borrowed" from the Biscayne Aquifer system. This water is above the historic usage but necessary as an interim measure authorized by the SFWMD rule. This borrowed water will provide a logical transition by the City from planned future Biscayne source water to alternative water sources. Originally, the Lower East Coast plan, when drafted in 2000 would have permitted an additional 10 mgd available for the City from the Biscayne Aquifer. The City in reliance upon the pre-2007 LEC plan, planned and constructed additional Biscayne wells and treatment facilities.

When the SFWMD issued the revised Lower East Coast Plan, the outlook for future Biscayne withdrawals had diminished and the newly constructed facilities no longer provide for future growth as had been planned. This sharp turn in events has placed all utilities who rely on the Biscayne Aquifer in a similar quandary. In an effort to mitigate the significant financial impact and practical considerations of designing, permitting and constructing alternative sources, the SFWMD provided for the borrowing concept.

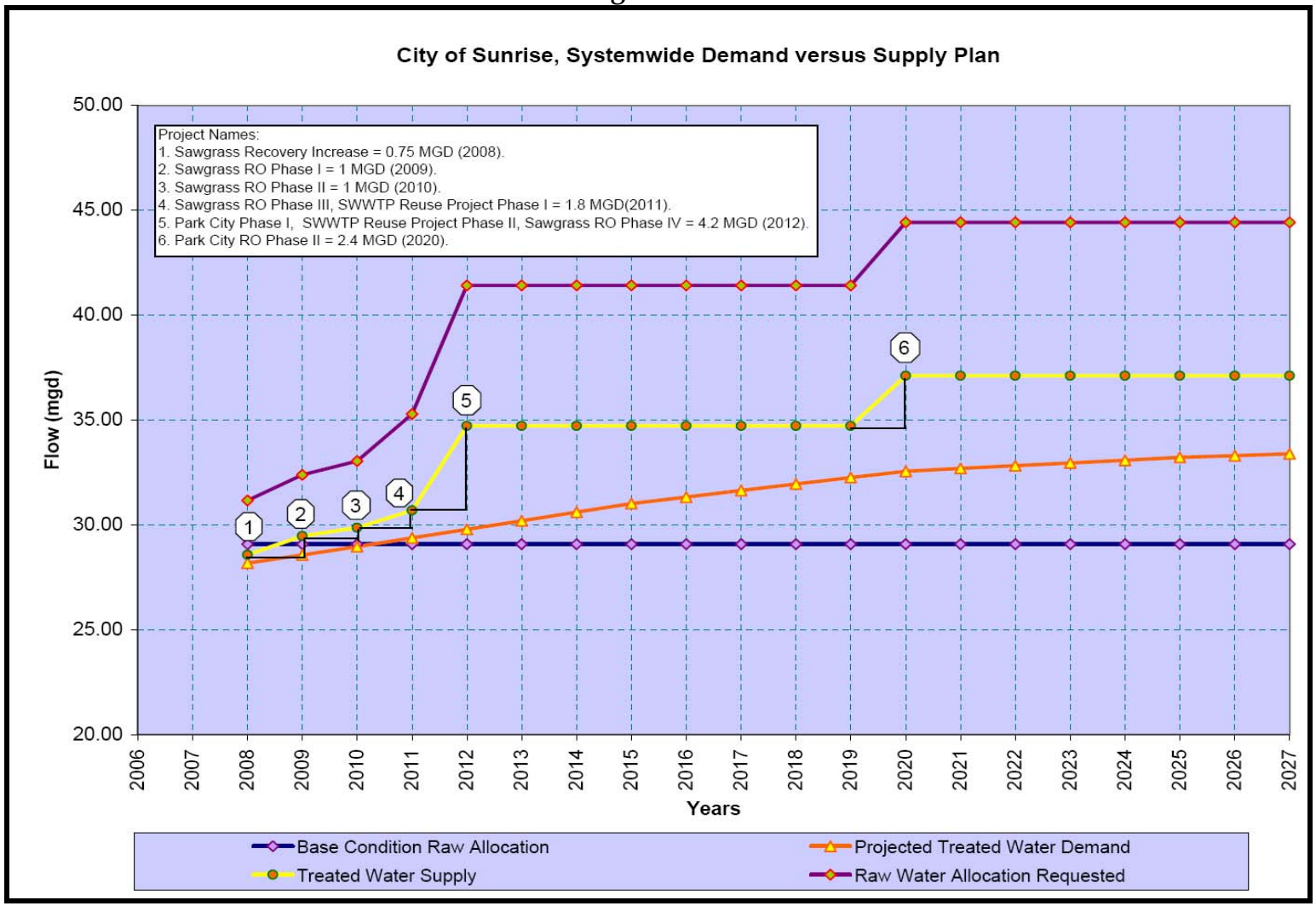
Figure 6-1 shows the City of Sunrise's Water Supply Plan in response to the future demand projections. The supply plan shows a phased incremental approach to stay ahead of the demand at all times.

Table 6-1
Sunrise Utilities Finished Water Demand by Source Category

A	B	C	D	E	F	G	H	I	J	K	L	M
Date	**Population to be Served**	**Projected Treated Average Day based on 2007 BCTAZ Population Projection (mgd)**	**Projected Treated Water Demand by DRI applicants* (mgd)**	**Total Projected Average Day Treated Water Demand (mgd)**	**Treated Water Contingency (mgd)**	**Total Projected Average Day Treated Water Supply (mgd)**	**Average Treated Water Deficit to be Met (mgd)**	**Treated Water Deficit per year to be Supplied by Temporary Biscayne Allocation (mgd)**	**Treated Water Demand to be Supplied by Reuse (mgd)**	**Treated Water Supply Increase by Sawgrass Recovery Increase (Conservation) (mgd)**	**New Upper Floridan Aquifer RO Treated Water (mgd)**	**Available Annual Average Day Treated Water Supply (mgd)**
		*C = B * 127 gpcd*	*D = 0.38*1.1*	*E = C + D*	*F = 1*	*G = E + F*	*H=G - 26*	*I = G - J -M -L - 26*				*M = 26+I+J+K+ L*
2008	221,900	28.18	0.43	28.61	0.00	28.61	2.61	1.86	0.0	0.75	0.0	28.58
2009	225,000	28.58	0.43	29.01	0.50	29.51	3.51	1.76	0.0	0.75	1.0	29.48
2010	228,100	28.97	0.43	29.40	0.50	29.90	3.90	1.15	0.0	0.75	2.0	29.87
2011	231,400	29.39	0.43	29.82	1.00	30.82	4.82	0.27	0.8	0.75	3.0	30.70
2012	234,600	29.79	0.43	30.22	1.00	31.22	5.22	0.00	1.6	0.75	6.4	34.72
2013	237,800	30.20	0.43	30.63	1.00	31.63	5.63	0.00	1.6	0.75	6.4	34.72
2014	241,100	30.62	0.43	31.05	1.00	32.05	6.05	0.00	1.6	0.75	6.4	34.72
2015	244,300	31.03	0.43	31.46	1.00	32.46	6.46	0.00	1.6	0.75	6.4	34.72
2016	246,700	31.33	0.43	31.76	1.00	32.76	6.76	0.00	1.6	0.75	6.4	34.72
2017	249,200	31.65	0.43	32.08	1.00	33.08	7.08	0.00	1.6	0.75	6.4	34.72
2018	251,600	31.95	0.43	32.38	1.00	33.38	7.38	0.00	1.6	0.75	6.4	34.72
2019	254,000	32.26	0.43	32.69	1.00	33.69	7.69	0.00	1.6	0.75	6.4	34.72
2020	256,400	32.56	0.43	32.99	1.00	33.99	7.99	0.00	1.6	0.75	8.8	37.12
2021	257,500	32.70	0.43	33.13	1.00	34.13	8.13	0.00	1.6	0.75	8.8	37.12
2022	258,500	32.83	0.43	33.26	1.00	34.26	8.26	0.00	1.6	0.75	8.8	37.12
2023	259,500	32.96	0.43	33.39	1.00	34.39	8.39	0.00	1.6	0.75	8.8	37.12
2024	260,500	33.08	0.43	33.51	1.00	34.51	8.51	0.00	1.6	0.75	8.8	37.12
2025	261,600	33.22	0.43	33.65	1.00	34.65	8.65	0.00	1.6	0.75	8.8	37.12
2026	262,200	33.30	0.43	33.73	1.00	34.73	8.73	0.00	1.6	0.75	8.8	37.12
2027	262,900	33.39	0.43	33.82	1.00	34.82	8.82	0.00	1.6	0.75	8.8	37.12
2028	263,600	33.39	0.43	33.82	1.00	34.82	8.82	0.00	1.6	0.75	8.8	37.12
2029	264,300	33.39	0.43	33.82	1.00	34.82	8.82	0.00	1.6	0.75	8.8	37.12
2030	265,000	33.66	0.43	34.09	1.00	35.09	9.09	0.00	1.6	0.75	8.8	37.12

* Net increase in treated water demand for Westerra is -0.18mgd, Commons is 0.22 mgd and Metropica is 0.35 mgd. This totals to 0.38 mgd demand, with a 10% distribution loss the finished water demand is 0.43 mgd. Initially the demands for the DRI applicants will be supplied by AWS (Sawgrass recovery increase)

Figure 6-1


City of Sunrise, Systemwide Demand versus Supply Plan
Project Names:
1. Sawgrass Recovery Increase = 0.75 MGD (2008).
2. Sawgrass RO Phase I = 1 MGD (2009).
3. Sawgrass RO Phase II = 1 MGD (2010).
4. Sawgrass RO Phase III, SWWTP Reuse Project Phase I = 1.8 MGD(2011).
5. Park City Phase I, SWWTP Reuse Project Phase II, Sawgrass RO Phase IV = 4.2 MGD (2012).
6. Park City RO Phase II = 2.4 MGD (2020).
Flow (mgd)
50.00
45.00
40.00
35.00
30.00
25.00
20.00
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
Years
Base Condition Raw Allocation
Projected Treated Water Demand
Treated Water Supply
Raw Water Allocation Requested

6.3 ALTERNATIVE WATER SUPPLY PROJECTS

The current CUP application is under review by SFWMD and it requests a temporary allocation from the Biscayne Aquifer in excess of the historic permitted 29.09 mgd. The borrowed water is for a period not to exceed five (5) years in the amount of 2.09 mgd. During this borrowing period the City plans to develop alternative water sources and treatment to eliminate the need to continue using the Biscayne water above its historic allocation.

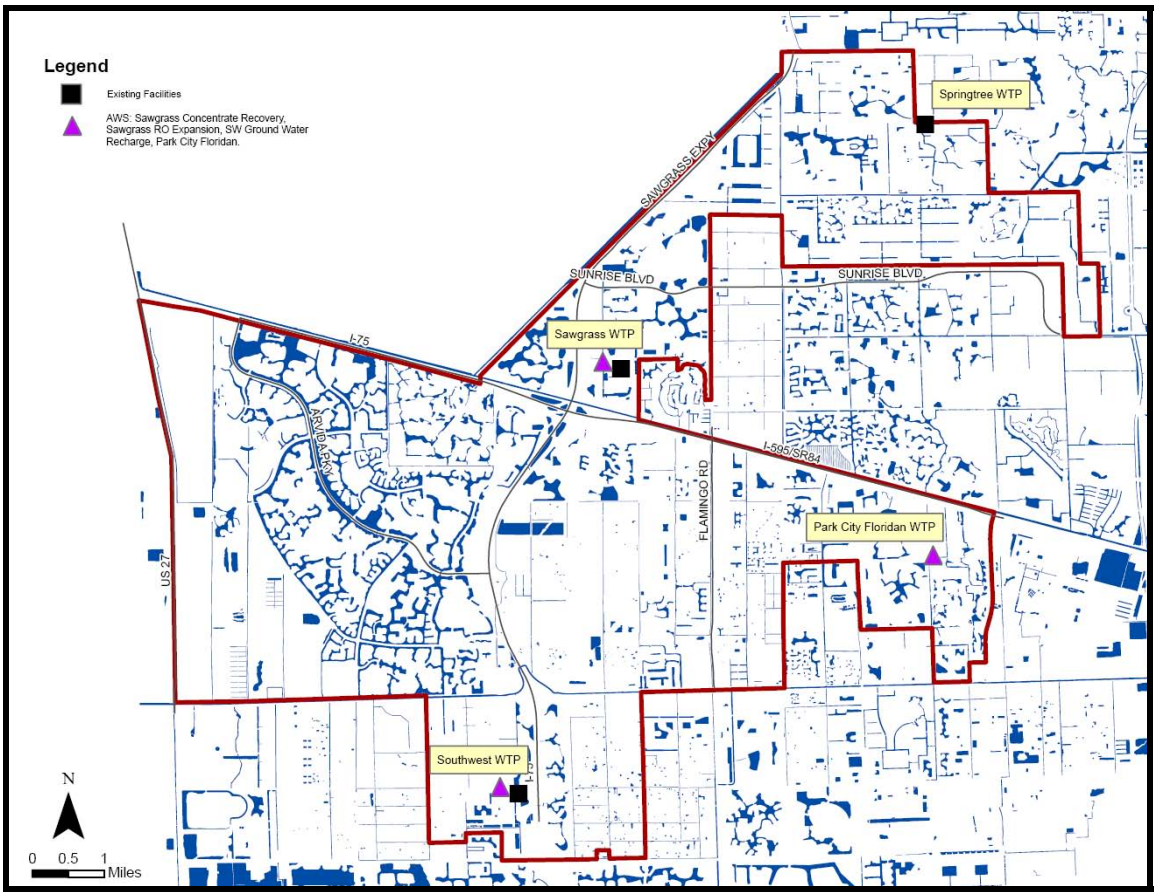
In addition to the borrowed water that will require development of alternative water sources and treatment, there will be growth in water demand which is driven by population growth within the service area. The total alternative demand projected to be needed within the next five (5) years is 8.75 mgd and 11.2 mgd in ten (10) years as shown in **Table 6-2**. **Table 6-2** shows the phased development of proposed alternative sources and facilities planned to meet the projected growth in water demands. The facility phasing incorporates flexibility to accelerate or decelerate depending on the actual growth in water demands. **Figure 6-2** shows the facility location map for Alternative Water Supply Projects. The proposed wellfield location along with existing wellfield locations was shown in Section 3, **Figure 3-1**. **Appendix G** provides construction details of the existing and proposed wells.

Table 6-2
City of Sunrise Proposed Alternative Water Supply Projects

Annual Average Finished Water Quantity in MGD and Source		Treated Water Capacity (mgd)	Cumulative Treated Water AWS (mgd)	Year
Sawgrass Recovery Increase	Conservation	0.75	0.75	2008
Sawgrass RO - Phase I	AWS	1	1.75	2009
Sawgrass RO - Phase II	AWS	1	2.75	2010
Sawgrass RO - Phase III	AWS	1	3.75	2011
Southwest Groundwater Recharge - Phase I	Offset	0.8	4.55	2011
Park City RO - Phase I	AWS	2.4	6.95	2012
Southwest Groundwater Recharge - Phase II	Offset	0.8	7.75	2012
Sawgrass RO - Phase IV	AWS	1	8.75	2012
Park City RO - Phase II	AWS	2.4	11.2	2019

In the first two years, significant investigative work will be completed as much of the City's plan relies on development of a complex and technical systems in an environment where today little base information exists. Once the investigative work is completed, and the technical foundation laid, design and construction can proceed in a logical manner as shown the **Table 6-2**.

Figure 6-2
Alternative Water Supply Facility Location Map



6.3.1 Sawgrass Recovery Increase
Start 2008
Finish 2008

The Sawgrass Recovery Increase involves decreasing the water lost during the nano-filtration treatment process. The technical process is to increase the flux rate across the nano-softening units causing more water to be treated per square foot of membrane units.

Some investigative work is scheduled by the City to optimize the treatment at the higher flux rate. Once this preparatory work is complete the City plans to alter the Sawgrass WTP operation to increase the percent of permeate from 80% to 85%. At an average production rate of 15 mgd a 5 percent change in the recovery rate will result in creating 0.75 mgd of additional water.

6.3.2 Sawgrass RO

Phase I-Start 2008; Phase II–Start 2009; Phase III–Start 2009; Phase IV–Start 2009
Phase I–Finish 2009; Ph II-Finish 2010; Phase III-Finish 2011; Phase IV-Finish 2012

Phase I of the Sawgrass Reverse Osmosis (RO) Facility is planned to take advantage of much of the existing facility treatment process. Using excess capacity in the treatment and post treatment system allows for an efficient immediate increase of alternative water supplies. The Phase I work elements include construction and testing of a Floridan Aquifer well on the plant property. With the water quality characteristics confirmed, a reverse osmosis system can be designed that efficiently treats the brackish Floridan water.

The City anticipates taking advantage of the existing chemical systems, degasifiers, chloramination, storage and high service pumps that serve the existing nano-membrane plant but have reserve capacity that can be used by the RO units. The existing concentrate disposal well used for the nano-plant has excess permitted capacity that can be used by the RO system.

It is planned that while the Floridan well is being constructed and tested, a rigorous analysis of the reserve capacity in specific treatment units will be confirmed. Then an appropriately configured skid unit can be designed which can be added in the treatment process between the Floridan well and the existing degasifiers. The skid will be designed to produce approximately 1 mgd of alternative source water.

The initial improvements will include a manifold piping system that will allow subsequent skid units to be added as demand increases. Lead time on the skid units, upon design completion, will be approximately six months.

Phase II is planned to follow immediately behind the initial phase to eliminate borrowing of Biscayne Aquifer water. This phase will use water from the same Floridan well as in Phase I. An additional skid unit will be installed and placed into service.

Phase III of the Sawgrass RO system involves constructing a second Floridan well on the plant property and piping it into the same manifold system as the other "plug and play" units. A third skid unit will be ordered and placed into service, again using reserve capacity existing in the nano-membrane facility, and post treatment system.

Phase IV of the RO plant will not need the addition of a well but only the installation of the forth skid unit. The post treatment system and concentrate disposal system are capable of handling the planned water treatment.

6.3.3 Southwest Recharge
Phase I - Start 2008; Phase II – Start 2009
Phase I – Finish 2011; Phase II – Finish 2012

The first Phase of the Southwest Recharge facility includes the addition of a one million gallon per day of membrane bioreactor (MBR) and UV disinfection system combined with modification to the existing headworks, oxidation ditches and clarifiers. Improvements to the percolation ponds will be designed and constructed. This first phase will provide a 12 month demonstration period for data collection and contaminant removal efficiency of the MBR as well as the performance of the improved disposal system.

This first Phase of the plan also includes aquifer recharge testing and analysis to determine the viability of obtaining credit from the SFWMD for the introduction of reclaimed water back into the natural system. The current plan is to achieve a one to one credit for each gallon of recharge as a credit of additional Biscayne Aquifer water that can be withdrawn from the Southwest wellfield to meet growing water demands.

The plan schedule assumes the recharge credit issue to be resolved in 2009 thus providing for Phase II expansion. This Phase will include the addition of a second MBR unit, appropriate improvements to the wastewater treatment process and the addition of a reverse osmosis system to address emerging issues involving the potential presence of microconstituents in wastewater.

The addition of the RO unit will need an injection well for disposal of the reject water. This well will also be designed and permitted with a capacity to take the full waste stream in the event of flood conditions or upsets in the biological treatment process. The disposal well may also be sized to accommodate concentrate disposal from expansion of the Southwest WTP.

The Phase II work also includes the increase of the Southwest water treatment facility from 2 mgd to 4 mgd. This additional 2 mgd will require an expansion of

the lime softening treatment process and the addition of a new Biscayne Aquifer well.

6.3.4 Park City RO
Phase I - Start 2008; Phase II – Start 2017
Phase I – Finish 2012; Phase II – Finish 2019

The first Phase of the Park City RO work involves investigating the Floridan Aquifer and the associated water quality. These analyses will involve construction of three Floridan wells. Two of the wells will be capable of conversion into full production wells following the testing period. The third well is planned as a long term monitor well that will record long term trends in the Floridan Aquifer. Once the water quality characteristics are confirmed and the aquifer productivity is known, the design of the first 2.4 mgd can begin. At that time, two of the test wells will be converted to full Floridan Aquifer production wells as the raw water source for the first phase of the treatment facility.

In addition to the RO facility, the City plans to construct a concentrate injection well for disposal of the RO reject water. A new storage facility and high service pump station are also planned as part of the Phase I activities.

Phase II will involve the expansion of the treatment plant by another 2.4 mgd. This expansion will require an addition of another Floridan Aquifer well, and additional RO skids. The concentrate disposal well and the storage and high service pump station will not require expansion for this phase.

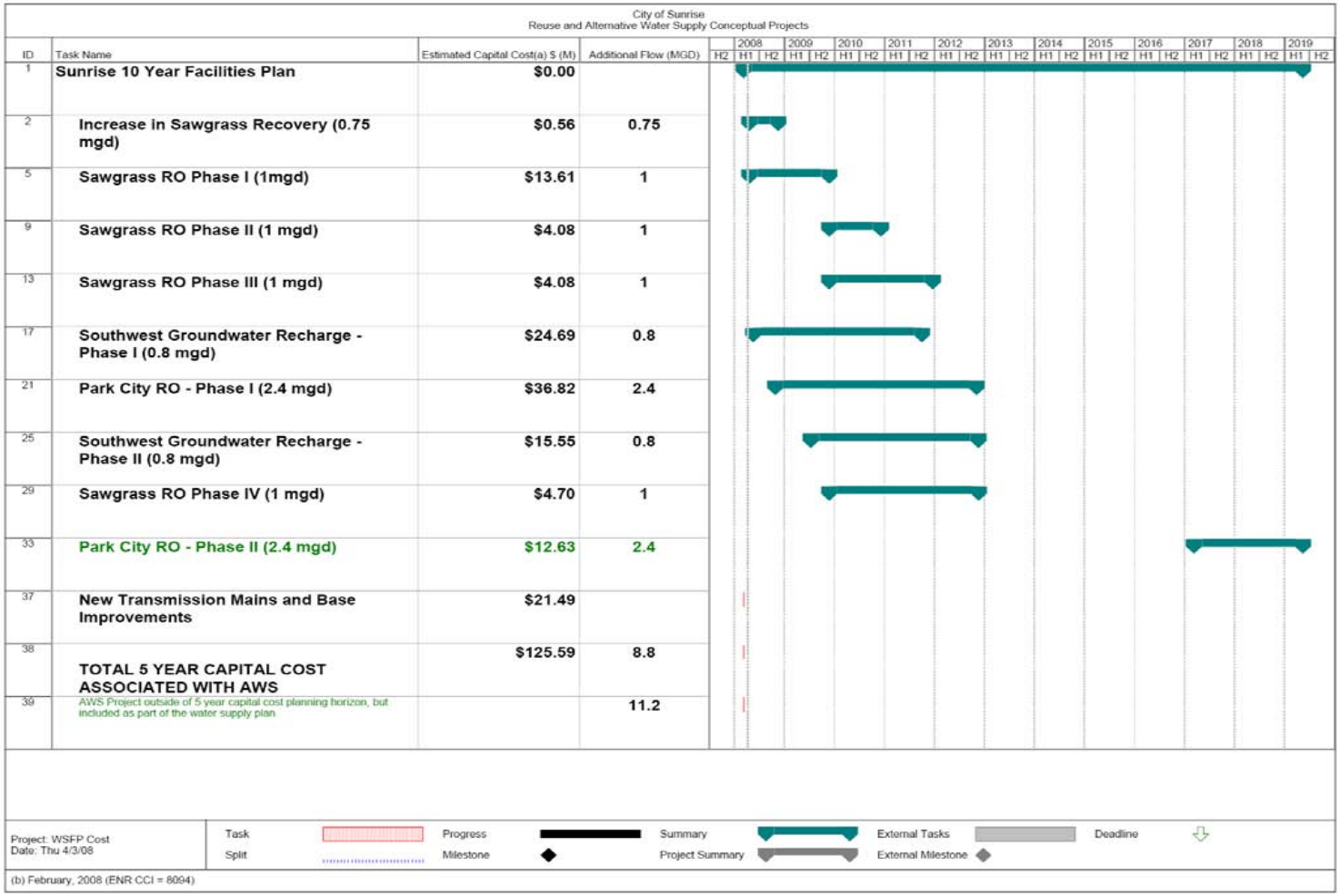
6.4 ALTERNATIVE WATER SUPPLY DEVELOPMENT SCHEDULE

The Water Supply Availability Rule adopted by the WMD in February 2007 provides a 5 year transition period for utilities to construct and place on-line new alternative water supply systems. The five year transition period, which allows "borrowing" of Biscayne Aquifer water while alternative water supplies are designed and constructed, is severely limiting to public utilities and will challenge public water purveyors' abilities to execute large scale public works construction projects in such a short time frame. Additionally, the high cost of these future facilities and unknown aquifer performance skew the risk away from an aggressive design/build scenario to a more incremental approach. To that end, this plan takes advantage of the "borrowing" time to gather basic information that can significantly impact the ultimate cost, sustainability, and permit ability of each option. **Table 6-3** shows the cost schedule to implement.

Table 6-3

City of Sunrise
Reuse and Alternative Water Supply Conceptual Projects

ID	Task Name	Estimated Capital Cost(a) $ (M)	Additional Flow (MGD)
1	**Sunrise 10 Year Facilities Plan**	**$0.00**	
2	**Increase in Sawgrass Recovery (0.75 mgd)**	**$0.56**	**0.75**
5	**Sawgrass RO Phase I (1mgd)**	**$13.61**	**1**
9	**Sawgrass RO Phase II (1 mgd)**	**$4.08**	**1**
13	**Sawgrass RO Phase III (1 mgd)**	**$4.08**	**1**
17	**Southwest Groundwater Recharge - Phase I (0.8 mgd)**	**$24.69**	**0.8**
21	**Park City RO - Phase I (2.4 mgd)**	**$36.82**	**2.4**
25	**Southwest Groundwater Recharge - Phase II (0.8 mgd)**	**$15.55**	**0.8**
29	**Sawgrass RO Phase IV (1 mgd)**	**$4.70**	**1**
33	**Park City RO - Phase II (2.4 mgd)**	**$12.63**	**2.4**
37	**New Transmission Mains and Base Improvements**	**$21.49**	
38	**TOTAL 5 YEAR CAPITAL COST ASSOCIATED WITH AWS**	**$125.59**	**8.8**
39	AWS Project outside of 5 year capital cost planning horizon, but included as part of the water supply plan		**11.2**



(b) February, 2008 (ENR CCI = 8094)

the steps planned in the Work Plan to meet both the conditions of the City's Consumptive Use Permit (in final approval process) and the planned growth as outlined in the Lower East Coast (LEC) Plan. **Appendix H** shows some of the assumptions in development of capital cost for the 10 Year Water Supply Facilities Work Plan.

STEP 1 - Increase Sawgrass Recovery: Recover portion of the waste stream generated from the nano-membrane softening plant at Sawgrass. Currently the plant produces softened water by concentrating salts into a side stream that is injected into a deep injection well. This side stream contains of 20 percent of the raw water that is withdrawn from the Biscayne Aquifer and treated at this plant. By making some changes in the operation and with the addition of chemicals, it may be possible to recover an additional 5 percent of the plant's Biscayne Aquifer raw water for potable use. This represents about three-quarters of a million gallons per day at the present average daily production rate of 15 mgd of raw water. This first step is planned for the latter part of 2008 with changes in operation to be fully implemented by the end of the year.

SETP 2 - Sawgrass RO Phase 1 demonstration project: The first logical choice for development of new water is the Floridan Aquifer. The adopted LEC Water Supply Plan defines the Floridan Aquifer as a "...the principal source of brackish supply..." and declares that the aquifer "...is not considered to be a limited resource in the LEC Planning Area." Therefore, all local utilities are also considering the Floridan Aquifer as a primary source of future raw water supply. The Floridan Aquifer has not been studied or modeled in the LEC planning area and there are significant unknowns over quantity of safe yield and impacts to ambient water quality that must be accounted for in designing a treatment system using this aquifer as a primary raw water source. What little is known about the Floridan Aquifer is that it is a confined aquifer, containing brackish water with varying degrees of chlorides and total dissolved solids. The risks associated with this option is that overuse of the Floridan water may result in significant changes in the aquifer that could impact water quality deterioration, impact adjacent users and diminished productivity.

This Option which is planned to begin as soon as Consumptive Use Permit is issued by the SFWMD (expected in May, 2008) includes the construction of a test production well at the Sawgrass Utility Complex. The well will provide definitive water quality characteristic and estimates of productivity and sustainability of the source. Having detailed water quality information, the first set of skid mounted reverse osmosis units will be designed and manufactured. When the skid RO unit is under construction, the piping and electrical work will be constructed at the Sawgrass facility. This demonstration project is planned to

be operational by the end of 2009 providing an addition of 1 mgd of new water to the system.

STEP 3 – Southwest Groundwater Reuse Project. This project schedule is driven by the need for the City to either abandon or modify the Southwest Waste Water Treatment Plant (WWTP) by 2011. The City has been issued a 1 mgd operating permit by the FL Department of Environmental Protection (DEP). This permit requires tertiary treatment and improved discharge of the treated wastewater. This project will commence in May 2008.

The City intends to apply for reuse credits from the SFWMD pursuant to the water availability rule, once initial aquifer testing and modeling are conducted. Following successful negotiations of reuse credits, the City plans to perform significant modifications to the treatment process by adding a Membrane Bio-Reactor (MBR) to the treatment stream as well as the addition of UV disinfection. Also, the addition of rapid infiltration trenches will address FDEP permit conditions. This first reuse phase is scheduled to be operational by the end of 2011. Data gathered during the first year of operation will confirm the assumption used in the Basis of Design for planned expansions at the facility.

STEP 4 – The fourth phase of implementation of the Work Plan includes conducting an aquifer performance test at the Park City Utility Complex. This work is planned to include construction of two Floridan test production wells and the construction of a third Floridan monitor well. After the water quality is determined and the aquifer characteristics verified, work will begin on a reverse osmosis treatment plant, including storage and high service pumps. The work is planned to begin by the forth quarter of 2008 and conclude in 2012 with the addition of 2.4 mgd of new water to the system.

STEP 5 – The next phase of alternative water supply development will include the expansion of the SW WWTP and the SW water treatment plant. Assuming that the data obtained during the demonstration period of operation of this facility is favorable and the Water Management District grants a one for one reuse credit for additional recharge, the City plans to expand its operation. The expansion includes the addition of a second MBR unit increasing the treatment capacity to 2 mgd.

In concert with the additional reuse credits, the City plans to expand the SW Water treatment plant with the addition of a Biscayne well and treatment facility. The final phase of activities will provide an additional 2 mgd of treated potable water by the end of 2012.

STEP 6 – This phase of the Water Supply Facility Plan includes expanding the Reverse Osmosis treatment facilities at the Sawgrass WTP. A second skid unit is planned to be ordered following successful operation of the first skid. The second unit is planned to be ordered in late 2009 and operational in 2010. This phase will add 1 mgd of alternative water supply.

STEP 7 – Further expansion of the RO treatment capacity at the Sawgrass WTP will require the construction of a second Floridan Aquifer well on the utility complex property. This phase although starting in 2009 is not scheduled for completion until 2011. This additional well and skid unit will provide 1 mgd of additional water supply. The addition of the second well can be rescheduled if demands for new water materialize at a different pace than currently projected.

STEP 8 – The last phase of development for the Sawgrass WTP includes the addition of the forth planned RO skid. This unit can be ordered as early as 2010 or delayed if growth in demand for new water differs from projections.

STEP 9 – This Phase is at the end of the 10 year window but involves expansion of the RO plant capacity at Park City. This expansion can be constructed within 30 months of need.

Table 6-4 provides a more detailed analysis of the timeline for implementation of the Work Plan along with associated activity linkages. The plan provides significant flexibility to meet changing demands but requires an initial investment in information and knowledge assimilation to address technological issues.

6.5 CONSERVATION PROGRAMS

The City, as a goal, desires to implement a successful conservation plan. The City recognizes that conservation saves the natural resources as well as capital resources. The City proposes to:

- Adopt automatic self actuating water conservation measures similar to those of the South Florida Water Management District, to be utilized year round during periods of declared drought.
- Implement a program to restrict usage periods. Nonessential water usage such as lawn watering and other outdoor activities would be limited to certain days of the week and times of the day as required by the District.
- Encourage the continued use of Xeriscape plantings in all developments, which will reduce the overall amount of all types of water to be used for irrigation purposes.

- Continue the usage monitoring campaign which includes the identification of potential sources of illegal water uses (i.e. construction activity, non-metered facilities, etc.). Penalties for illegal water use will continue to be enforced by the City. If necessary, to encourage conservation by the public, an awareness campaign in conjunction with the SFWMD will be publicized.
- Continue to encourage water conservation through an aggressive tiered water and waste water structure, which effectively discourages the use of water for irrigation by increasing the rates for high usages by types of use (i.e. business, residential, landscaping, etc.).
- Continue to support the Broward NatureScape Program, which promotes landscapes that conserve water, protect water quality, and creates wildlife habitat.
- Apply measures, such as those outlined in the SFWMD's Model Water Shortage Ordinance and Florida Department of Environmental Protection's Florida Water Conservation Initiative.
- Adopt and support an educational outreach program to all service areas targeting students and adults to the environmental aspects of water and its value

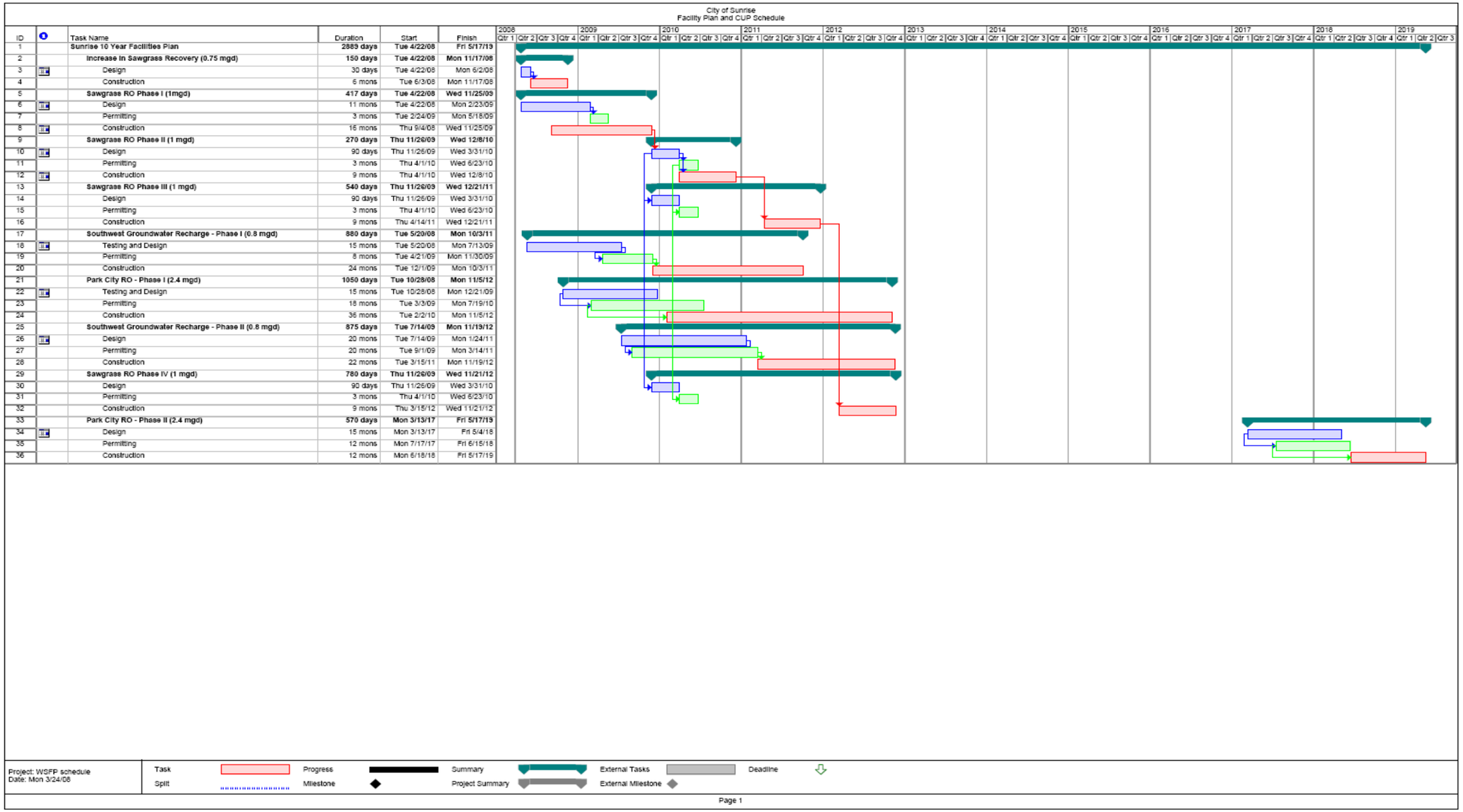
6.6 REUSE PROGRAMS

The City is committed to use water more than once when feasible. The City will continue to investigate options for reusing water for a variety of reuse options. The City will continue to work with Federal, State, County and Local Governments to explore reuse options and funding strategies to encourage cost effective reuse options. The City has included in this Water Supply Planning document and its Utility 5 year Capital Improvement Program a specific project to explore the viability of reuse options at its Southwest wastewater treatment plant. This reuse investigation will be coordinated with Federal, State and Local officials to determine the optimal solutions and feasibility models for the utility.

6.7 INTERGOVERNMENTAL COORDINATION

The City, in preparation of this document, coordinated with a number of governmental agencies so that the findings and conclusions were the result of information exchange and an understanding of the implications associated with this plan. Specifically the City's planning and Utilities staff met with the South Florida Water Management District, Broward County, the Town of Davie, the City of Weston and the Town of Southwest Ranches. Through these meetings, the City conveyed its population projections, its water demand projections and the need for continued communication as future growth occurs.

Table 6-4
Water Supply Facilities Work Plan Schedule



6.8 CAPITAL IMPROVEMENT ELEMENT

The City has developed the cost estimates for implementation of the 10-year Water Supply Facilities Work Plan and compared the impact of those costs to its financial position. When the cost of the Work Plan is incorporated into the projected five year Capital Improvement Program, the overall cost is in line with prior projections. Cash reserves are sufficient to fund the initial three (3) years of the proposed water supply plan starting with FY2008, however impacts to the implementation schedule of other CIP projects may have to be adjusted. New sources of capital will need to be sought earlier than previously proposed, however the City's policy of fiscal conservatism over the years will pay dividends to rate payers by allowing bond issues to be deferred to later years of the overall plan. The City has cash reserves sufficient to cover the first three years if improvements required under the Work Plan, but may choose to undertake alternative financing methods as the plan is implemented over time.

6.9 GOALS, OBJECTIVES, POLICIES

The following existing and proposed goals, objectives and policies of the City's Comprehensive Plan are in support of the City's 10-Year Water Supply Facilities Work Plan:

- Adopt and implement the 10-Year Water Supply Facilities Work Plan recommended projects and implementation schedule. (Future Land Use Element, Policy 10.1.2; Infrastructure Element, Policy 1.1.9; Conservation Element, Policy 1.3.1; and Capital Improvement Element, Policy 1.2.9)

- Protect the quality and quantity of Sunrise's potable water supply and eliminate the presence of all regulated substances, as defined by the Broward County Potable Water Supply Wellfield Ordinance, from the potable wellfield zones of influence of Sunrise's existing and planned wellfields, as depicted on the Natural Resource Map**. (**Future Land Use Element, Objective 10.1)

- Increase the coordination between land use and future water supply planning within 18 months of the adoption of the Lower East Coast Water Supply Plan, as required by Chapter 163, Florida Statutes. **(**Future Land Use Element, Policy 10.1.2)

- Adopt water conservation measures similar to those adopted by the South Florida Water Management District in the Lower East Coast Water Supply Plan. **(**Future Land Use Element, Policy 10.1.3)

- Amendments to the Sunrise Future Land Use Map proposing industrial uses that could result in contamination of the aquifer shall be discouraged within wellfield protection zones of influence. **(**Future Land Use Element, Policy 10.1.4)

- Coordinate water supply planning and land use planning activities of the City with local governments receiving water from the City and provide water to the City to ensure that the water needs of the City's residents are met. **(**Future Land Use Element, Objective 10.4)

- Maintain consistency between the demand calculations in the 10-Year Water Supply Facilities Work Plan and the population projections contained in the Future Land Use Element. **(**Future Land Use Element, Policy 10.4.1)

- Monitor water demands and future land use plan amendments within the City's Water Service Area as defined in the Work Plan. **(**Future Land Use Element, Policy 10.4.2)

- Assure that adequate water supplies and potable water facilities meeting the adopted level of service shall be in place and available to serve new development no later than the issuance of a certificate of occupancy. (Infrastructure Element, Objective 1.1; Policy 1.1.7)

- Monitor growth in water demands so that the annual average daily flows not exceed 90 percent of design capacity of the combined treatment plants until buildout. (Infrastructure Element, Policy 1.1.1)

- Maintain a system that can produce and deliver 127 gallons per person per day. (Infrastructure Element, Policy 1.1.1)

- Monitor water usage for compliance with the City's Consumptive Use Permit. (Infrastructure Element, Policy 1.1.8)
- Maintain a Water Supply Facilities Work Plan for at least a 10 year planning horizon addressing the water supply facilities necessary to serve existing and future development within the City's water service area. (Infrastructure Element, Policy 1.1.10)
- Update adopted LOS for consistency with the South Florida Water Management Districts LEC Plan when proposing or amending the 10-Year Water Supply Facilities Work Plan. At a minimum, this coordination shall take place within 18 months following an update to the LEC and be

documented in the text of the Work Plan. (Infrastructure Element, Policy 1.1.11)

- Where appropriate and feasible, the work plan should include collaborative approaches with other local governments for water supply source use and water treatment technology. (Infrastructure Element, Policy 1.1.11)
- Projected demands for the period FY 08-09 through FY 12-13, will be met by undertaking projects listed in the Capital Improvement Element and by scheduling projects as identified in the Infrastructure and analysis. (Infrastructure Element, Objective 2.2)
- All projects required to meet projected demands through 2012 shall be scheduled in the Capital Improvements Element of this plan in accordance with the requirements of Section 163.3177(3), F.S. (Infrastructure Element, Policy 2.2.2)
- Conserve potable water by pursuing implementation of water conservation practices described in the 10-Year Water Supply Facilities Work Plan (Infrastructure Element, Objective 2.3)
- Continue to evaluate other methods of encouraging water conservation such as the reuse of reclaimed water. (Infrastructure Element, Policy 2.3.6)
- The City should use land development regulations to preserve key natural groundwater aquifer recharge areas. (Conservation Element, Policy 1.3.3)
- Implement the water conservation practices described in the City's 10-Year Water Supply Work Plan. (Conservation Element, Policy 1.3.6)
- In order to protect and preserve the Biscayne Aquifer, the City will utilize alternative water supplies to supplement the City's Consumptive Use Permit water withdrawal allocation. (Conservation Element, Policy 1.3.7)
- The City shall provide for emergency conservation of water in accordance with the plans of the regional water management district and the City's 10-Year Water Supply Facilities Work Plan with ongoing encouragement of water conservation programs/measures and enforcement of water conservation policies listed below. (Conservation Element, Objective 1.7)
- Consider implementing a program for the voluntary conservation of water through restricting usage periods and/or rationing. Nonessential

water usage such as lawn watering and other outdoor activities would be discouraged except for certain days of the week and times of the day as required by the District. (Conservation Element, Policy 1.7.2)

- Encourage the continued use of Xeriscape plantings. (Conservation Element, Policy 1.7.3)

- Monitoring water uses to identify potential illegal water uses (*i.e.* construction activity, non-metered facilities, etc.). Penalties for illegal water use should continue to be enforced by the City. (Conservation Element, Policy 1.7.4)

- Encourage conservation by the public through and educational awareness campaign supporting the *Wet in the City* environmental education program throughout the Utilities' service area. (Conservation Element, Policy 1.7.7)

- Encourage water conservation through a tiered water use structure, which effectively discourages the use of water for all but essential needs by increasing the rates for abnormally high usages by types of use (i.e. business, residential, landscaping, etc.). (Conservation Element, Policy 1.7.5)

- Support the Broward NatureScape Program, which promotes landscapes that conserve water, protect water quality, and creates wildlife habitat. (Conservation Element, Policy 1.7.6)

- Consider introducing measures, such as those outlined in the SFWMD's *Model Water Shortage Ordinance* and Florida Department of Environmental Protection's *Florida Water Conservation Initiative.* (Conservation Element, Policy 1.7.8)

- **C**oordinate the Comprehensive Plan and its implementation with the State, the South Florida Regional Planning Council, Broward County and adjacent cities, as well as the Broward County School District, the South Florida Water Management District, and the special districts, throughout the duration of this Plan. (Intergovernmental Coordination Element, Objective 1.1)

- Coordinate planning activities with the South Florida Water Management District to ensure that the City's plans, requirements and related actions contained in the 10-Year Water Supply Facilities Work Plan are consistent

with the Lower East Coast Regional Water Supply Plan. (Intergovernmental Coordination Element, Policy 1.1.20)

- The City shall encourage the appropriate coordination of the level of service of facilities and services and continue to provide utility services to governments with which the city has formed agreements and will continue to exchange information with surrounding governments regarding relative items that affect the standing of such service agreements. (Intergovernmental Coordination Element, Objective 1.2; Policy 1.2.5)

- Potable Water: Average daily flow shall not exceed 90 percent of design capacity of the combined treatment plants. The system shall maintain the capacity to produce and deliver 127 gallons per person per day. (Capital Improvements Element, Policy 1.2.3)

- Adequately fund and make capital improvements through the City's Renewal and Replacement Program necessary to keep its present public facilities in good condition and to accommodate new development, within sound fiscal practices. (Capital Improvements Element, Policy 1.2.10)

- The City shall provide adequate water and potable water facilities meeting the adopted level of service and available to serve new development no later than the issuance of a certificate of occupancy. (Capital Improvements Element, Policy 1.2.11)

The water supply projects described in the 10-Year Water Supply Facilities Work Plan shall be incorporated into the Capital Improvements Element and the City's budget on an annual basis. (Capital Improvements Element, Policy 1.2 12)

6.10 CONCLUSIONS

The City has made it a long standing practice to plan for and develop a water system capable of meeting all the needs of its customers, both current and future. This is evidenced by its construction and operation of a water system capable of meeting not only today's demands but also demands through 2030.

The South Florida Water Management District has determined that the Biscayne Aquifer water source that had been planned as the source for all of the City future water needs, can no longer be used to meet those future demands.

The City has evaluated the impact of implementation of new alternative water sources to meet this shortfall in its future planned needs. As part of this evaluation population growth projections and water demands were matched to the Lower East Coast Plan and to Broward County's population plans.

A water supply work plan was then formulated that matched alternative source water development with water demand growth. The plan also evaluated the cost impact of this plan against the City's financial status.

The result is a plan that the City can fund from cash reserves if desired for the next five years. It is a plan that satisfies the requirements of its Consumptive Use Permit and meets projected growth. Additionally, the plan is designed to minimize the City's risk by providing significant flexibility with the timing of new facilities thus minimizing capital outlay until it is actually needed.

Table 6-5
Comparison of Facility Capacity and Anticipated Future Permitted Amount

	2008	2013	2015	2018	2027	2030
Population Served	221,900	237,800	244,300	251,600	262,900	265,000
Average Daily Demand (Finished) MGD	28.18	30.20	31.03	31.95	33.39	33.66
Demand per Capita Finished (GPCD)	127	127	127	127	127	127
Available Facility Capacity (MGD)[1]	38.58	44.72	44.72	44.72	47.12	47.12
Facility Capacity Surplus (Deficit)[2]	10.40	14.52	13.69	12.76	13.73	13.46
Anticipated Permitted Amount (MGD Annual Avg.)[3]	28.58	34.72	34.72	34.72	37.12	37.12
Anticipated Permitted Surplus MGD (Deficit)[4]	(0.03)	4.09	3.26	2.33	3.30	3.03

MGD = Million Gallons per Day

[1] Calculated based on existing onsite facility capacity

[2] Calculated by subtracting Average Daily Demand from Available Facility Capacity

[3] Calculated as treated water by subtracting Average Daily Demand and additional DRI demand (as of December 2007) from Permitted Amount

[4] The currently permitted raw water amount is 29.09 MGD. The 20-year consumptive use permit is under preparation by SFWMD. It is anticipated that the consumptive use permit amounts from Biscayne Aquifer for future years will be equal to the 29.09 MGD. Additional water demands will be met by implementing reuse and additional permitted withdrawal from Floridan Aquifer.

* Reference **Appendix H** for Cost Assumptions.

Cost Schedule

The capital expenditures necessary to plan, design test, and construct.

Table 6-6
City of Sunrise, Alternative Water Supply Project Capital Costs

	Expenditure [(a)] (In Million of Dollars)						
Project Name	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	Six Year Totals
Sawgrass Concentrate Recovery (0.75 mgd)	$0.56	$0.00	$0.00	$0.00	$0.00	$0.00	$0.56
Sawgrass RO Phase I (1 mgd)	$3.42	$8.20	$2.00	$0.00	$0.00	$0.00	$13.61
Sawgrass RO Phase II (1 mgd)	$0.00	$0.62	$3.46	$0.00	$0.00	$0.00	$4.08
Sawgrass RO Phase III (1 mgd)	$0.00	$0.00	$0.62	$3.46	$0.00	$0.00	$4.08
Southwest Ground Water Recharge Phase I (0.8 mgd)	$0.20	$6.20	$9.14	$9.14	$0.00	$0.00	$24.69
Park City Phase I (2.4 mgd)	$4.10	$4.94	$0.00	$13.89	$13.89	$0.00	$36.82
Southwest Ground Water Recharge Phase II (0.8 mgd)	$0.10	$0.00	$3.57	$11.89	$0.00	$0.00	$15.55
Sawgrass RO Phase IV (1 mgd)	$0.00	$0.62	$0.00	$0.62	$3.46	$0.00	$4.70
Park City Phase II (2.4 mgd)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Transmission Main and Base Improvements	$0.00	$0.00	$1.97	$8.78	$8.78	$1.97	$21.49
	$8.37	$20.58	$20.76	$47.79	$26.14	$1.97	$125.59

(a) February 2008 (ENR CCI = 8094)

(b) Appendix H shows some of the assumptions in development of capital cost for the 10 Year Water Supply Facilities Work Plan.

* Reference **Appendix H** for Cost Assumptions.

Appendices

Appendix A

Growth Management Statute and Rule Requirements Related to Water Supply Planning

Sources

Chapter 163, Part II, *Florida Statutes* (2006) - The Local Government Comprehensive Planning and Land Development Regulation Act

Chapter 9J-5, *Florida Administrative Code* - Minimum Criteria for Review of Local Government Comprehensive Plans and Plan Amendments, Evaluation and Appraisal Reports, Land Development Regulations and Determinations of Compliance

I. WATER SUPPLY REQUIREMENTS FOR COMPREHENSIVE PLANS

A. Section 163.3167(13), *F.S.*: Each local comprehensive plan shall address the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the applicable regional water supply plan developed pursuant to Section 373.0361, *F.S.*

Comment: Local governments must address water supply sources for the planning time frame established in the comprehensive plan and consider the applicable regional water supply plan in this planning effort.

B. Section 163.3177(4)(a), *F.S.*: Local comprehensive plans must be coordinated with the appropriate water management district's regional water supply plan(s) approved pursuant to Section 373.0361, *F.S.*

II. REQUIRED AND OPTIONAL ELEMENTS OF COMPREHENSIVE PLANS

A. Section 163.3177(3)(a), *F.S.*: A Capital Improvements Element that addresses the need for and location of public facilities necessary to implement the comprehensive plan and includes principles for correcting public facility deficiencies.

Comment: Local governments, regional water supply authorities, and publicly and privately owned utilities are primarily responsible for funding and implementing water supply planning and development, defined as "the planning, design, construction, operation, and maintenance of public or private facilities for water collection, production, treatment, transmission, or distribution for sale, resale, or end use.[1] The Capital Improvements Element must include funding for major capital projects needed for water

[1] FLA. STAT. §§ 373.0831(2)(b), .019(20).

supply development. Each local comprehensive plan must be coordinated with the appropriate water management district's regional water supply plan approved pursuant to Section 373.0361, *F.S.*[2]

B. Section 163.3177(6)(a), *F.S.*: A Future Land Use Element designating the proposed distribution, location, and extent of future uses of land for all categories of public and private uses of land, such as residential, commercial, industrial, conservation and agriculture. The future land use plan must be based upon data and analysis that estimates the amount of land needed to accommodate anticipated growth and the availability of water supplies, public facilities and services, including those for potable water.

Rule 9J-5.006, *F.A.C.* – Future Land Use Element

1. Requires an analysis of the availability of facilities and services identified in the Sanitary Sewer, Solid Waste, Stormwater Management, Potable Water and Natural Groundwater Aquifer Recharge Element to accommodate existing development, as well as an analysis of the amount of land needed to accommodate projected population.

2. Requires that facilities and services meet locally established level-of-service standards and are available concurrent with the impacts of development.

   Comment: Local governments must coordinate the Future Land Use Element and Future Land Use Map, including the anticipated growth allowed by the Future Land Use Map, with the availability of potable water services. The Future Land Use Element must include data and analysis demonstrating the coordination.

C. Section 163.3177(6)(c), *F.S.*: A General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element correlated to principles and guidelines for future land use and indicating ways to provide for future potable water, drainage, sanitary sewer, solid waste, and aquifer recharge.

1. Requires each local government located within an area subject to a regional water supply plan to revise the element within eighteen months after the applicable water management district approves its regional water supply plan (or update) 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(s) proposed by the local government under Section 373.0361(7), *F.S.*;

[2] FLA. STAT. § 163.3177(4)(a).

b. Identify the traditional and alternative water supply projects and the conservation and reuse programs necessary to meet current and future water use demands within the local government's jurisdiction [Section 163.3177(6)(c), *F.S.*]; and

c. Include a water supply facilities work plan for a minimum 10-year period, for building public, private, and regional water supply facilities, which are identified in the element as necessary to serve existing and new development. The work plan must be adopted into the comprehensive plan within eighteen months after the applicable water management district approves a regional water supply plan or its update.

2. Local governments, public and private utilities, regional water supply authorities, special districts, and water management districts are encouraged to cooperatively plan for the development of multijurisdictional water supply facilities.

3. Amendments to incorporate the work plan into the local comprehensive plan are exempt from the limitation on the number of adopted amendments allowed each year.

Rule 9J-5.011, *F.A.C.* – Sanitary Sewer, Solid Waste, Stormwater Management, Potable Water and Natural Groundwater Aquifer Recharge Element

1. Each local government must identify facilities that provide service within its jurisdiction, including the design capacity, current demand and level of service provided by the facility.

2. A facility capacity analysis must be based on the projected demand at the current level of service for the facility, the projected population and available surplus capacity. The element must also address correcting existing facility deficiencies.

3. The element must address conserving potable water resources and protecting natural groundwater aquifer recharge areas.

4. The element must establish level of service standards.

Comment: Each local comprehensive plan must include a Potable Water Sub-Element that is consistent with the Conservation Element, in terms of current and projected water needs and sources. The potable water system consists of a water supply source, a treatment plant and a distribution and storage network. Either surface or groundwater or some combination thereof usually constitutes the source. Many local governments focus their Potable Water Sub-Elements on the infrastructure capacity available from the potable water production and distribution system rather than the availability of water from a particular source. In analyzing future demand, however, the local government should use current consumptive use permit approvals and regional water supply plans to evaluate whether adequate water supplies are available to meet projected demand. The Potable Water Sub-Element should include

recommendations to reduce existing facility deficiencies and to address projected needs, including alternatives or approaches that could provide the necessary water supply development to ensure water supplies meet future demand.

D. Section 163.3177(6)(d), *F.S.*: A Conservation Element for the conservation, use, and protection of natural resources in the area, including water, water recharge areas, wetlands, floodplains, rivers, bays, lakes and water wells. Local governments must assess current and projected water needs and sources for a minimum 10-year period, considering the appropriate regional water supply plan. In the absence of a regional water supply plan, local governments must consider the district water management plan approved pursuant to Section 373.036(2), *F.S.*

Rule 9J-5.013, *F.A.C.* – Conservation Element

1. Current and projected water needs and sources must be identified and analyzed for the next 10-year period based on demands for industrial, agricultural, and potable water use and the quality and quantity of water available to meet those demands. The analysis must consider existing levels of water conservation, use, and protection and applicable WMD policies.

2. The element must also address the emergency conservation of water sources in accordance with plans of the applicable water management district.

E. Section 163.3177(6)(h)1, *F.S.*: An Intergovernmental Coordination Element that addresses coordination with applicable regional water supply plans and to ensure coordination with the plans of regional water supply authorities.

F. Sections 163.3177(8) and (10)(e), *F.S.*: All elements must be based on data appropriate to the element involved. Support data or summaries are not subject to compliance review, but goals, objectives and policies should be clearly based on appropriate data. The DCA may utilize support data to aid in its determination of compliance.

Rule 9J-5.005(2), *F.A.C.* – Data and Analysis Requirements

The comprehensive plan must be based on data and analysis applicable to each element. The data used must be best available existing data, unless the local government desires original data or special studies. The data must be taken from professionally accepted sources, including the water management districts.

> **Comment:** Regional water supply plans are data appropriate to the Potable Water Sub-Element, Conservation Element, and Capital Improvements Element of the comprehensive plan. Those elements must be internally consistent and must be supported by adequate data

and analysis. The DCA may utilize information from the regional water supply plans to support a finding of compliance.

G. Section 163.3177(9)(b), *F.S.*: Elements of the comprehensive plan must be related and consistent with each other.

Comment: The Potable Water Sub-Element must be consistent with the plan's Conservation Element and Capital Improvements Element. The local government must therefore consider projected water needs and sources in light of the natural resource protections in the Conservation Element and the schedule of facilities contained in the Capital Improvements Element. Similarly, the Capital Improvements Element and the Five-Year Schedule of Capital Improvements should include the water supply projects identified in the Potable Water Sub-Element and the Conservation Element that the local government intends to construct during the five-year period to meet the projected potable water demand.

H. Section 163.3177(9)(h), *F.S.*: The Intergovernmental Coordination Element of the local comprehensive plan must identify the need for and the processes and procedures to ensure the coordination of development activities and services with other units of local government, regional planning agencies, water management districts, and state and federal agencies.

Comment: Procedures should be included in the Intergovernmental Coordination Element to ensure the coordination of development activities, supporting public facilities and services, and water supplies with other local governments and to ensure coordination with district regional water supply plans.

III. CONCURRENCY

A. Section 163.3180(2)(a), *F.S.*: Adequate water supplies and potable water facilities must be in place and available to serve new development no later than the issuance of a certificate of occupancy or its functional equivalent by a local government. Prior to approving a building permit or its functional equivalent, the local government must consult with the appropriate water supplier to determine whether adequate water supplies will be available to serve the development no later than the anticipated date of issuance of a certificate of occupancy or its functional equivalent.

Rule 9J-5.0055, *F.A.C.* – Concurrency Management System

Potable water facilities must be (a) available to serve new development at the time a certificate of occupancy is issued or (b) guaranteed in an enforceable development agreement or development order issued pursuant to Chapter 380, *F.S.*

Comment: The statutory definition of "public facilities" refers to major capital improvements and includes potable water systems and facilities.[3] "Potable water facilities" means a system of structures designed to collect, treat, or distribute potable water, and includes water wells, treatment plants, reservoirs, and distribution mains.[4] Thus by definition, the potable water system includes the facilities to collect the water from its source. To ensure potable water facilities are in place and available to serve new development, the Capital Improvements Element must address funding for major capital projects needed for water supply development, e.g., new wellfields or a reverse osmosis plant.

B. Section 163.3177(10)(f), *F.S.*: Local governments must adopt level of service standards to evaluate whether adequate potable water service will be available concurrent with development.

Rule 9J-5.011(2)(c)2.d., *F.A.C.* The element must contain policies for implementing each of the facilities or resources addressed in the element, including the establishment and utilization of level-of-service standards for minimum design flow, storage capacity, and pressure of potable water facilities.

Comment: Level of service is defined in Rule 9J-5.003(62), *F.A.C.*, to mean "an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. Level of service shall indicate the capacity per unit of demand for each facility." Typical level of service standards for potable water include gallons per capita, gallons per day per residential unit or residential equivalent, and gallons per square foot for nonresidential uses for potable water facilities.

IV. EVALUATION AND APPRAISAL REPORT (EAR)

A. Section 163.3191(1), *F.S.*: Local governments must adopt an EAR every seven years to assess and evaluate the progress made in implementing the local comprehensive plan.

Comment: Water supply issues should be a major focus of each EAR cycle, particularly for local governments located in regional water supply planning areas.

B. Section 163.3191(1)(a), *F.S.*: The evaluation should respond to changes in state, regional and local planning policies; reflect changes made to statutes or rules; analyze existing conditions and evolving trends; ensure effective intergovernmental coordination; and identify major growth management issues.

[3] FLA. STAT. § 163.3164(24).
[4] RULE. 9J-5.003(93).

C. **Section 163.3191(1)(c), *F.S.*: In identifying major issues, the local government should include participation by state agencies, regional agencies, adjacent governments, and the public.**

> **Comment:** Water supply should be a major issue of concern during the next EAR update, because it is a reflection of changes in planning and growth management policies and the alteration of conditions and trends.

D. **Section 163.3191(2)(c), *F.S.*: As the basis for updating the comprehensive plan, the EAR must include an evaluation and assessment of the financial feasibility of providing needed infrastructure to achieve and maintain adopted level-of-service standards, address infrastructure backlogs, and meet the demands of growth on public services and facilities.**

> **Comment:** The financial feasibility assessment is intended to be a retrospective review of how well a local government has provided services at the adopted level of service standards. For water supply and facilities, the assessment should evaluate whether the local government's fiscal policies and financial resources corrected deficiencies as they occurred. The EAR should include recommendations for revising the comprehensive plan to correct any fiscal deficiencies identified.

E. **Section 163.3191(2)(g), *F.S.*: As the basis for updating the comprehensive plan, the EAR must include an assessment of whether plan objectives within each element as they relate to major issues have been achieved, and whether unforeseen and unanticipated changes in circumstances have resulted in problems or opportunities with respect to major issues in each element.**

> **Comment:** Objectives related to water supply must be evaluated if the local government has identified water supply as a major issue.

F. **Section 163.3191(2)(h), *F.S.*: The EAR must include a brief assessment of the successes and shortcomings related to each element.**

> **Comment:** The Future Land Use, Conservation, and Intergovernmental Coordination Elements as well as the Potable Water Sub-Element must be evaluated to briefly identify revisions necessary to adequately address water supply issues. Revisions may include new or revised goals, objectives, and policies.

G. **Section 163.3191(2)(l), *F.S.*: The EAR must evaluate the extent to which the local government has been successful in identifying alternative water supply projects, traditional water supply projects, conservation, and reuse necessary**

to meet the local water supply needs identified in the applicable regional water supply plan, and evaluate the degree to which the local government has implemented the 10-year work plan for building public, private, and regional water supply facilities, including the development of alternative water supplies to serve existing and new development.

H. **Section 163.3191(3), *F.S.*: Voluntary scoping meetings may be requested by a local government, but must be completed at least one year prior to the scheduled EAR adoption date. The purpose of the scoping meeting is to distribute data and resources available to assist the local government in the preparation of its EAR, provide input on major issues to be addressed in the report, and provide advice on the detail needed to address the EAR requirements. State and regional agencies should provide a list of new data and major issues that have emerged since the adoption of the original comprehensive plan or the last EAR update to the comprehensive plan.**

Appendix B

Facility Work Plan

Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

PERMIT NO.	PROJECT NAME	WATER USE	SOURCE	PERMITED AMOUNT (gpd)
06-03257-W	SPRING TREE GOLF COURSE	Irrigation	On-site Canal(s)	> 100,000 and < 500,000
06-03257-W	SPRING TREE GOLF COURSE	Irrigation	On-site Canal(s)	> 100,000 and < 500,000
06-01783-W	G & K SERVICES	Irrigation	Biscayne Aquifer	< 100,000
06-01275-W	AMOCO 89-4430-26	Industry	Biscayne Aquifer	< 100,000
06-03226-W	SAWGRASS TECHNOLOGY PARK	Irrigation	On-site Lake(s)	< 100,000
06-01514-W	MIDDLE SCHOOL DD	Irrigation	Biscayne Aquifer	< 100,000
06-02110-W	LAKEVIEW CENTER	Irrigation	Biscayne Aquifer	< 100,000
06-02125-W	SAWGRASS MEDICAL & RETAIL CENTER	Irrigation	Biscayne Aquifer	< 100,000
06-02788-W	LA-Z-BOY SHOWROOM	Irrigation	Biscayne Aquifer	< 100,000
06-01698-W	ALBERTSONS #43P	Irrigation	Biscayne Aquifer	< 100,000
06-01686-W	EXXON #4-0429/SUNRISE	Irrigation	Biscayne Aquifer	< 100,000
06-01704-W	SUNRISE FIRE STATION NO 92	Irrigation	Biscayne Aquifer	< 100,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-02354-W	SAWGRASS PRESERVE	Irrigation	Surficial Aquifer System	> 500,000
06-02354-W	SAWGRASS PRESERVE	Irrigation	Surficial Aquifer System	> 500,000
06-02360-W	WENDY'S RESTAURANT	Irrigation	Biscayne Aquifer	< 100,000
06-02378-W	OAK NOB CORNER	Irrigation	Biscayne Aquifer	< 100,000
06-02385-W	WATERFORD CROSSINGS	Irrigation	Biscayne Aquifer	< 100,000
06-02387-W	AUTOMATIC ENTRANCES INC	Irrigation	Biscayne Aquifer	< 100,000
06-02253-W	MC DONALDS/AMOCO	Irrigation	Biscayne Aquifer	< 100,000
06-02278-W	DON OLSON TIRE & AUTO CENTER (SAWGRASS MILLS)	Irrigation	Surficial Aquifer System	< 100,000
06-02284-W	GLOBAL WHOLESALE FACILITY	Irrigation	Biscayne Aquifer	< 100,000
06-02426-W	CLASS A OFFICE BUILDING PHASE II	Irrigation	Biscayne Aquifer	< 100,000
06-02429-W	ARCUS	Irrigation	Biscayne Aquifer	< 100,000
06-02329-W	CLASS "A" BUILDING - SUNRISE	Irrigation	Biscayne Aquifer	< 100,000
06-01344-W	SUNRISE COUNTRY CLUB	Irrigation	Biscayne Aquifer	> 500,000
06-02334-W	COASTAL GASOLINE STATION	Irrigation	Biscayne Aquifer	< 100,000
06-02951-W	TGI FRIDAYS	Irrigation	Biscayne Aquifer	< 100,000
06-02954-W	LONGSTAR TEXACO	Irrigation	Biscayne Aquifer	< 100,000
06-02774-W	SUNRISE INDUSTRIAL PARK, PARCELS 5B & 5C	Irrigation	Biscayne Aquifer	< 100,000
06-01296-W	PIPER HIGH	Irrigation	Surficial Aquifer System	< 100,000
06-02781-W	POLLO TROPICAL RESTAURANT	Irrigation	Biscayne Aquifer	< 100,000
06-01574-W	SPRINGTREE SUBSTATION	Irrigation	Biscayne Aquifer	< 100,000
06-02585-W	BLOCKBUSTER VIDEO	Irrigation	Biscayne Aquifer	< 100,000
06-02601-W	CLASS A PHASE III	Irrigation	Biscayne Aquifer	< 100,000
06-02835-W	COURTYARD DISTRIBUTION CENTER III	Irrigation	Biscayne Aquifer	< 100,000
06-02622-W	SANDPIPER COVE	Irrigation	Biscayne Aquifer	< 100,000
06-02622-W	SANDPIPER COVE	Irrigation	Biscayne Aquifer	< 100,000
06-02622-W	SANDPIPER COVE	Irrigation	Biscayne Aquifer	< 100,000
06-02638-W	WALGREENS	Irrigation	Biscayne Aquifer	< 100,000
06-03162-W	HBO LATIN AMERICA PRODUCTION SERVICS	Air Conditioning/Withdrawl	Biscayne Aquifer	< 100,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000

Facility Work Plan

Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Floridan Aquifer System	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Floridan Aquifer System	> 500,000
06-00120-W	SUNRISE CITY OF	Public Water Supply	Biscayne Aquifer	> 500,000
06-03202-W	HEALTH SOUTH SUNRISE REHABILITATION HOSPITAL	Irrigation	On-site Lake(s)	< 100,000
06-02889-W	NEXTEL 2676A - WEST SUNRISE	Irrigation	Biscayne Aquifer	< 100,000
06-02702-W	PEDIATRIX	Irrigation	Biscayne Aquifer	< 100,000
06-03178-W	MARINA WEST LLC	Irrigation	On-site Lake(s)	< 100,000
06-02721-W	KENTUCKY FRIED CHICKEN	Irrigation	Biscayne Aquifer	< 100,000
06-02736-W	DON OLSEN TIRE AND AUTO	Irrigation	Biscayne Aquifer	< 100,000
06-02938-W	7-ELEVEN	Irrigation	Biscayne Aquifer	< 100,000
06-02947-W	SAWGRASS INTERNATIONAL BUSINESS CENTER	Irrigation	Surficial Aquifer System	< 100,000
06-02745-W	SAWGRASS CAMPUS E	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-02746-W	MEINEKE DISCOUNT MUFFLERS	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-01296-W	PIPER HIGH	Irrigation	On-site Canal(s)	< 100,000
06-01296-W	PIPER HIGH	Irrigation	On-site Canal(s)	< 100,000
06-02766-W	MARKHAM PARK NURSERY	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-02783-W	SUNRISE INDUSTRIAL PARK	Irrigation	On-site Canal(s)	< 100,000
06-03575-W	PARK TERRACES	Irrigation	Surficial Aquifer System	< 100,000
06-03575-W	PARK TERRACES	Irrigation	Surficial Aquifer System	< 100,000
06-03627-W	SUNSET STRIP ROADWAY IMPROVEMENTS	Irrigation	SFWMD Canal (C-42)	< 100,000
06-03627-W	SUNSET STRIP ROADWAY IMPROVEMENTS	Irrigation	SFWMD Canal (C-42)	< 100,000
06-03627-W	SUNSET STRIP ROADWAY IMPROVEMENTS	Irrigation	SFWMD Canal (C-42)	< 100,000
06-03636-W	SUNRISE ENTERPRISE CENTER - PHASE I	Irrigation	Biscayne Aquifer	< 100,000
06-03643-W	SUNRISE PALMS COMMERCE CENTER	Irrigation	Off-site Canal(s)	< 100,000
06-02851-W	BANYAN RIDGE	Irrigation	On-site Lake(s)/Pond(s)	< 100,000

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06-03045-W	OPUS CENTER	Irrigation	On-site Lake(s)	< 100,000
06-03043-W	RIVERWALK TOWNHOMES	Irrigation	On-site Lake(s)	< 100,000
06-03053-W	SHOTGUN ROAD LINEAR PARK	Irrigation	On-site Lake(s)	< 100,000
06-03053-W	SHOTGUN ROAD LINEAR PARK	Irrigation	On-site Lake(s)	< 100,000
06-03636-W	SUNRISE ENTERPRISE CENTER - PHASE I	Irrigation	Biscayne Aquifer	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03637-W	SUNRISE LAKES - PHASE I APARTMENTS	Irrigation	On-site Lake(s)	< 100,000
06-03677-W	MCDONALD'S RESTAURANT AT PUBLIX AND SUNRISE WEST	Irrigation	Surficial Aquifer System	< 100,000
06-03679-W	EXXON CONVENIENCE CENTER	Irrigation	Biscayne Aquifer	< 100,000
06-02948-W	LOWE'S OF SUNRISE	Irrigation	SFWMD Canal (C-13)	< 100,000
06-02948-W	LOWE'S OF SUNRISE	Irrigation	SFWMD Canal (C-13)	< 100,000
06-03084-W	HEALTH SOUTH	Irrigation	Biscayne Aquifer	< 100,000
06-03085-W	F & R SUNRISE LTD	Irrigation	Biscayne Aquifer	< 100,000
06-03112-W	ROLLER HOCKEY COMPLEX	Irrigation	On-site Canal(s)	< 100,000
06-03114-W	SPRINGTREE GOLF CLUBHOUSE	Irrigation	On-site Canal(s)	< 100,000
06-03111-W	SOCCER COMPLEX	Irrigation	On-site Lake(s)	< 100,000
06-03723-W	ECKERDS COMMERCIAL BOULEVARD AND NOB HILL ROAD	Irrigation	Biscayne Aquifer	< 100,000
06-02971-W	SAWGRASS COMMERCE CENTER - PARCELS 13 & 14	Irrigation	Unspecified	< 100,000
06-03150-W	OAKLAND TOWN CENTER 7/ELEVEN	Irrigation	Surficial Aquifer System	< 100,000
06-02515-W	MORSE	Irrigation	Surficial Aquifer System	< 100,000
06-02986-W	53 SOUTH COMMERCE CENTER	Irrigation	On-site Canal(s)	< 100,000
06-02995-W	COURTYARD DISTRIBUTION CENTER II	Irrigation	CANAL	< 100,000
06-03401-W	NORTH BROWARD HOSPITAL DISTRICT SUNRISE HEALTH PARK	Irrigation	On-site Lake(s)	< 100,000
06-03404-W	CAPITAL HILL DEVELOPMENT	Irrigation	Biscayne Aquifer	< 100,000
06-01765-W	PARADISE GOLF & RECREATION CENTER	Irrigation	On-site Lake(s)	< 100,000
06-03338-W	7-11 SUNRISE	Irrigation	Biscayne Aquifer	< 100,000
06-02354-W	SAWGRASS PRESERVE	Irrigation	Surficial Aquifer System	> 500,000
06-02354-W	SAWGRASS PRESERVE	Irrigation	Surficial Aquifer System	> 500,000
06-02354-W	SAWGRASS PRESERVE	Irrigation	Surficial Aquifer System	> 500,000
06-03349-W	PUBLIX AT SUNRISE WEST	Irrigation	On-site Lake(s)	< 100,000
06-03381-W	ALHAMBRA CIRCLE	Irrigation	On-site Lake(s)	< 100,000
06-03381-W	ALHAMBRA CIRCLE	Irrigation	On-site Lake(s)	< 100,000
06-03373-W	WENDY'S AT SAWGRASS GATEWAY CENTER	Irrigation	Biscayne Aquifer	< 100,000

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06-01797-W	COMPUTER CITY SUPER STORE	Irrigation	On-site Lake(s)	< 100,000
06-02425-W	SPRING TREE GARDENS	Irrigation	CANAL	< 100,000
06-03391-W	WINDING LAKE AT WELLEBY	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-02464-W	K & S MOVING SYSTEMS	Irrigation	LAKE	< 100,000
06-02465-W	HEATHER GLEN - SUNRISE	Irrigation	LAKE	< 100,000
06-02467-W	PINE BAY TOWNHOMES	Irrigation	On-site Lake(s)	< 100,000
06-02467-W	PINE BAY TOWNHOMES	Irrigation	On-site Lake(s)	< 100,000
06-02467-W	PINE BAY TOWNHOMES	Irrigation	On-site Lake(s)	< 100,000
06-02494-W	DRIVE LINE INC	Irrigation	On-site Canal(s)	< 100,000
06-02515-W	MORSE	Irrigation	On-site Lake(s)	< 100,000
06-03434-W	SUNRISE AUTOMALL PHASES 2A AND 3A	Irrigation	On-site Lake(s)	< 100,000
06-02515-W	MORSE	Irrigation	On-site Lake(s)	< 100,000
06-03434-W	SUNRISE AUTOMALL PHASES 2A AND 3A	Irrigation	On-site Lake(s)	< 100,000
06-03448-W	JEWISH ADOPTION AND FOSTER CARE OPTION	Irrigation	Unnamed Canal	< 100,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-02505-W	TRADEWINDS	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-02515-W	MORSE	Irrigation	On-site Lake(s)	< 100,000
06-02515-W	MORSE	Irrigation	On-site Lake(s)	< 100,000
06-02516-W	MOR PRINTING FACILITY	Irrigation	On-site Lake(s)	< 100,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000

06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03469-W	DEL RIO VILLAGE TOWNHOUSE	Irrigation	On-site Canal(s)	< 100,000
06-03469-W	DEL RIO VILLAGE TOWNHOUSE	Irrigation	On-site Canal(s)	< 100,000
06-03469-W	DEL RIO VILLAGE TOWNHOUSE	Irrigation	On-site Canal(s)	< 100,000
06-02536-W	KELLSTROM BUILDING	Irrigation	On-site Canal(s)	< 100,000
06-02587-W	SPRINGTREE GOLF PLAZA	Irrigation	On-site Canal(s)	< 100,000
06-03267-W	DAUER AUTO STORAGE WAREHOUSE	Irrigation	Biscayne Aquifer	< 100,000
06-03497-W	TRICON GOLBAL RESTAURANT	Irrigation	Biscayne Aquifer	< 100,000
06-03498-W	FLORIDA POWER AND LIGHT WELLEBY SUBSTATION	Irrigation	Biscayne Aquifer	< 100,000
06-03517-W	BANK UNITED/RETAIL ON SUNRISE BLVD	Irrigation	On-site Lake(s)	< 100,000
06-03537-W	COWCAT ENTERPRISES INC	Irrigation	Biscayne Aquifer	< 100,000
06-02679-W	EAST SIDE MARIOS RESTAURANT	Irrigation	LAKE	< 100,000
06-03550-W	BAHAMA BREEZE RESTAURANT NO 3622 SAWGRASS MILLS MALL	Irrigation	Off-site Lake(s)	< 100,000
06-02730-W	DIGITAL ANTENNA CENTRE	Irrigation	CANAL	< 100,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01537-W	MARKHAM PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01432-W	UNITED STATES POST OFFICE	Irrigation	SFWMD Canal (C-42)	< 100,000
06-01506-W	WEST SUNRISE COMMERCIAL PARK	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-01532-W	MC DONALD'S RESTAURANT	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-01557-W	EXXON STATION/SAWGRASS MILLS	Irrigation	On-site Lake(s)	< 100,000
06-01664-W	HOT N NOW AT SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-01685-W	BURGER KING	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-02230-W	REGENCY CLUB VILLAS I	Irrigation	On-site Lake(s)	< 100,000
06-02230-W	REGENCY CLUB VILLAS I	Irrigation	On-site Lake(s)	< 100,000
06-02230-W	REGENCY CLUB VILLAS I	Irrigation	On-site Lake(s)	< 100,000
06-02281-W	THE PALMS AT SAWGRASS MILLS	Irrigation	On-site Lake(s)	< 100,000
06-02322-W	FLOWERS DISTRIBUTION CENTER	Irrigation	On-site Lake(s)	< 100,000
06-01919-W	WALMART STORE @ SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-01919-W	WALMART STORE @ SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-00814-W	PARKWOOD HOMES	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-00949-W	SAWGRASS INTERNATIONAL CORPORATE PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-00949-W	SAWGRASS INTERNATIONAL CORPORATE PARK	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01172-W	OAKLAND PARK BOULEVARD IRRIGATION	Irrigation	SFWMD Canal (C-13)	> 500,000
06-01172-W	OAKLAND PARK BOULEVARD IRRIGATION	Irrigation	SFWMD Canal (C-13)	> 500,000
06-01172-W	OAKLAND PARK BOULEVARD IRRIGATION	Irrigation	SFWMD Canal (C-42)	> 500,000
06-02337-W	SOUTHWIND CHILD ENRICHMENT CENTER	Irrigation	On-site Lake(s)	< 100,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000

06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-00969-W	SHOPS AT SAVANNAH	Irrigation	On-site Lake(s)	> 500,000
06-01985-W	SAWGRASS MILLS MEDICAL CENTER	Irrigation	On-site Lake(s)	< 100,000
06-02198-W	ST ANDREWS @ BONAVENTURE	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-01093-W	SAWGRASS MILLS	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000

Facility Work Plan

Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-04118-W	SAWGRASS LANDING	Irrigation	Off-site Lake(s)	< 100,000
06-03926-W	ARTESIA	Irrigation	Surficial Aquifer System	< 100,000
06-01296-W	PIPER HIGH	Air Conditioning/Withdrawl	Surficial Aquifer System	< 100,000
06-04403-W	THE POINT AT SAWGRASS	Irrigation	On-site Lake(s)	< 100,000
06-04412-W	VISTA MERCADO	Irrigation	Biscayne Aquifer	< 100,000
06-04415-W	TAO CONDOMINIUMS	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000

Facility Work Plan
Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-04426-W	PINE ISLAND RD RECONSTRUCTION	Irrigation	SFWMD Canal (C-13)	< 100,000
06-04435-W	GATEWAY AT SAWGRASS THE	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-04436-W	SAWGRASS OFFICE CENTER	Irrigation	On-site Canal(s)	< 100,000
06-02561-W	PARCEL 61 AT SAWGRASS INTERNATIONAL COPORATE PARK	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000

Facility Work Plan

Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-03801-W	SUNRISE LAKES PHASE III APARTMENTS	Irrigation	On-site Canal(s)	< 100,000
06-04300-W	SUNRISE AQUATIC CIVIC CENTER	Swimming Pool Heating/Withdrawal	Surficial Aquifer System	< 100,000
06-04300-W	SUNRISE AQUATIC CIVIC CENTER	Swimming Pool Heating/Withdrawal	Surficial Aquifer System	< 100,000
06-04300-W	SUNRISE AQUATIC CIVIC CENTER	Swimming Pool Heating/Withdrawal	Surficial Aquifer System	< 100,000
06-04318-W	CITY PARK	Irrigation	Biscayne Aquifer	< 100,000
06-04318-W	CITY PARK	Irrigation	Biscayne Aquifer	< 100,000
06-04443-W	COURTYARD OFFICE PLAZA	Irrigation	Biscayne Aquifer	< 100,000
06-00483-W	HIGHWOODS PARK (F/K/A HARRISON PARK)	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-00483-W	HIGHWOODS PARK (F/K/A HARRISON PARK)	Irrigation	On-site Lake(s)/Pond(s)	> 500,000
06-04318-W	CITY PARK	Irrigation	Biscayne Aquifer	< 100,000
06-04481-W	INDIAN TRACE CENTER	Irrigation	Off-site Lake(s)	< 100,000
06-03924-W	SUNRISE LAND WEST PARCEL	Irrigation Water Replacement	Surficial Aquifer System	< 100,000
06-03924-W	SUNRISE LAND WEST PARCEL	Irrigation	On-site Lake(s)	< 100,000
06-03926-W	ARTESIA	Irrigation Water Replacement	Surficial Aquifer System	< 100,000
06-03926-W	ARTESIA	Irrigation	On-site Lake(s)	< 100,000
06-03926-W	ARTESIA	Irrigation	On-site Lake(s)	< 100,000
06-03926-W	ARTESIA	Irrigation	On-site Lake(s)	< 100,000
06-03943-W	NEW RIVER CENTRE	Irrigation	Biscayne Aquifer	< 100,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-04655-W	MR CAR WASH	Irrigation	Biscayne Aquifer	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000

Facility Work Plan

Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03952-W	SUNRISE LAKES CONDOMINIUM APARTMENTS PHASE II	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	SFWMD Canal (C-13)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-03431-W	SUNRISE LAKES PHASE IV	Irrigation	On-site Lake(s)	> 100,000 and < 500,000
06-04625-W	AGING & DISABILITY RESOURCE CENTER OF BROWARD	Irrigation	Biscayne Aquifer	< 100,000
06-02379-W	SAWGRASS FORD	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-02390-W	REGENCY CLUB VILLAS 2	Irrigation	LAKE	< 100,000
06-02394-W	UNITED HEALTHCARE	Irrigation	LAKE	< 100,000
06-02410-W	WELLEBY TENNIS CENTER	Irrigation	Off-site Lake(s)	< 100,000
06-02452-W	BROWARD COUNTY CIVIC ARENA	Irrigation	LAKE	> 500,000
06-02452-W	BROWARD COUNTY CIVIC ARENA	Irrigation	LAKE	> 500,000
06-02419-W	CAMPUS CONCEPT	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-04371-W	ARAGON	Irrigation	Biscayne Aquifer	< 100,000
06-02512-W	24000 SQ FT DISTRIBUTION FACILITY	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-04385-W	LAKE SHORE PLAZA	Irrigation	On-site Lake(s)	< 100,000

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Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-02574-W	WESTON ROAD SHOPPES	Irrigation	Off-site Lake(s)	< 100,000
06-03781-W	SHAMROCK OF SUNRISE LLC	Irrigation	Biscayne Aquifer	< 100,000
06-04737-W	SCHOOL OF ISLAMIC STUDIES	Irrigation	Off-site Canal(s)	< 100,000
06-04721-W	WATERSIDE COMMERCE PARK	Irrigation	Off-site Lake(s)	< 100,000
06-04853-W	STRIKERS FAMILY SPORTSCENTER	Irrigation	Surficial Aquifer System	< 100,000
06-05192-W	IRRIG OF CITY PARKS AND FACILITIES WELLEBY PARK E AND W	Irrigation	On-site Lake(s)	< 100,000
06-05192-W	IRRIG OF CITY PARKS AND FACILITIES WELLEBY PARK E AND W	Irrigation	On-site Lake(s)	< 100,000
06-05194-W	IRRIG OF CITY PARKS AND FACILITIES S A C NORTH AND SOUTH	Irrigation	On-site Lake(s)	< 100,000
06-05194-W	IRRIG OF CITY PARKS AND FACILITIES S A C NORTH AND SOUTH	Irrigation	On-site Lake(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-04849-W	WATERS EDGE	Irrigation	On-site Lake(s)	< 100,000
06-04849-W	WATERS EDGE	Irrigation	On-site Lake(s)	< 100,000
06-04849-W	WATERS EDGE	Irrigation	On-site Lake(s)	< 100,000
06-04800-W	SPRING TREE	Irrigation	Biscayne Aquifer	< 100,000
06-04862-W	LAS BRISAS	Irrigation	Surficial Aquifer System	< 100,000
06-04867-W	CHICK-FIL-A @ SAWGRASS SQUARE SHOPPING CENTER	Irrigation	Biscayne Aquifer	< 100,000
06-04931-W	WESTWIND COMMONS	Irrigation	On-site Lake(s)	< 100,000
06-04931-W	WESTWIND COMMONS	Irrigation	On-site Lake(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-01344-W	SUNRISE COUNTRY CLUB	Irrigation	Biscayne Aquifer	> 500,000
06-04879-W	LAKESIDE VILLAS AT BONAVENTURE CONDO.	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-04976-W	LAKE SHORE PLAZA TWO	Irrigation	Off-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Canal(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	Biscayne Aquifer	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Canal(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Canal(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Canal(s)	< 100,000
06-05160-W	US ONCOLOGY	Irrigation	Biscayne Aquifer	< 100,000
06-05120-W	PUMP STATION #6 RECONSTRUCTION	Mining/Dewatering	On-site Canal(s)	> 500,000
06-05115-W	SKYLINE OFFICE	Irrigation	On-site Lake(s)	< 100,000
06-05236-W	CARWASH CAFE	Irrigation	SFWMD Canal (C-13)	< 100,000
06-05191-W	IRRIG OF CITY PARKS AND FACILITIES FLAMINGO PARKS 1 AND 2	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-05191-W	IRRIG OF CITY PARKS AND FACILITIES FLAMINGO PARKS 1 AND 2	Irrigation	On-site Lake(s)/Pond(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000

Facility Work Plan
Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-05195-W	N W 15TH ST AND SUNSET STRIP	Irrigation	On-site Canal(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Lake(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Canal(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Canal(s)	< 100,000
06-05196-W	10400 N W 44TH ST	Irrigation	On-site Canal(s)	< 100,000
06-04557-W	BROWARD LAKES BUSINESS PARK	Irrigation	Surficial Aquifer System	< 100,000
06-04433-W	IKEA -THE GATEWAY AT SAWGRASS	Irrigation	On-site Lake(s)	< 100,000
06-05193-W	CITY PARKS AND FACILITIES TENNIS CNTR ROARKE HALL	Irrigation	Biscayne Aquifer	< 100,000
06-05193-W	CITY PARKS AND FACILITIES TENNIS CNTR ROARKE HALL	Irrigation	On-site Lake(s)	< 100,000
06-05193-W	CITY PARKS AND FACILITIES TENNIS CNTR ROARKE HALL	Irrigation	On-site Lake(s)	< 100,000
06-05193-W	CITY PARKS AND FACILITIES TENNIS CNTR ROARKE HALL	Irrigation	On-site Canal(s)	< 100,000
06-05193-W	CITY PARKS AND FACILITIES TENNIS CNTR ROARKE HALL	Irrigation	On-site Lake(s)	< 100,000
06-05279-W	INDIAN TRACE PARCEL 2 B	Irrigation	Biscayne Aquifer	< 100,000
06-05129-W	EASTERN FINANCIAL CREDIT UNION-SUNRISE	Irrigation	Off-site Canal(s)	< 100,000
06-04679-W	WAL-MART STORE 1349-02 SUNRISE	Irrigation	SFWMD Canal (C-13)	< 100,000
06-04573-W	TAO CONDOMINIUMS	Mining/Dewatering	Water Table aquifer	> 500,000
06-04573-W	TAO CONDOMINIUMS	Mining/Dewatering	Water Table aquifer	> 500,000
06-04684-W	SUNRISE HARLEY-DAVIDSON	Irrigation	Surficial Aquifer System	< 100,000
06-04703-W	SANDPIPER, BANYAN, CHALLENGER, PINEWOOD, MORROW ELEM/MILLENN	Irrigation	Biscayne Aquifer	< 100,000
06-04703-W	SANDPIPER, BANYAN, CHALLENGER, PINEWOOD, MORROW ELEM/MILLENN	Irrigation	On-site Lake(s)	< 100,000
06-04716-W	MIRROR LAKE, LAUDERHILL PT, NOB HILL, HORIZON ELEM/PLANTATIO	Irrigation	Biscayne Aquifer	< 100,000
06-04716-W	MIRROR LAKE, LAUDERHILL PT, NOB HILL, HORIZON ELEM/PLANTATIO	Irrigation	On-site Canal(s)	< 100,000
06-04716-W	MIRROR LAKE, LAUDERHILL PT, NOB HILL, HORIZON ELEM/PLANTATIO	Irrigation	On-site Canal(s)	< 100,000
06-04716-W	MIRROR LAKE, LAUDERHILL PT, NOB HILL, HORIZON ELEM/PLANTATIO	Irrigation	On-site Canal(s)	< 100,000
06-04716-W	MIRROR LAKE, LAUDERHILL PT, NOB HILL, HORIZON ELEM/PLANTATIO	Irrigation	On-site Canal(s)	< 100,000
06-04992-W	BOARDWALK AT INVERRARY	Irrigation	On-site Lake(s)	< 100,000
06-05007-W	RACE TRAC SUNRISE	Mining/Dewatering	Water Table aquifer	> 500,000
06-04982-W	SHOPS AT SAVANNAH	Irrigation	Off-site Lake(s)	< 100,000
06-04982-W	SHOPS AT SAVANNAH	Irrigation	Off-site Lake(s)	< 100,000
06-05122-W	EDGEWOOD, LLOYD ESTATES, WELLEBY ELEM	Irrigation	Biscayne Aquifer	< 100,000
06-05123-W	BENNETT, SAWGRASS, PARK LAKES ELEM/CHARLES DREW FAMILY RESOU	Irrigation	Biscayne Aquifer	< 100,000
06-05130-W	VILLAGE/ ROYAL PALM ELEM/ENDEAVOUR/LAUDERHILL SCHOOLS	Irrigation	On-site Canal(s)	< 100,000
06-05136-W	SHANNON LAKE ESTATES	Irrigation	Biscayne Aquifer	< 100,000
06-05130-W	VILLAGE/ ROYAL PALM ELEM/ENDEAVOUR/LAUDERHILL SCHOOLS	Irrigation	Biscayne Aquifer	< 100,000
06-05130-W	VILLAGE/ ROYAL PALM ELEM/ENDEAVOUR/LAUDERHILL SCHOOLS	Irrigation	On-site Canal(s)	< 100,000
06-04740-W	WELLEBY LAKE CLUB	Irrigation	On-site Lake(s)	< 100,000
06-04740-W	WELLEBY LAKE CLUB	Irrigation	On-site Lake(s)	< 100,000
06-05102-W	RACETRAC-SUNRISE	Irrigation	Biscayne Aquifer	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Canal(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Lake(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Canal(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Lake(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Lake(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Lake(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Lake(s)	< 100,000
06-05190-W	CITY PARKS AND FACILITIES	Irrigation	On-site Lake(s)	< 100,000
06-05190-W	CITY PARKS AND FACILITIES	Irrigation	On-site Lake(s)	< 100,000
06-05190-W	CITY PARKS AND FACILITIES	Irrigation	On-site Lake(s)	< 100,000
06-05190-W	CITY PARKS AND FACILITIES	Irrigation	On-site Lake(s)	< 100,000
06-05128-W	ABC FINE WINE AND SPIRITS	Irrigation	Biscayne Aquifer	< 100,000

Facility Work Plan
Appendix B - City of Sunrise Private Potable, And Private And Public Non-Potable Water Use Permits

06-05190-W	CITY PARKS AND FACILITIES	Irrigation	On-site Lake(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Lake(s)	< 100,000
06-05227-W	CITY OF SUNRISE CITY HALL AND OTHER SITES	Irrigation	On-site Lake(s)	< 100,000

Appendix C

APPENDIX C - WATER SUPPLY SYSTEM INTERCONNECTIONS

Interconnect with	Location Description and Map ID	Existing/ Proposed	Size (inches)	Capacity (gpm)	Metered (Yes/No)	Status (Working/Not Working)	Comments
City of LauderHill 06-00129-W	58th Terr. & 15th St	Existing	8	470	No	Working	Bob Snyder, Superintendent; Randy Arline, Plant Operator (954-730-2972)
	NW 44th St, West of NW 82nd Ave	Proposed	12	1057	---	---	
City of Plantation 0600103-W	NW 28th St, East of 118th Ave	Existing	6	264	Yes	Working	Utilities Director (954-797-2209); Hank Brietenkam, Assistant Director (954-875-9126 Beeper)
	NW 21st Ct & 124th Ave	Existing	8	470	Yes	Working	
	Melaleuca Isles at Melaleuca Facility	Existing	8	470	Yes	Working	
	Commodore Dr at North New River Canal	Existing	12	1057	Yes	Working	
	Flamingo Rd & NW 8th St	Existing	10	734	Yes	Working	
Town of Davie 06-00134-W	Hiatus Rd South of 26th St	Existing	8	470	Yes	Working	Dan Colabella, Utilities Director; Bruce Taylor, Utilities Superintendent (954-433-4000)
	Hiatus Rd North of 26th St	Existing	8	470	Yes	Working	
City of Pembroke Pines 06-00135-W	SW 166th Ave & 67th Pl	Existing	9	595	Yes	Working	Skip Keebler, Utilities Director; Joe McLaughlin (954-450-6856)
	Dykes Rd & Bellavista Ave	Existing	10	734	Yes	Working	
Cooper City 06-00365-W	SW 136th Av, South of SW 49th St	Existing	8	470	Yes	Working	George Haughney, Director; Don Long (954-434-5519)

In emergencies, any City in need of water will contact the above named person(s) to have emergency by-pass turned on.

Appendix D

10-Year Water Supply Facility Work Plan
Appendix D - Sunrise Utility Service Area Population Projections by TAZ

TAZ	2008	2013	2015	2018	2030	MUNICIPALITY	SERVICE AREA
575	36	36	36	36	37	Davie	Existing
573	6984	7247	7339	7473	7929	Davie	Existing
562	3291	3622	3747	3878	4028	Davie	Existing
561	4801	5111	5167	5228	5354	Davie	Existing
560	5592	5745	5798	5870	6081	Davie	Existing
558	2301	2387	2425	2487	2760	Davie	Existing
889	0	0	0	0	0	Davie	Existing
592	1011	1195	1290	1383	1490	Davie	Existing
563	1053	1283	1399	1521	1608	Davie	Existing
559	1134	1177	1195	1220	1327	Davie	Existing
566	2686	2931	3015	3114	3433	Davie	Existing
565	4402	4452	4469	4484	4511	Davie	Existing
572	1661	1980	2097	2212	2330	Davie	Existing
593	1931	2126	2209	2295	2382	Davie	Existing
891	0	3	5	7	9	Davie	Existing
595	155	247	301	360	416	Davie	Existing
594	1354	1406	1426	1452	1520	Davie	Existing
569	2036	2075	2090	2117	2207	Davie	Existing
570	51	53	53	54	57	Davie	Existing
602	0	0	0	0	0	Davie	Existing
604	1302	1360	1378	1394	1415	Davie	Existing
603	1325	1455	1508	1563	1615	Davie	Existing
609	1134	1139	1144	1151	1167	Davie	Existing
610	967	1003	1018	1032	1050	Davie	Existing
611	275	314	334	356	373	Davie	Existing
810	669	727	756	780	798	Davie	Existing
811	0	9	14	20	33	Davie	Existing
574	5875	6016	6047	6080	6144	Davie	Existing
591	1420	1503	1537	1577	1609	Davie	Existing
590	1012	1446	1667	1899	2128	Davie	Existing
596	1189	1316	1350	1384	1427	Davie	Existing
SUBTOTAL	**55647**	**59363**	**60812**	**62428**	**65238**		
461	825	908	952	1031	1433	Sunrise	Existing
471	5316	5559	5670	5840	6613	Sunrise	Existing
472	5977	6124	6175	6249	6541	Sunrise	Existing
474	1402	1452	1468	1489	1504	Sunrise	Existing
475	1122	1216	1268	1356	1832	Sunrise	Existing
462	0	14	23	42	154	Sunrise	Existing
476	5536	6514	6908	7311	7645	Sunrise	Existing
896	3183	4096	4522	4964	5309	Sunrise	Existing
494	5905	6102	6187	6339	7889	Sunrise	Existing
493	4033	4497	4614	4760	5173	Sunrise	Existing
487	3961	4146	4226	4350	4887	Sunrise	Existing
489	7323	7520	7589	7671	7889	Sunrise	Existing
488	7390	7622	7707	7822	8160	Sunrise	Existing
477	551	559	561	564	570	Sunrise	Existing
495	2889	2966	2986	3005	3068	Sunrise	Existing
492	757	801	826	861	1032	Sunrise	Existing
491	1307	1318	1326	1333	1358	Sunrise	Existing
490	1010	1024	1032	1037	1045	Sunrise	Existing
496	5827	6004	6066	6133	6312	Sunrise	Existing
481	0	0	0	0	0	Sunrise	Existing
482	6127	6254	6299	6347	6461	Sunrise	Existing
480	0	0	0	0	0	Sunrise	Existing
484	425	457	466	481	546	Sunrise	Existing
576	196	202	204	207	217	Sunrise	Existing
575	3490	3529	3548	3568	3604	Sunrise	Existing
574	2365	2422	2435	2448	2474	Sunrise	Existing
479	1019	1960	2458	2981	3379	Sunrise	Existing
478	681	3938	5464	7058	8227	Sunrise	Existing
473	5890	6145	6190	6240	6358	Sunrise	Existing
898	1538	1649	1689	1730	1787	Sunrise	Existing

10-Year Water Supply Facility Work Plan
Appendix D - Sunrise Utility Service Area Population Projections by TAZ

TAZ	2008	2013	2015	2018	2030	MUNICIPALITY	SERVICE AREA
469	6907	7043	7097	7179	7485	Sunrise	Existing
468	0	0	0	0	0	Sunrise	Existing
SUBTOTAL	**92954**	**102042**	**105957**	**110396**	**118952**		
580	8696	8967	9065	9180	9488	Weston	Existing
579	6764	6876	6911	6949	7040	Weston	Existing
578	4750	4816	4836	4861	4907	Weston	Existing
577	6604	6808	6884	6979	7251	Weston	Existing
576	2331	2405	2433	2469	2587	Weston	Existing
575	204	206	207	208	211	Weston	Existing
586	1414	1450	1463	1477	1512	Weston	Existing
585	2316	2347	2357	2367	2379	Weston	Existing
584	4530	4614	4643	4672	4732	Weston	Existing
888	7327	7453	7501	7552	7683	Weston	Existing
587	562	600	623	645	679	Weston	Existing
588	1851	1887	1899	1912	1932	Weston	Existing
589	2917	2962	2980	2997	3035	Weston	Existing
583	2507	2678	2708	2745	2834	Weston	Existing
889	0	0	0	0	0	Weston	Existing
890	993	1058	1087	1121	1164	Weston	Existing
891	0	15	24	37	46	Weston	Existing
597	9373	10253	10444	10644	10889	Weston	Existing
590	37	53	61	70	78	Weston	Existing
SUBTOTAL	**63176**	**65449**	**66127**	**66887**	**68447**		
605	137	220	273	296	319	SW Ranches	Existing
911	357	352	344	373	395	SW Ranches	Existing
604	512	534	541	547	556	SW Ranches	Existing
603	759	833	863	895	925	SW Ranches	Existing
601	1512	1765	1887	2012	2127	SW Ranches	Existing
608	334	348	357	364	372	SW Ranches	Existing
610	63	65	66	67	68	SW Ranches	Existing
611	694	793	843	898	943	SW Ranches	Existing
809	196	205	211	218	234	SW Ranches	Existing
811	0	7	11	17	28	SW Ranches	Existing
812	263	288	299	311	320	SW Ranches	Existing
SUBTOTAL	**4827**	**5410**	**5696**	**5998**	**6286**		
TOTAL	**216,603**	**232,300**	**238,592**	**245,800**	**258,924**		
606	989	1010	1013	1019	1032	SW Ranches	Future
600	634	719	767	822	864	SW Ranches	Future
599	2687	2739	2751	2764	2792	SW Ranches	Future
607	136	179	204	234	274	SW Ranches	Future
612	342	383	411	430	455	SW Ranches	Future
808	127	151	167	185	207	SW Ranches	Future
813	225	246	260	279	296	SW Ranches	Future
814	93	94	94	95	98	SW Ranches	Future
Total	**5,233**	**5,600**	**5,700**	**5,900**	**6,000**		

GRAND TOTAL	**221,900**	**237,900**	**244,300**	**251,700**	**264,900**		

Appendix E

MEETING MINUTES

MWH

PROJECT: **City of Sunrise**
10-Year Water Supply Facilities Plan, 2008

SUBJECT: Meeting with Town of Davie
DATE/TIME: Wednesday, February 27, 2008 at 2:00 PM

Attendees:

Ingrid Allen, Town of Davie	Todd Miller, Iler Planning Group
David Quigley, Town of Davie	Harold Aiken, MWH
Tim Welch, City of Sunrise	Patrick Mullen, MWH
Karl Kennedy, Calvin Giordano	Sangeeta Dhulashia, MWH

Discussion	*Action*
Introductions and an overview of the project was provided. MWH and Calvin Giordano are the City of Sunrise's and Town of Davie's Water Supply Facilities Work Plan (Work Plan) Consultants respectively. Iler Planning Group (IPG) are the planners for the Town of Davie.	
The point of contact with the Town of Davie for data verification will be Ingrid Allen. IPG and Calvin Giordano will be copied on all correspondence. The City of Sunrise's point of contact will be Sangeeta Dhulashia, Tim Welch will be copied on all correspondence.	
Emphasis was made to capture new planned developments for water supply planning purposes.	
Town of Davie mentioned that the only proposed land use change within the City of Sunrise Utility service area is Davie Commons. MWH mentioned that a net increase in potable water demand of 0.22 mgd due to the Development of Regional Impact (DRI) application has been accounted for as an additional demand under the Consumptive Use Permit (CUP).	
The City of Sunrise's Work Plan schedule was discussed as follows: April 8th – Presentation for council vote, and comments. April 22nd – Proposed Amendment. August 10th – Final Adoption.	
The Town of Davie plans to take the population and demand projection data from the City of Sunrise Work Plan for the municipal areas served by the City of Sunrise. MWH provided the population and demand projection data for the Town of Davie served by the City of Sunrise Water. City of Sunrise Utility service area map was distributed by MWH among the attendees. Town of Davie's Population and Demand Projections were distributed by MWH. An overview of Population and demand forecast methodologies was provided by MWH, where population data used from Broward County Traffic Analysis Zone (TAZ) September 2007 data. Demand projections were based on the 2006 billing and per capita usage data for the Town of Davie.	MWH to Provide TAZ September 2007 data to the Town of Davie.
It was stated that LEC population projection data was based on year 2004 and has a variation of less then 10% when compared to the 2007 data for the City of Sunrise	

MWH

PROJECT: **City of Sunrise**
10-Year Water Supply Facilities Plan, 2008

SUBJECT: Meeting with Town of Davie
DATE/TIME: Wednesday, February 27, 2008 at 2:00 PM

Discussion	*Action*
Work Plan.	
MWH requested conservation element that may exist within the Town of Davie's ordinances.	Calvin Giordano to provide a copy of this to MWH.
A service area map for the City of Sunrise Utility service area was provided to the meeting participants. Comments on Data discrepancy was requested to be forwarded to MWH no later then March 15th 2008.	IPG to respond to any comments.
This meeting will be considered as intergovernmental coordination between the City of Sunrise and Town of Davie and will be part of the Work Plan as attachment.	

AGENDA

MWH

PROJECT: **City of Sunrise, 10 -Year Water Supply Facilities Work Plan 2008**
SUBJECT: Meeting with Town of Davie
DATE/TIME: Wednesday February 27, 2008

I. CITY OF SUNRISE WATER SUPPLY FACILITY WORK PLAN OVERVIEW

II. COMMUNICATIONS

A. Single Point of Contact per DCA guidelines

III. SERVICE AREA

A. Service Area Limitations

IV. POPULATION PROJECTIONS

A. Population projections – usage of Traffic Analysis Zone (TAZ) thru 2030

V. DEMAND PROJECTIONS

VI. LIST OF DATA NEEDS

A. Requested Documents

- Conservation and Reuse Efforts

B. In Hand

- LEC Plan

VII. INTERGOVERNMENTAL COORDINATION

City of Sunrise
Water Supply Facilities Work Plan
Meeting with Town of Davie
February 27, 2008 MEETING - SIGN IN SHEET

Name	Organization	Telephone No.	e-mail
Ingrid Allen	Davie	954 797 1103	Ingrid-Allen@davie-fl.gov
Tim Welch	Sunrise	954 888 6037	twelch@city of sunrise.org
KARL KENNEDY	CALVIN, GIORDANO	954-927-7781	KARL@CALVIN-GIORDANO.COM
HAROLD AIKEN	MWH	954.846.0401	harold.r.aiken@MWHGLOBAL.com
PATRICK MULLEN	MWH	954-846-0401	patrick.mullen@mwhglobal.com
David Quigley	Davie	954-797-1075	david_quigley@davie-fl.gov
Todd Miller	Iler Planning	561-626-7067	todd@iggplan.com
Sangeeta Dholakia	MWH	954-846-0401	sangeeta.dholakia@mwhglobal.com

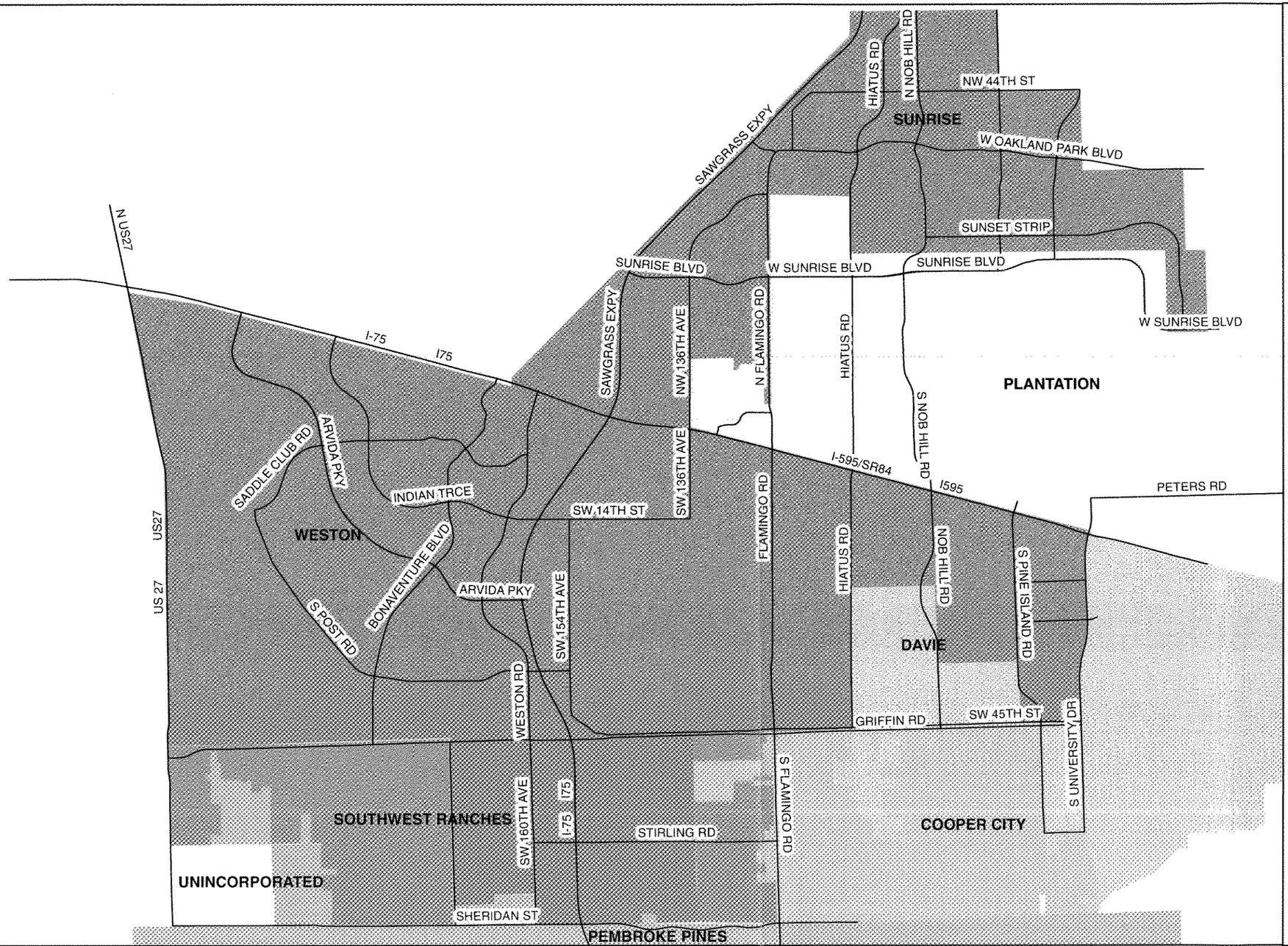
City of Sunrise
10-Year Water Supply Facility Work Plan

Sunrise Utility Service Area Population Projections For City of Davie

YEAR	2008	2013	2015	2018	2030
TOTAL	55,700	59,400	60,800	62,500	65,200

Sunrise Utility Service Area Demand (Gallons/day) Projections For City of Davie

YEAR	2008	2013	2015	2018	2030
TOTAL	6,174,300	6,543,400	6,682,600	6,839,200	7,169,300



MWH

CITY OF SUNRISE FLORIDA

City of Sunrise Service Area

CITY OF SUNRISE FLORIDA

October 29, 2007

Marcie Nolan, AICP
Town of Davie
6591 Orange Drive
Davie, Florida 33314

Subject: Water Supply Facilities Planning

Dear Mrs. Nolan,

The City of Sunrise is in process of developing its Water Supply Facilities Plan for a 2030 planning horizon. Since the City's system serves part of the Town of Davie we need to verify that the population projections we are using match your plans. I would appreciate your reviewing the attached population information.

I have enclosed a map of the Town of Davie showing municipal area boundaries and Broward County Traffic Analysis Zones. The population estimates that Sunrise Utilities serves are based on information obtained from Broward County Planning Services Division. We would like to know of any zoning changes or anticipated major developments that might alter the population projections for a given TAZ.

The City's Utility Master Plan Consultant is MWH Americas, Incorporated. A representative of MWH will be contacting you shortly about this request. I thank you in advance for your assistance with this very important project that will help Sunrise Utilities better serve our customers within the Town of Davie.

Please do not hesitate to contact me with any questions or comments that you may have concerning this project. My office number is (954) 888-6055. Electronic mail address is hcastro@cityofsunrise.org.

Sincerely,
City of Sunrise

Hector D. Castro, P.E.
Director of Utilities

cc: Harold Aiken, MWH
Sangeeta Dhulashia, MWH
MWH Project File 1570881/3.1.6

City of Sunrise Utilities Department
777 Sawgrass Corporate Parkway Sunrise, Florida 33325
Telephone: (954) 888-6000 Facsimile: (954) 846-7404

TOWN OF DAVIE POPULATION PROJECTIONS

2007			
TAZ	Dwelling Units	Population	Households
549	359	126	71
550	2,272	5,158	2,009
551	1,804	4,739	1,689
552	0	0	0
553	277	291	214
554	159	174	114
555	496	1,443	487
556	0	0	0
557	647	1,657	629
558	961	2,286	904
559	1,138	1,125	710
560	3,367	5,555	2,959
561	2,023	4,688	1,860
562	1,294	3,220	1,208
563	318	1,025	313
564	479	1,502	463
565	1,557	4,390	1,523
566	1,451	2,626	1,281
567	0	0	
568	954	2,024	950
569	985	2,331	946
570	285	626	275
571	396	1,223	375
572	498	1,589	488
573	2,847	6,922	2,460
574	2,059	6,482	1,966
590	317	997	304
591	453	1,404	434
592	345	991	321
593	553	1,896	530
594	531	1,342	427
595	61	149	60
596	350	1,150	339
602	0	0	0
603	451	1,493	447
604	377	1,201	373
609	372	1,135	368
610	294	1,023	292
611	85	286	84
613	38	119	38
615	205	673	202
619	2,332	6,335	2,242
620	0	1	0
623	388	795	375

2010			
TAZ	Dwelling Units	Population	Households
549	359	126	71
550	2,274	5,294	2,027
551	1,806	4,832	1,697
552	0	0	0
553	277	295	216
554	164	183	119
555	520	1,527	510
556	0	0	0
557	655	1,700	637
558	966	2,330	912
559	1,138	1,151	721
560	3,374	5,666	2,982
561	2,124	5,028	1,967
562	1,356	3,434	1,274
563	343	1,109	336
564	482	1,514	466
565	1,557	4,426	1,526
566	1,512	2,806	1,347
567	0	0	0
568	960	2,027	941
569	985	2,359	949
570	293	649	283
571	406	1,259	385
572	561	1,805	550
573	2,861	7,109	2,494
574	2,081	6,639	1,995
590	364	1,155	351
591	466	1,451	447
592	366	1,052	342
593	582	2,002	559
594	533	1,377	435
595	67	166	66
596	383	1,266	372
602	0	0	0
603	480	1,578	471
604	391	1,245	384
609	373	1,132	366
610	304	1,044	298
611	90	301	88
613	38	119	37
615	233	767	228
619	2,382	6,605	2,298
620	2	8	2
623	417	866	404

2015			
TAZ	Dwelling Units	Population	Households
549	360	135	76
550	2,273	5,442	2,044
551	1,835	5,017	1,735
552	0	0	0
553	277	302	219
554	177	210	133
555	583	1,742	574
556	0	0	0
557	717	1,901	701
558	986	2,425	936
559	1,141	1,195	740
560	3,374	5,798	3,005
561	2,139	5,167	1,994
562	1,445	3,747	1,369
563	426	1,399	420
564	482	1,537	467
565	1,557	4,469	1,529
566	1,571	3,015	1,416
567	212	375	200
568	962	2,065	945
569	988	2,402	954
570	294	664	285
571	415	1,305	396
572	643	2,097	633
573	2,877	7,339	2,537
574	2,081	6,726	2,003
590	536	1,728	524
591	486	1,537	469
592	437	1,290	415
593	633	2,209	613
594	535	1,426	444
595	115	301	113
596	402	1,350	392
602	0	0	0
603	522	1,731	513
604	401	1,286	394
609	373	1,144	367
610	313	1,084	308
611	104	353	103
613	38	120	37
615	233	776	229
619	2,459	6,958	2,382
620	11	35	11
623	521	1,133	509

TOWN OF DAVIE POPULATION PROJECTIONS

2007			
TAZ	Dwelling Units	Population	Households
624	890	2,245	850
625	1,743	4,167	1,651
626	150	339	145
627	484	1,148	458
651	318	547	318
652	0	0	0
704	0	0	0
705	0	0	0
706	0	0	0
810	201	662	199
811	0	0	0
887	99	192	96
891	0	0	0
920	470	812	441
Totals	**38,133**	**92,303**	**34,888**

2010			
TAZ	Dwelling Units	Population	Households
624	1,049	2,726	1,012
625	1,749	4,243	1,662
626	150	339	145
627	518	1,247	492
651	318	541	312
652	0	0	0
704	0	0	0
705	0	0	0
706	0	0	0
810	209	683	205
811	1	2	1
887	102	198	99
891	0	0	0
920	470	820	443
Totals	**39,091**	**96,201**	**35,924**

2015			
TAZ	Dwelling Units	Population	Households
624	1,430	3,845	1,395
625	1,750	4,332	1,670
626	151	346	146
627	620	1,538	596
651	318	548	313
652	0	0	0
704	0	0	0
705	0	0	0
706	0	0	0
810	231	756	227
811	9	19	9
887	125	250	122
891	11	29	11
920	258	457	244
Totals	**40,837**	**103,056**	**37,868**

Data Source: Broward County Population Forecasting Model
Data Provided by: Broward County Planning Services Division, 09/10/2007

TOWN OF DAVIE POPULATION PROJECTIONS

2020			
TAZ	Dwelling Units	Population	Households
549	360	143	80
550	2,275	5,569	2,063
551	1,909	5,314	1,817
552	0	0	0
553	278	309	222
554	193	244	151
555	653	1,972	645
556	0	0	0
557	795	2,144	781
558	1,011	2,528	965
559	1,142	1,237	759
560	3,375	5,918	3,031
561	2,147	5,268	2,014
562	1,505	3,966	1,436
563	483	1,603	478
564	483	1,557	469
565	1,557	4,494	1,531
566	1,612	3,180	1,468
567	212	380	201
568	979	2,133	964
569	998	2,455	966
570	298	681	290
571	422	1,337	405
572	697	2,288	688
573	2,903	7,562	2,589
574	2,082	6,788	2,011
590	654	2,130	643
591	502	1,604	487
592	484	1,445	464
593	668	2,353	650
594	537	1,469	453
595	148	399	146
596	413	1,406	404
602	0	0	0
603	550	1,836	542
604	406	1,311	400
609	374	1,156	369
610	319	1,110	314
611	114	391	113
613	38	121	37
615	235	788	232
619	2,551	7,323	2,481
620	17	54	17
623	636	1,430	625

2025			
TAZ	Dwelling Units	Population	Households
549	360	153	85
550	2,276	5,661	2,081
551	2,055	5,827	1,973
552	0	0	0
553	278	316	225
554	224	307	184
555	733	2,226	726
556	0	0	0
557	901	2,478	888
558	1,047	2,654	1,004
559	1,143	1,283	781
560	3,376	6,012	3,058
561	2,147	5,327	2,026
562	1,512	4,020	1,450
563	485	1,614	480
564	483	1,565	470
565	1,558	4,515	1,535
566	1,647	3,316	1,514
567	212	385	202
568	1,016	2,238	1,002
569	1,010	2,503	980
570	301	695	294
571	423	1,348	408
572	700	2,312	692
573	2,936	7,769	2,647
574	2,082	6,824	2,018
590	661	2,167	652
591	503	1,609	489
592	487	1,471	470
593	671	2,375	655
594	537	1,497	460
595	151	417	149
596	415	1,422	407
602	0	0	0
603	551	1,849	544
604	407	1,319	402
609	375	1,162	370
610	320	1,115	315
611	114	392	113
613	38	122	38
615	239	803	235
619	2,683	7,810	2,621
620	17	54	17
623	753	1,744	743

2030			
TAZ	Dwelling Units	Population	Households
549	360	164	91
550	2,277	5,717	2,098
551	2,157	6,161	2,083
552	0	0	0
553	278	322	228
554	257	379	221
555	784	2,377	776
556	0	0	0
557	1,008	2,789	996
558	1,082	2,759	1,042
559	1,142	1,326	803
560	3,377	6,082	3,084
561	2,148	5,354	2,036
562	1,512	4,030	1,455
563	486	1,622	481
564	483	1,565	471
565	1,559	4,516	1,538
566	1,683	3,437	1,562
567	212	389	203
568	1,046	2,317	1,033
569	1,020	2,537	993
570	304	735	300
571	424	1,350	411
572	700	2,313	693
573	2,965	7,927	2,698
574	2,082	6,834	2,024
590	662	2,169	654
591	502	1,610	489
592	488	1,488	474
593	671	2,380	657
594	539	1,520	468
595	151	421	149
596	414	1,420	407
602	0	0	0
603	551	1,851	545
604	407	1,319	402
609	374	1,164	370
610	320	1,115	316
611	115	393	113
613	38	122	38
615	241	810	238
619	2,815	8,229	2,759
620	17	54	17
623	828	1,945	819

TOWN OF DAVIE POPULATION PROJECTIONS

2020

TAZ	Dwelling Units	Population	Households
624	1,703	4,666	1,670
625	1,751	4,401	1,678
626	151	349	146
627	693	1,754	671
651	318	553	313
652	0	0	0
704	0	0	0
705	0	0	0
706	0	0	0
810	243	796	239
811	16	34	16
887	142	291	139
891	20	55	20
920	258	462	245
Totals	***42,310***	***108,756***	***39,537***

2025

TAZ	Dwelling Units	Population	Households
624	1,751	4,848	1,721
625	1,752	4,445	1,685
626	152	353	147
627	700	1,791	681
651	318	558	313
652	0	0	0
704	0	0	0
705	0	0	0
706	0	0	0
810	244	801	240
811	19	42	19
887	147	304	144
891	20	55	20
920	259	468	247
Totals	***43,189***	***112,340***	***40,620***

2030

TAZ	Dwelling Units	Population	Households
624	1,767	4,908	1,740
625	1,753	4,469	1,692
626	152	359	148
627	700	1,796	683
651	318	562	314
652	0	0	0
704	0	0	0
705	0	0	0
706	0	0	0
810	244	796	240
811	19	45	19
887	148	307	145
891	20	55	20
920	258	474	248
Totals	***43,858***	***114,783***	***41,483***

Data Source: Broward County Population Forecasting Model
Data Provided by: Broward County Planning Services Division, 09/10/2007

MEETING MINUTES

MWH

PROJECT: **City of Sunrise**
10-Year Water Supply Facilities Plan, 2008

SUBJECT: Meeting with City of Weston
DATE/TIME: Friday, February 29, 2008 at 10:00 AM

Attendees:

Jeffrey Skidmore, City of Weston	David Hennis, Calvin Giordano
Brad Kaine, City of Weston	Brad Swing, City of Sunrise
Tim Welch, City of Sunrise	Patrick Mullen, MWH
Karl Kennedy, Calvin Giordano	Sangeeta Dhulashia, MWH

Discussion	***Action***
Introductions and an overview of the project was provided. MWH and Calvin Giordano are the City of Sunrise's and City of Weston's Water Supply Facilities Work Plan (Work Plan) Consultants respectively.	
The point of contact with the City of Weston for data verification will be Karl Kennedy. The City of Sunrise's point of contact will be Sangeeta Dhulashia, and Tim Welch will be copied on all correspondence.	
Emphasis was made to capture new planned developments for water supply planning purposes. City of Weston does not currently have any proposed development/land use change.	
MWH provided the population projections and demand projections through year 2030 for the City of Weston serviced by the City of Sunrise Utilities developed for the City of Sunrise 10 year Water Supply Facilities Work Plan. An overview of Population and demand forecast methodologies was provided by MWH, where population data extracted from Broward County Traffic Analysis Zone (TAZ) September 2007 data. Demand projections were based on the 2006 billing and per capita usage data for the City of Weston.	
The City of Sunrise's Work Plan schedule is as follows: April 8th – Presentation to council. April 22nd – Proposed Amendment first Reading. August 10th – Final Adoption.	
MWH requested any water conservation elements that currently exist for the City of Weston.	Karl to provide existing conservation efforts to MWH.
City of Weston inquired if the City of Sunrise was planning on future Capital Improvements Projects (CIP) and facilities expansion, to which the City of Sunrise responded yes and that the Work Plan will capture the CIP. Additionally, a potential rate increase for all utilities in LEC area was mentioned. City of Sunrise inquired if the City of Weston would consider scavenger system to irrigate medians, parks and golf courses to which the City responded that they would consider this.	
This meeting will be considered as intergovernmental coordination between the	MWH to document

MWH

PROJECT: **City of Sunrise**
10-Year Water Supply Facilities Plan, 2008

SUBJECT: Meeting with City of Weston
DATE/TIME: Friday, February 29, 2008 at 10:00 AM

Discussion	*Action*
City of Sunrise and City of Weston and will be part of the Work Plan as attachment.	meeting minutes and transmit to attendees.

City of Sunrise
10-Year Water Supply Facility Work Plan

Sunrise Utility Service Area Population Projections For City of Weston

YEAR	2008	2013	2015	2018	2030
TOTAL	63,200	65,500	66,100	66,900	68,500

Source: Broward County TAZ Population Data of September 2007

Sunrise Utility Service Area Demand (Gallons/day) Projections For City of Weston

YEAR	2008	2013	2015	2018	2030
TOTAL	10,916,000	11,301,600	11,418,000	11,553,300	11,915,300

AGENDA

MWH

PROJECT: **City of Sunrise, 10 -Year Water Supply Facilities Work Plan 2008**
SUBJECT: Meeting with City of Weston
DATE/TIME: Friday February 29, 2008

I. CITY OF SUNRISE WATER SUPPLY FACILITY WORK PLAN OVERVIEW

II. COMMUNICATIONS

A. Single Point of Contact per DCA guidelines

III. SERVICE AREA

A. Service Area Limitations

IV. POPULATION PROJECTIONS

A. Population projections – usage of Traffic Analysis Zone (TAZ) thru 2030

V. DEMAND PROJECTIONS

VI. LIST OF DATA NEEDS

A. Requested Documents

- Conservation and Reuse Efforts

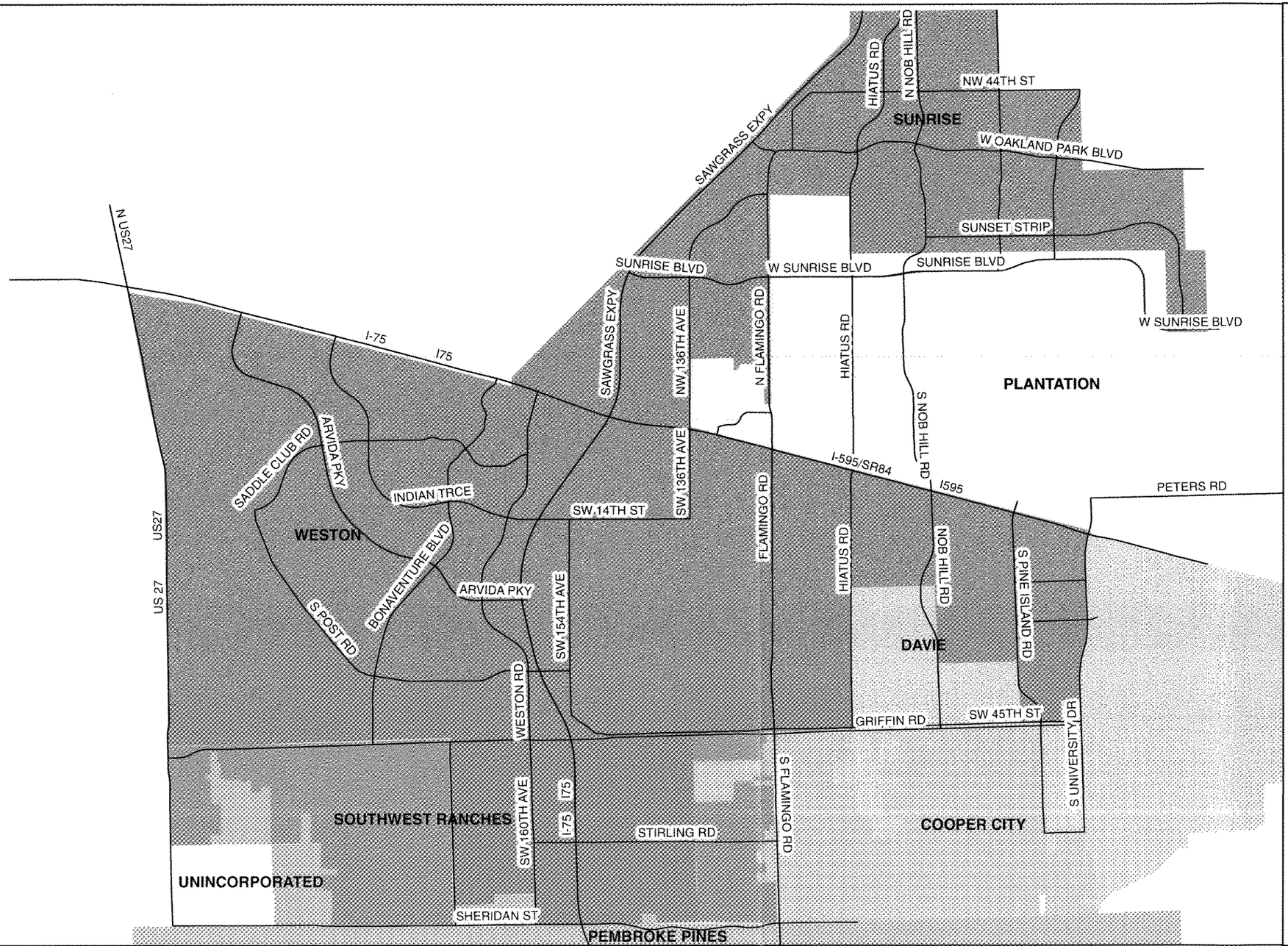
B. In Hand

- LEC Plan

VII. INTERGOVERNMENTAL COORDINATION

City of Sunrise
Water Supply Facilities Work Plan
Meeting with City of Weston
February 29, 2008 MEETING - SIGN IN SHEET

Name	Organization	Telephone No.	e-mail
Tim Welch	City of Sunrise	954-888-6037	twelch@cityofsunrise.org
DAVID HENNIS	WESTON	954 921 7781	dhennis@calvin-giordano.com
PATRICK MULLEN	MWH	954 846 0401	patrick.mullen@mwhglobal.com
BRAD KAINE	City of Weston	954-385-2600	bKaine@westonFl.org
Sangeeta Dholashia.	MWH	954-846-0401	sangeeta.dholashia@mwhglobal.com
BRAD SWING	SUNRISE	954 746-3238	BSWING@CITYOFSUNRISE.ORG
KARL KENNEDY	WESTON	954-839-4503	KARL@CALVIN-GIORDANO.COM
JEFFREY SKRAMORE	WESTON	954-389-4321	JSKRAMORE@WESTONFL.ORG



MWH

CITY OF SUNRISE FLORIDA

City of Sunrise Service Area

MEETING MINUTES

MWH

PROJECT: **City of Sunrise**
10-Year Water Supply Facilities Plan, 2008

SUBJECT: Meeting with South West Ranches
DATE/TIME: Tuesday, March 4, 2008 at 2:00 PM

Attendees:

Jeff Katims, TMPG representing South West Ranches	Brad Swing, City of Sunrise
Hector Castro, City of Sunrise	Harold Aiken, MWH
Tim Welch, City of Sunrise	Sangeeta Dhulashia, MWH

Discussion	***Action***
Introductions and an overview of the project was provided. MWH and TMPG are the City of Sunrise's (City) and Town of South West Ranche's (Town) Water Supply Facilities Work Plan (Work Plan) Consultants respectively.	
The point of contact with the Town for data verification will be Jeff Katims. The City of Sunrise's point of contact will be Sangeeta Dhulashia, and Tim Welch will be copied on all correspondence.	
Emphasis was made to capture new planned developments for water supply planning purposes. The Town does not currently have any proposed development/land use change.	
Approximately one half of the Town is on private wells and is not expected to be on municipal water supply in near future, as that decision will be driven by customer/residents discretion.	
MWH provided the City of Sunrise Utility service area map, population projections and demand projections through year 2030 for the Town serviced by the City of Sunrise Utilities developed for the City of Sunrise 10 year Water Supply Facilities Work Plan. An overview of Population and demand forecast methodologies was provided by MWH, where population data has been extracted from Broward County Traffic Analysis Zone (TAZ) September 2007 data. Demand projections were based on the 2006 billing and per capita usage data for the Town. Town has a parcel in which the population projections may not agree with Broward County TAZ population projections, Town may investigate this in further detail. The Town's year 2012 projections show 10,335 people, which is close to City's year 2013 projections of 11,100 people. The Town indicated that they would use population projections provided by the City for the existing service area.	
The City of Sunrise's Work Plan schedule was discussed as follows: April 8th – Presentation to council for comments. April 22nd – Proposed Amendment first reading. August 12th – Final Adoption.	
The Town plans to incorporate the population and demand projection data from the City of Sunrise Work Plan for the municipal areas currently served by the City of Sunrise.	
MWH requested any water conservation elements that currently exist for the City of	

MWH

PROJECT: **City of Sunrise**
10-Year Water Supply Facilities Plan, 2008

SUBJECT: Meeting with South West Ranches
DATE/TIME: Tuesday, March 4, 2008 at 2:00 PM

Discussion	*Action*
Weston. The Town currently does not have these elements.	
This meeting will be considered as intergovernmental coordination between the City of Sunrise and Town and will be part of the Work Plan as attachment.	MWH to document meeting minutes and transmit to attendees.

AGENDA

MWH

PROJECT: **City of Sunrise, 10 -Year Water Supply Facilities Work Plan 2008**
SUBJECT: Meeting with South West Ranches
DATE/TIME: Tuesday March 4, 2008

I. CITY OF SUNRISE WATER SUPPLY FACILITY WORK PLAN OVERVIEW

II. COMMUNICATIONS

A. Single Point of Contact per DCA guidelines

III. SERVICE AREA

A. Service Area Limitations

IV. POPULATION PROJECTIONS

A. Population projections – usage of Traffic Analysis Zone (TAZ) thru 2030

V. DEMAND PROJECTIONS

VI. LIST OF DATA NEEDS

A. Requested Documents

- Conservation and Reuse Efforts

B. In Hand

- LEC Plan

VII. INTERGOVERNMENTAL COORDINATION

City of Sunrise
10-Year Water Supply Facility Work Plan

Sunrise Utility Service Area Population Projections For South West Ranches

YEAR	2008	2013	2015	2018	2030	Service Area
Subtotal	4,900	5,500	5,700	6,000	6,300	Existing
Subtotal		5,600	5,700	5,900	6,000	Future
Total	4,900	11,100	11,400	11900	12,300	

Sunrise Utility Service Area Demand (Gallons/day) Projections For South West Ranches

YEAR	2008	2013	2015	2018	2030	Service Area
Subtotal	328,500	352,200	362,600	378,300	397,100	Existing
Subtotal		701,200	719,800	740,000	764,300	Future
Total	328,500	1,053,400	1,082,400	1,118,300	1,161,300	

10-Year Water Supply Facility Work Plan
Sunrise Utility Service Area Population Projections by TAZ

TAZ	2008	2013	2015	2018	2030	MUNICIPALITY	SERVICE AREA
SUBTOTAL	**63,200**	**65,500**	**66,100**	**66,900**	**68,500**		
605	137	220	273	296	319	SW Ranches	Existing
911	357	352	344	373	395	SW Ranches	Existing
604	512	534	541	547	556	SW Ranches	Existing
603	759	833	863	895	925	SW Ranches	Existing
601	1512	1765	1887	2012	2127	SW Ranches	Existing
608	334	348	357	364	372	SW Ranches	Existing
610	63	65	66	67	68	SW Ranches	Existing
611	694	793	843	898	943	SW Ranches	Existing
809	196	205	211	218	234	SW Ranches	Existing
811	0	7	11	17	28	SW Ranches	Existing
812	263	288	299	311	320	SW Ranches	Existing
SUBTOTAL	**4,900**	**5,500**	**5,700**	**6,000**	**6,300**		
TOTAL	**216,600**	**232,500**	**238,600**	**245,800**	**259,000**		
606	989	1010	1013	1019	1032	SW Ranches	Future
600	634	719	767	822	864	SW Ranches	Future
599	2687	2739	2751	2764	2792	SW Ranches	Future
607	136	179	204	234	274	SW Ranches	Future
612	342	383	411	430	455	SW Ranches	Future
808	127	151	167	185	207	SW Ranches	Future
813	225	246	260	279	296	SW Ranches	Future
814	93	94	94	95	98	SW Ranches	Future
Total	**5,233**	**5,600**	**5,700**	**5,900**	**6,000**		

GRAND TOTAL	**221,900**	**238,100**	**244,300**	**251,700**	**265,000**		

10-Year Water Supply Facility Work Plan
Sunrise Utility Service Area Demand (Gallons/day) Projections by TAZ

TAZ	2008	2013	2015	2018	2030	MUNICIPALITY	SERVICE AREA
601	11,075	12,966	13,867	14,805	15,827	SW Ranches	Existing
603	72,518	79,607	82,496	85,536	89,298	SW Ranches	Existing
604	48,318	50,090	50,628	51,143	52,211	SW Ranches	Existing
605	8,927	11,308	12,839	13,525	14,279	SW Ranches	Existing
608	6,538	6,835	7,023	7,176	7,415	SW Ranches	Existing
610	8,292	8,593	8,717	8,843	9,069	SW Ranches	Existing
611	46,487	52,351	55,304	58,557	61,797	SW Ranches	Existing
809	20,454	21,507	22,181	22,939	24,904	SW Ranches	Existing
811	24,417	25,257	25,695	26,270	27,447	SW Ranches	Existing
812	27,451	30,174	31,415	32,720	34,043	SW Ranches	Existing
911	53,995	53,496	52,364	56,755	60,748	SW Ranches	Existing
SUB TOTAL	**328,473**	**352,183**	**362,530**	**378,268**	**397,038**	**SW Ranches**	**Existing**
606	125,654	128,227	128,676	129,402	131,008	SW Ranches	Future
600	80,560	91,313	97,409	104,343	109,728	SW Ranches	Future
599	341,289	347,915	349,434	351,019	354,552	SW Ranches	Future
607	17,309	22,702	25,867	29,690	34,844	SW Ranches	Future
612	43,434	48,692	52,197	54,559	57,785	SW Ranches	Future
808	16,093	19,206	21,187	23,528	26,247	SW Ranches	Future
813	28,575	31,242	33,020	35,382	37,592	SW Ranches	Future
814	11,755	11,894	11,986	12,046	12,449	SW Ranches	Future
Total	**664,669**	**701,190**	**719,778**	**739,968**	**764,205**		

City of Sunrise
10-Year Water Supply Facility Work Plan

Sunrise Utility Service Area Population Projections For South West Ranches

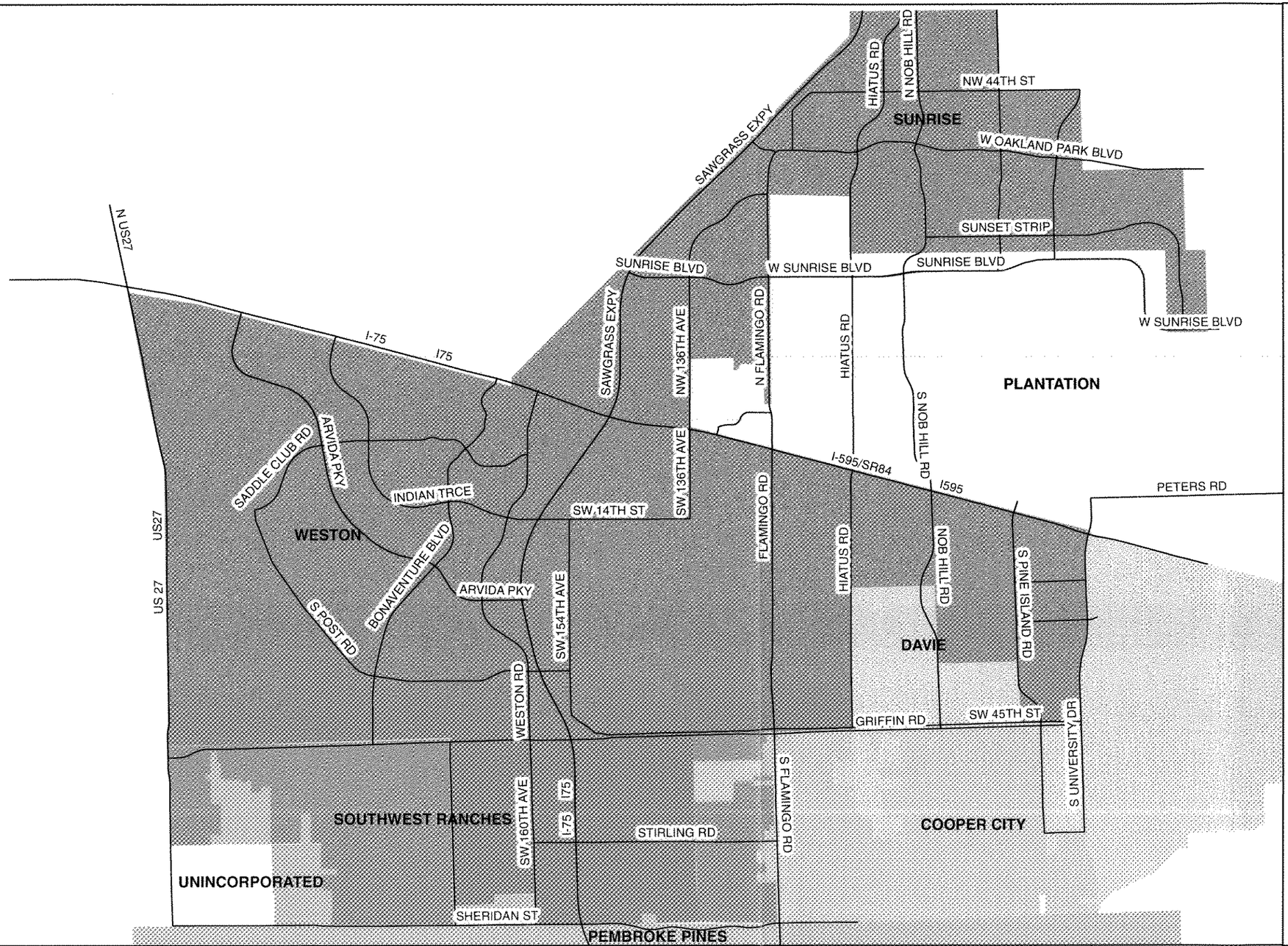
YEAR	2008	2013	2015	2018	2030	Service Area
Subtotal	4,900	5,500	5,700	6,000	6,300	Existing
Subtotal		5,600	5,700	5,900	6,000	Future
Total	4,900	11,100	11,400	11900	12,300	

Sunrise Utility Service Area Demand (Gallons/day) Projections For South West Ranches

YEAR	2008	2013	2015	2018	2030	Service Area
Subtotal	328,500	352,200	362,600	378,300	397,100	Existing
Subtotal		701,200	719,800	740,000	764,300	Future
Total	328,500	1,053,400	1,082,400	1,118,300	1,161,300	

City of Sunrise
Water Supply Facilities Work Plan
Meeting with South West Ranches
March 4, 2008 MEETING - SIGN IN SHEET

Name	Organization	Telephone No.	e-mail
Sangeeta Dhulashia	MWH	954-846-0401	sangeeta.dhulashia@mwhglobal.com
Tim Welch	City of Sunrise	954-888-6037	twelch@cityofsunrise.org
Jeff Katims	TMPG	954 475-3070	jeff@TMPGPlanning.com
BRAD SWING	SUNRISE	(954) 746-3238	BSWING@CITYOFSUNRISE.ORG
HAROLD AIKEN	MWH	954-328-3627	harold.aiken@mwhglobal.com



MWH

CITY OF SUNRISE FLORIDA

City of Sunrise Service Area

Appendix F

10-Year Water Supply Facility Work Plan
Appendix F - Sunrise Utility Service Area Demand (Gallons/day) Projections by TAZ

TAZ	2008	2013	2015	2018	2030	MUNICIPALITY	SERVICE AREA
558	212,584	219,414	222,337	227,081	249,067	Davie	Existing
559	115,522	120,308	122,194	124,911	137,117	Davie	Existing
560	514,443	529,017	533,972	540,812	564,396	Davie	Existing
561	548,157	583,282	589,849	597,270	617,478	Davie	Existing
562	293,450	318,272	327,625	337,617	351,842	Davie	Existing
563	100,006	121,573	132,387	143,918	153,621	Davie	Existing
565	734,313	745,347	749,039	752,759	765,948	Davie	Existing
566	311,389	333,713	341,301	350,415	381,827	Davie	Existing
569	312,263	319,370	322,021	326,805	344,526	Davie	Existing
570	40,564	41,993	42,353	42,959	45,319	Davie	Existing
572	268,588	316,303	333,742	351,110	372,452	Davie	Existing
573	588,784	610,588	618,142	629,185	670,626	Davie	Existing
574	675,874	693,631	697,778	702,500	717,176	Davie	Existing
575	4,010	4,057	4,078	4,100	4,170	Davie	Existing
590	83,713	113,018	127,935	143,769	160,752	Davie	Existing
591	2,669	2,775	2,818	2,869	2,930	Davie	Existing
592	148,250	175,719	189,864	203,859	222,102	Davie	Existing
593	236,323	259,541	269,319	279,693	292,822	Davie	Existing
594	166,261	173,141	175,660	179,019	189,245	Davie	Existing
595	1,495	1,864	2,079	2,315	2,557	Davie	Existing
596	110,503	122,524	125,713	128,981	134,439	Davie	Existing
602	48,870	48,870	48,870	48,870	48,870	Davie	Existing
603	126,690	139,074	144,122	149,433	156,005	Davie	Existing
604	123,002	127,513	128,882	130,194	132,913	Davie	Existing
609	118,853	119,780	120,374	121,264	124,135	Davie	Existing
610	127,380	132,013	133,914	135,843	139,313	Davie	Existing
611	18,414	20,737	21,906	23,195	24,478	Davie	Existing
810	71,751	78,108	81,268	83,937	86,809	Davie	Existing
811	29,710	30,459	30,987	31,680	33,100	Davie	Existing
889	11,978	11,978	11,978	11,978	11,978	Davie	Existing
891	28,464	29,412	30,045	30,773	31,285	Davie	Existing
SUB TOTAL	**6,174,277**	**6,543,396**	**6,682,553**	**6,839,114**	**7,169,298**	**Davie**	**Existing**
461	91,731	96,621	99,175	103,732	127,468	Sunrise	Existing
462	22,221	23,041	23,562	24,710	31,484	Sunrise	Existing
468	86,724	86,724	86,724	86,724	86,724	Sunrise	Existing
469	722,301	737,983	743,962	752,998	791,048	Sunrise	Existing
471	613,716	635,388	645,006	659,832	729,805	Sunrise	Existing
472	597,438	609,344	613,382	619,320	645,096	Sunrise	Existing
473	492,679	512,674	516,402	520,739	534,595	Sunrise	Existing
474	180,138	186,360	188,296	190,937	194,583	Sunrise	Existing
475	122,957	127,508	129,997	134,196	157,280	Sunrise	Existing
476	526,861	621,014	658,868	698,036	737,955	Sunrise	Existing
477	134,784	137,142	137,826	138,716	141,922	Sunrise	Existing
478	461,592	1,093,285	1,389,485	1,701,085	1,946,338	Sunrise	Existing
479	265,162	399,374	470,451	545,636	607,781	Sunrise	Existing
480	8,379	8,379	8,379	8,379	8,379	Sunrise	Existing
481	215,948	215,948	215,948	215,948	215,948	Sunrise	Existing
482	736,867	752,848	758,359	764,581	784,695	Sunrise	Existing
484	71,418	76,754	78,177	80,715	92,065	Sunrise	Existing
487	468,257	484,646	491,593	502,398	551,228	Sunrise	Existing
488	541,335	560,041	566,794	575,992	607,243	Sunrise	Existing
489	513,403	528,466	533,642	539,965	560,761	Sunrise	Existing
490	112,346	114,009	114,823	115,485	117,320	Sunrise	Existing
491	128,550	129,860	130,694	131,487	134,912	Sunrise	Existing
492	105,682	109,932	112,306	115,665	132,323	Sunrise	Existing
493	352,290	385,175	393,567	404,137	436,695	Sunrise	Existing
494	532,858	551,172	558,854	572,470	709,802	Sunrise	Existing
495	286,814	294,189	296,190	298,176	306,533	Sunrise	Existing
496	535,642	552,265	558,008	564,425	585,561	Sunrise	Existing
574	272,155	279,305	280,975	282,876	288,786	Sunrise	Existing
575	392,884	397,506	399,540	401,743	408,619	Sunrise	Existing
576	20,123	20,742	20,966	21,265	22,373	Sunrise	Existing
896	292,281	377,482	417,066	458,558	496,060	Sunrise	Existing
898	183,975	195,234	199,279	203,564	211,047	Sunrise	Existing
SUB TOTAL	**10,089,513**	**11,300,411**	**11,838,295**	**12,434,489**	**13,402,428**	**Sunrise**	**Existing**
601	11,075	12,966	13,867	14,805	15,827	SW Ranches	Existing

10-Year Water Supply Facility Work Plan
Appendix F - Sunrise Utility Service Area Demand (Gallons/day) Projections by TAZ

TAZ	2008	2013	2015	2018	2030	MUNICIPALITY	SERVICE AREA
603	72,518	79,607	82,496	85,536	89,298	SW Ranches	Existing
604	48,318	50,090	50,628	51,143	52,211	SW Ranches	Existing
605	8,927	11,308	12,839	13,525	14,279	SW Ranches	Existing
608	6,538	6,835	7,023	7,176	7,415	SW Ranches	Existing
610	8,292	8,593	8,717	8,843	9,069	SW Ranches	Existing
611	46,487	52,351	55,304	58,557	61,797	SW Ranches	Existing
809	20,454	21,507	22,181	22,939	24,904	SW Ranches	Existing
811	24,417	25,257	25,695	26,270	27,447	SW Ranches	Existing
812	27,451	30,174	31,415	32,720	34,043	SW Ranches	Existing
911	53,995	53,496	52,364	56,755	60,748	SW Ranches	Existing
SUB TOTAL	**328,473**	**352,183**	**362,530**	**378,268**	**397,038**	**SW Ranches**	**Existing**
575	22,960	23,230	23,349	23,478	23,880	Weston	Existing
576	239,706	247,081	249,748	253,314	266,502	Weston	Existing
577	703,831	723,006	730,011	738,980	768,826	Weston	Existing
578	703,953	715,192	718,597	722,968	736,818	Weston	Existing
579	1,015,920	1,036,304	1,042,602	1,049,987	1,075,515	Weston	Existing
580	1,817,105	1,877,947	1,899,721	1,925,802	2,009,942	Weston	Existing
583	624,539	665,086	672,413	681,802	709,182	Weston	Existing
584	736,969	751,518	756,477	761,832	778,358	Weston	Existing
585	377,399	383,555	385,579	387,675	393,883	Weston	Existing
586	161,413	165,844	167,372	169,156	174,682	Weston	Existing
587	62,653	67,118	69,715	72,295	76,914	Weston	Existing
588	246,710	252,522	254,346	256,523	262,138	Weston	Existing
589	412,929	419,700	422,228	424,928	433,728	Weston	Existing
590	3,086	4,167	4,717	5,301	5,927	Weston	Existing
597	1,309,297	1,432,415	1,459,677	1,488,962	1,538,979	Weston	Existing
888	1,739,905	1,775,372	1,788,487	1,803,154	1,854,056	Weston	Existing
889	187,656	187,656	187,656	187,656	187,656	Weston	Existing
890	400,562	420,342	429,062	439,430	455,612	Weston	Existing
891	149,436	153,490	156,194	159,977	162,639	Weston	Existing
SUB TOTAL	**10,916,029**	**11,301,545**	**11,417,951**	**11,553,218**	**11,915,236**	**Weston**	**Existing**
TOTAL	**27,508,293**	**29,497,535**	**30,301,328**	**31,205,089**	**32,884,000**		
606	125,654	128,227	128,676	129,402	131,008	SW Ranches	Future
600	80,560	91,313	97,409	104,343	109,728	SW Ranches	Future
599	341,289	347,915	349,434	351,019	354,552	SW Ranches	Future
607	17,309	22,702	25,867	29,690	34,844	SW Ranches	Future
612	43,434	48,692	52,197	54,559	57,785	SW Ranches	Future
808	16,093	19,206	21,187	23,528	26,247	SW Ranches	Future
813	28,575	31,242	33,020	35,382	37,592	SW Ranches	Future
814	11,755	11,894	11,986	12,046	12,449	SW Ranches	Future
Total	**664,669**	**701,190**	**719,778**	**739,968**	**764,205**		
GRAND TOTAL	**28,173,000**	**30,198,700**	**31,021,100**	**31,945,100**	**33,648,200**		

Appendix G

APPENDIX G - CITY OF SUNRISE WELL DESCRIPTIONS

Well Number/Map Designation	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9
Existing/Proposed (E/P)	AB	E	E	AB	AB	E	E	E	E
Year Proposed/Drilled	ND	1971	1971	1972	1972	1973	1973	1973	1973
Diameter (inches)	ND	18	18	18	18	18	18	18	18
Total Depth (feet)	60	115	106	104	112	76	76	72	72
Cased Depth (feet)	ND	110	70	91	93	69	68	67	65
Screened Interval (feet)	ND	110-115	70-106	91-104	93-112	69-76	68-76	67-72	65-72
Pumped or Flowing (P/F)	P	P	P	P	P	NA	P	P	NA
Pump Type	NA	Submersible	Submersible	NA	NA	NA	Submersible	Submersible	NA
Intake Depth (feet NGVD)	NA	-20	-20	NA	NA	-20	-20	-20	-20
Pump Capacity (gpm)	NA	1,000	1,000	NA	NA	NA	1,500	1,500	NA
Working Valve if Artesian	NA	NA	NA	NA	NA	NA	NA	NA	NA
Status	AB	Prim.	Prim.	AB	AB	Standby	Prim.	Prim.	Standby
Purpose	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS
Elevation of Wellhead (ft, NGVD)	NA	ND	ND	NA	NA	ND	ND	ND	ND
Water Use Accounting Method	NA	Calibrated Meter	Calibrated Meter	NA	NA	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter
Date Last Calibrated	NA	Apr-07	Apr-07	NA	NA	Apr-07	Apr-07	Apr-07	Apr-07
Planar Coordinates	NA	671,411N	671,411N	NA	NA	670,561N	670,561N	670,861N	671,061N
	NA	898,487E	898,237E	NA	NA	899,737E	900,237E	900,237E	900,437E
Section/Township/Range	NA	21/49S/41E	21/49S/41E	NA	NA	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E

NA: Not applicable
ND: No data
TBD: To be determined
AB: Abandoned
Prim: Primary
Sec.: Secondary
PWS: Public Water Supply

APPENDIX G - CITY OF SUNRISE WELL DESCRIPTIONS

Well Number/Map Designation	S-10	S-11	S-12	S-13	S-14	S-15	S-16	S-17
Existing/Proposed (E/P)	E	E	E	E	E	E	E	E
Year Proposed/Drilled	1974	1974	1974	1974	1974	1974	1974	1989
Diameter (inches)	18	18	18	18	18	18	18	12
Total Depth (feet)	84	91	91	84	90	107	107	125
Cased Depth (feet)	80	84	84	80	84	87	80	70
Screened Interval (feet)	80-84	84-91	84-91	80-84	84-90	87-107	80-107	70-125
Pumped or Flowing (P/F)	P	P	P	P	P	P	P	P
Pump Type	Submersible	Submersible	Submersible	Submersible	Submersible	Submersible	Submersible	Submersible
Intake Depth (feet NGVD)	-20	-20	-20	-20	-20	-20	-20	-20
Pump Capacity (gpm)	1,000	1,000	1,000	1,000	1,000	1,500	1,500	1,000
Working Valve if Artesian	NA	NA	NA	NA	NA	NA	NA	NA
Status	Prim.	Prim.	Prim.	Prim.	Prim.	Prim.	Prim.	Prim.
Purpose	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS
Elevation of Wellhead (ft, NGVD)	ND	ND	ND	ND	ND	ND	ND	ND
Water Use Accounting Method	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter
Date Last Calibrated	Apr-07	Apr-07	Apr-07	Apr-07	Apr-07	Apr-07	Apr-07	Apr-07
Planar Coordinates	670,061N	669,911N	669,561N	669,261N	669,461N	668,911N	668,561N	669,021N
	897,287E	897,687E	898,037E	898,137E	898,387E	898,337E	898,437E	899,717E
Section/Township/Range	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E

NA: Not applicable
ND: No data
TBD: To be determined
AB: Abandoned
Prim: Primary
Sec.: Secondary
PWS: Public Water Supply

APPENDIX G - CITY OF SUNRISE WELL DESCRIPTIONS

Well Number/Map Designation	S-18	S-19	S-20	S-21	S-22	ASR-1	SG-1	SG-3
Existing/Proposed (E/P)	E	E	E	E	E	E	E	E
Year Proposed/Drilled	1992	1992	1993	1993	1993	1998	1997	1997
Diameter (inches)	14	18	18	18	18	16	18	20
Total Depth (feet)	120	118	120	115	118	1,270	95	95
Cased Depth (feet)	55	97	97	98	97	1,110	76	73
Screened Interval (feet)	55-120	97-118	97-120	98-115	97-118	1110-1270	76-95	73-95
Pumped or Flowing (P/F)	P	P	P	P	P	F	P	P
Pump Type	Submersible	Submersible	Submersible	Submersible	Submersible	Submersible	Submersible	Submersible
Intake Depth (feet NGVD)	-20	-20	-20	-20	-20	-60	-40	-40
Pump Capacity (gpm)	1,000	1,000	1,050	1,000	1,400	1,400	2,100	2,100
Working Valve if Artesian	NA	NA	NA	NA	NA	Yes	NA	NA
Status	Prim.	Prim.	Prim.	Prim.	Prim.	Sec.	Prim.	Prim.
Purpose	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS
Elevation of Wellhead (ft, NGVD)	ND	ND	ND	ND	ND	ND	ND	ND
Water Use Accounting Method	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter
Date Last Calibrated	Apr-07	Apr-07	Apr-07	Apr-07	Apr-07	Apr-07	Dec-06	Jan-07
Planar Coordinates	669,391N	669,311N	669,781N	670,161N	670,301N	670,372N	664,686N	664,181N
	900,167E	899,517E	899,517E	899,987E	899,657E	898,007E	880, 057E	878,927E
Section/Township/Range	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E	21/49S/41E	26/49S/40E	26/49S/40E

NA: Not applicable
ND: No data
TBD: To be determined
AB: Abandoned
Prim: Primary
Sec.: Secondary
PWS: Public Water Supply

APPENDIX G - CITY OF SUNRISE WELL DESCRIPTIONS

Well Number/Map Designation	SG-4	SG-5	SG-6	SG-8	SGF-1	SGF-2	FP-1	FP-2
Existing/Proposed (E/P)	E	E	E	E	P	P	P	P
Year Proposed/Drilled	1997	1997	1997	1997	TBD	TBD	2003	2003
Diameter (inches)	20	20	20	20	16	16	24	24
Total Depth (feet)	95	95	95	95	1,200	1,200	84	86
Cased Depth (feet)	75	72	68	72	1,000	1,000	66	68
Screened Interval (feet)	75-95	72-95	68-95	72-95	1,000-1,200	1,000-1,200	66-84	68-86
Pumped or Flowing (P/F)	P	P	P	P	P	P	P	P
Pump Type	Submersible	Submersible	Submersible	Submersible	TBD	TBD	Submersible	Submersible
Intake Depth (feet NGVD)	-40	-40	-40	-40	TBD	TBD	ND	ND
Pump Capacity (gpm)	2,100	2,100	2,100	2,100	2,100	2,100	2,600	2,600
Working Valve if Artesian	NA	NA	NA	NA	NA	NA	NA	NA
Status	Prim.	Prim.	Prim.	Prim.	Prim.	Standby	Prim.	Prim.
Purpose	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS
Elevation of Wellhead (ft, NGVD)	ND	ND	ND	ND	TBD	TBD	TBD	TBD
Water Use Accounting Method	Calibrated Meter	Calibrated Meter	Calibrated Meter	Calibrated Meter	TBD	TBD	ND	ND
Date Last Calibrated	Feb-07	Mar-07	Apr-07	May-07	NA	NA	ND	ND
Planar Coordinates	663,341N	662,746N	662,391N	662,351N	652,675N	652,950N	655,215N	654,647N
	878,237E	877,177E	876,567E	876,142E	873,784E	874,777E	878,587E	878,587E
Section/Township/Range	26/49S/40E	26/49S/40E	26/49S/40E	26/49S/40E	3/50S/40E	3/50S/40E	35/49S/40E	35/49S/40E

NA: Not applicable
ND: No data
TBD: To be determined
AB: Abandoned
Prim: Primary
Sec.: Secondary
PWS: Public Water Supply

APPENDIX G - CITY OF SUNRISE WELL DESCRIPTIONS

Well Number/Map Designation	FP-3	FP-4	SW-1	SW-2	SW-3	SW-4	M-1	M-2	M-3
Existing/Proposed (E/P)	P	P	E	E	E	P	AB	AB	AB
Year Proposed/Drilled	1997	2003	1983	1983	1983	2008	ND	ND	ND
Diameter (inches)	20	24	12	12	12	24	8	8	10
Total Depth (feet)	80	86	60	60	60	100	80	80	100
Cased Depth (feet)	66	66	40	42	40	80	ND	ND	ND
Screened Interval (feet)	66-80	66-86	40-60	42-60	40-60	80-100	ND	ND	ND
Pumped or Flowing (P/F)	P	P	P	P	P	P	P	P	P
Pump Type	Submersible	Submersible	Turbine	Turbine	Turbine	Submersible	Turbine	Turbine	Turbine
Intake Depth (feet NGVD)	ND	ND	-32	-34	-32	TBD	-22	-22	-22
Pump Capacity (gpm)	2,600	2,600	700	700	700	2,600	0	NA	NA
Working Valve if Artesian	NA	NA	NA	NA	NA	NA	NA	NA	NA
Status	Prim.	Prim.	Prim.	Prim.	Prim.	Standby	Standby	Standby	Standby
Purpose	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS
Elevation of Wellhead (ft, NGVD)	TBD	TBD	ND	ND	ND	ND	ND	ND	ND
Water Use Accounting Method	ND	ND	Calibrated Meter	Calibrated Meter	Calibrated Meter	ND	ND	ND	ND
Date Last Calibrated	ND	ND	May-07	Jun-07	Jul-07	ND	ND	ND	ND
Planar Coordinates	654,320N	655,140N	621,743N	621,742N	621,775N	621480N	648,911N	648,961N	648,961N
	879,045E	879,029E	868,195E	868,225E	868,100E	868,434E	879,937E	879,687E	880,237E
Section/Township/Range	35/49S/40E	35/49S/40E	4/51S/40E	4/51S/40E	4/51S/40E	4/51S/40E	2/50S/40E	2/50S/40E	2/50S/40E

NA: Not applicable
ND: No data
TBD: To be determined
AB: Abandoned
Prim: Primary
Sec.: Secondary
PWS: Public Water Supply

APPENDIX G - CITY OF SUNRISE WELL DESCRIPTIONS

Well Number/Map Designation	MF-1	P-1	P-2	P-3	P-4	P-5	P-6	P-7	PF-8
Existing/Proposed (E/P)	E	AB	AB	AB	AB	AB	AB	AB	P
Year Proposed/Drilled		1968	1969	1969	1973	1973	1974	1974	2019
Diameter (inches)	16	10	12	12	12	12	12	12	16
Total Depth (feet)	1200	60	102	102	102	102	102	102	1200
Cased Depth (feet)	1000	ND	102	102	102	102	102	102	1000
Screened Interval (feet)	1000-1200	ND	ND	ND	ND	ND	ND	ND	1000-1200
Pumped or Flowing (P/F)	P	P	P	P	P	P	P	P	P
Pump Type	Submersible	Turbine	Turbine	Turbine	Turbine	Turbine	Turbine	Turbine	TBD
Intake Depth (feet NGVD)	ND	-23	-23	-23	-23	-23	-23	-23	TBD
Pump Capacity (gpm)	NA	NA	NA	NA	NA	NA	NA	NA	2,100
Working Valve if Artesian	NA	NA	NA	NA	NA	NA	NA	NA	NA
Status	Standby	Stand by	Stand by	Stand by	Stand by	Stand by	Stand by	Stand by	Prim.
Purpose	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS	PWS
Elevation of Wellhead (ft, NGVD)	ND	ND	ND	ND	ND	ND	ND	ND	TBD
Water Use Accounting Method	Calibrated Meter	Meter	Meter	Meter	Meter	Meter	Meter	Meter	TBD
Date Last Calibrated	NA	ND	ND	ND	ND	ND	ND	ND	NA
Planar Coordinates	648,805N	641,011N	640,711N	640,715N	640,911N	640,561N	640,921N	640,411N	640,591N
	880,183E	897,437E	897,587E	897,527E	897,687E	897,687E	897,921E	897,987E	897,465E
Section/Township/Range	2/50S/40E	16/50S/41E	16/50S/41E	16/50S/41E	16/50S/41E	16/50S/41E	16/50S/41E	16/50S/41E	16/50S/41E

NA: Not applicable
ND: No data
TBD: To be determined
AB: Abandoned
Prim: Primary
Sec.: Secondary
PWS: Public Water Supply

APPENDIX G - CITY OF SUNRISE WELL DESCRIPTIONS

Well Number/Map Designation	PF-9	PF-10	PF-11
Existing/Proposed (E/P)	P	P	P
Year Proposed/Drilled	2019	2019	2019
Diameter (inches)	16	16	16
Total Depth (feet)	1200	1200	1200
Cased Depth (feet)	1000	1000	1000
Screened Interval (feet)	1000-1200	1000-1200	1000-1200
Pumped or Flowing (P/F)	P	P	P
Pump Type	TBD	TBD	TBD
Intake Depth (feet NGVD)	TBD	TBD	TBD
Pump Capacity (gpm)	2,100	2,100	2,100
Working Valve if Artesian	NA	NA	NA
Status	Prim.	Prim.	Stand by
Purpose	PWS	PWS	PWS
Elevation of Wellhead (ft, NGVD)	TBD	TBD	TBD
Water Use Accounting Method	TBD	TBD	TBD
Date Last Calibrated	NA	NA	NA
Planar Coordinates	642,553N	641,187N	639,390N
	897,843E	898,866E	899,120E
Section/Township/Range	16/50S/41E	16/50S/41E	17/50S/41E

NA: Not applicable
ND: No data
TBD: To be determined
AB: Abandoned
Prim: Primary
Sec.: Secondary
PWS: Public Water Supply

Appendix H

MWH

Cost Assumptions
Used for 10-Year Water Supply Facilities Plan

Capital Cost Assumptions

The following is a list of assumptions used for pricing the capital improvements associated with all Alternative Water Supply (AWS) projects as part of the Capital Improvements Plan (CIP) development for 10 year Water Supply Facility Plan:

- Estimated capital costs are based on an ENR Construction Cost Index = 8094 (February 2008);

- All construction costs included a 30 percent contingency;

- Yard piping, electrical and instrumentation and control costs were estimated to equal 22 percent of facility component upgrade costs;

- Site work was estimated to equal 10 percent of facility component upgrade costs;

- Land Acquisition cost are computed based on the latest tax roll data from property appraisers site, and assumes a specific well location.

- Estimated capital costs have been rounded to the nearest ten thousand dollars;

- Estimated capital costs do not include any financing costs (interest during construction) which may be incurred as a result of the issuance of long-term debt to finance a portion of the project.

- Supplied labor rate buildup for craft labor costs is not indicated in estimate.

- All Capital cost are based on AACE Class 5 estimates, where the definition is as follow: ***AACE International CLASS 5 Cost Estimate*** *– Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. Typically, engineering is from 2% to 10% complete. They are often prepared for strategic planning purposes, market studies, assessment of viability, project location studies, and long range capital planning. Virtually all Class 5 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric techniques. Expected accuracy ranges are from –20% to –50% on the low side and +30% to 100% on the high side, depending on technological complexity of the project,*

appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.

- **MWH Opinion of Probable Construction Cost (OPCC) Disclaimer –** The client acknowledges that MWH has no control over cost of labor, materials, competitive bidding environment and procedures, unidentified field conditions, financial and/or market conditions, or any other factors likely to affect the OPCC of this project, all of which are and will unavoidably remain in a state of change, especially in light of the high volatility of the market attributable to Acts of God and other market events beyond the control of the parties. Client further acknowledges that this OPCC is a 'snapshot in time' and that the reliability of the OPCC will degrade over time. Client agree that MWH cannot and does not make any warranty, promise, guarantee or representation, either express or implied that proposal, bids, project costs, or cost of O&M functions will not vary significantly from MWH's good faith Class 5 OPCC.

Appendix I

CITY OF SUNRISE
APPENDIX I - UNINCORPORATED PROPERTIES

- 15931 N WIND CIRCLE; NEW RIVER ESTATES SECTION ONE 103-28 B LOT 8 BLK A
- 620 SW 159 TERRACE; NEW RIVER ESTATES SECTION ONE 103-28 B LOT 3 BLK B
- 15910 N WIND CIRCLE; NEW RIVER ESTATES SECTION ONE 103-28 B LOT 4 BLK B
- 641 SW 158 TERRACE; NEW RIVER ESTATES SECTION ONE 103-28 B LOT 28 BLK D
- 15810 N WIND CIRCLE; NEW RIVER ESTATES SECTION ONE 103-28 B LOT 2 BLK H
- 741 SW 157 TERRACE; NEW RIVER ESTATES SECTION ONE 103-28 B LOT 11 BLK E