



### PUBLIC FACILITIES ELEMENT INTRODUCTION

#### Element Purpose

West Melbourne has a total land area of 9.9 square miles. Due to its size and location, the City is dependent on several outside entities to provide for or supplement certain public facilities. The purpose of the Public Facilities Element is to provide for necessary public facilities and services correlated to future land use projections and to address the issues pertaining to the existing and future potable water, sanitary sewer, solid waste and stormwater management infrastructure systems. The systems are described as they presently exist within the service area and insight is given for the five-year and ten-year planning time frame of the Horizon 2030 Comprehensive Plan.

#### Evaluation and Appraisal Report: Identified Concerns

Concerns related to Public Facilities were discussed in the following chapters of the 2009 Evaluation and Appraisal Report (EAR):

- **Chapter 2—Community Core, Neighborhood Centers, and Gathering Spaces:** Concerns are related to ensuring that the City’s public facilities and infrastructure systems interests support the creation, maintenance, and use of new community spaces.
- **Chapter 5—Standards for Public Facilities and Infrastructure Systems:** Concerns are related to how to develop and finance a public facilities and infrastructure system that meets the City’s health, safety, and development needs and demands.

The 2009 EAR found that one of the fundamental tasks of planning is to ensure that communities have adequate public facilities and infrastructure capacity to meet the needs of the City’s current and future population. This issue was particularly addressed in Chapter 5: Standards for Public Facilities and Infrastructure Systems. Chapter 5 identified the need to maintain and update the City’s utility facilities and systems including potable water, sanitary sewer, stormwater, and solid waste.

In order to maintain and update the City’s utility facilities and systems, the EAR finds that the City must:

- Coordinate development and utility services.
- Manage the City’s capital improvements and fiscal resources.
- Coordinate with the City’s regional intergovernmental partners.

Coordination of future development projects with the expansion of new systems and repair of existing facilities is critical to providing an adequate level of service (LOS) to all service areas.

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While utility and infrastructure system coordination is critical to the delivery of public services and facilities, the EAR also found that level of service (LOS) standards cannot be the single focus of the City's planning efforts. The EAR found that the 1999 Comprehensive Plan policies were driven by a quantitative measure of public facilities and infrastructure capacity. The result is the City's predominant suburban development pattern, because it is easier to extend utility lines in areas that are not experiencing LOS issues, than for the City and developers to expend additional funds to resolve capacity issues in areas currently in deficient LOS areas.

To improve the livability of the community, the EAR recommended that the Horizon 2030 Comprehensive Plan utilize the community vision to determine what types of services and facilities are needed.

To address these concerns, the EAR recommended policies that:

- Change planning focus from LOS focused policies to community design focused policies in order to achieve a livable community.
- Coordinate facility capacity and growth management.
- Ensure development pays for service and facility expansion and addresses regional impacts of growth.
- Establish appropriate LOS for sanitary sewer, solid waste, potable water, and stormwater.
- Maintain a high standard of public facilities and infrastructure.
- Update and expand public facility and infrastructure systems.
- Improve services by coordinating construction projects.
- Recognize the value and capabilities of regional partnerships to the delivery of public services.

## **IDENTIFICATION AND ANALYSIS OF POTABLE WATER**

### **Potable Water Introduction**

The City of West Melbourne currently owns and operates a potable water distribution system which serves approximately 8,500 customer accounts, including residential, commercial, and institutional entities. All potable water is bulk purchased from the City of Melbourne. West Melbourne's and Melbourne's water distribution systems are connected through at 13 master meters. The amount of water that passes through the master meters is the total potable water demand for the City of West Melbourne's water distribution system.

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West Melbourne does not have its own potable water treatment plant and depends on water supply from the City of Melbourne, who operates two plants nearby. West Melbourne purchases its water from Melbourne through an agreement dated July 11, 1978. By virtue of this agreement, West Melbourne has the capabilities of servicing all water demands. The second paragraph on page 2 of this agreement states:

*"As of July 1, 1978, Melbourne agrees to sell, and West Melbourne agrees to buy, all of the water which West Melbourne may require. All water delivered to West Melbourne by Melbourne pursuant to this agreement shall be of like potability and purity as that water furnished to consumers presently being served by Melbourne from the water supply facilities operated by Melbourne."*

The eleventh paragraph on page 5 states, "This agreement shall remain in full force and effect for a period of twenty-five (25) years."

The original agreement has been amended from time to time to allow growth potential to the City of West Melbourne. The most recent agreement, dated April 30, 2007, allows for the City of West Melbourne to install master meters in areas presently not served by existing West Melbourne water mains. This agreement also requires West Melbourne to charge a treatment plant impact fee to all new users of the potable water system. The impact fee money is remitted to the City of Melbourne monthly to assist in paying for the expansions and other LOS enhancements at the treatment plants. West Melbourne does not operate a shared facility for potable water. Melbourne and West Melbourne are currently working towards another water agreement which would replace the original 1978 agreement and would resolve some of the water quantity and distribution issues that Melbourne has had with West Melbourne. If resolved, West Melbourne would have set quantities of water available for regular customers and new customers, instead of the current status of Melbourne being required to provide as much potable water as West Melbourne needs.

### **Water Supply Work Plan**

In 2007, the State of Florida required West Melbourne and other similar local governments to prepare a Water Supply Work Plan (WSWP), which would be consistent with the St. Johns River Water Management District (SJRWMD) 2025 Water Plan that contains a 20 year horizon. The adopted WSWP is attached as an appendix to the adopted portion of the Public Facilities Element and this document provides data and analysis of existing potable water supply and future needs, along with the identification of a State approved alternate water supply source in a ten year period to the year 2017. The objectives and policies related to the WSWP are contained in the Public Facilities, Conservation & Open Space, Intergovernmental Coordination, and Capital Improvements Elements, as originally approved in 2007.

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### **Potable Water Geographic Service Area**

Presently, the geographical service area for potable water in the City of West Melbourne is primarily the existing city limits, but the area is projected to extend beyond the current city limits (see attached “Proposed Potable Water Service Area” map). The current agreement with Melbourne dated July 11, 1978, states West Melbourne is limited to a service area designated as the city limits. By virtue of another agreement amendment dated November 3, 1986, it has been agreed by both parties that West Melbourne can service areas outside the present city limits. By this agreement amendment, Melbourne would have the first option to service an area outside the West Melbourne city limits, and West Melbourne shall serve such customers only when Melbourne has first determined that it cannot or does not wish to provide such water service. Due to the April 30, 2007 interim agreement, West Melbourne has the ability to service this type of area either by expansion of the existing water mains or by the placement of a new master meter. The City and Melbourne are currently working on a revised agreement and the “Proposed Potable Water Service Area” map reflects the proposed extent of the future service area.

### **Potable Water Design Capacity**

The City of Melbourne is a regional water supplier for south Brevard County, including the City of West Melbourne. Melbourne holds a Consumptive Use Permit (CUP) issued by the St. John’s River Water Management District (SJRWMD), with the most recent modification issued in 2010. The Melbourne CUP allows the withdrawal of a combination of surface water and ground water for public water supply. Melbourne blends the product waters of its two water treatment plants. The total designed and permitted production capacity of the two water treatment plants is 20 million gallons per day (MGD).

Melbourne’s 2010 modified CUP, allows them to withdraw surface and ground water at an average rate of 18.11 MGD in 2010, and an average rate of 20.69 MGD by 2019. The total projected population in Melbourne’s potable water distribution system is 191,087, including West Melbourne’s customer base.

### **Current Demand**

The City of West Melbourne does not own or operate any water treatment plants. According to the preliminary draft of the City of Melbourne Public Facilities Element of the Comprehensive Plan:

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- Peak-day potable water demands have at times approached 20 MGD for Melbourne’s water system.
- Average daily flows of potable water in 1997 were approximately 14 MGD.
- The water utility has sufficient water production and storage capacity to meet current average daily and typical peak day demands generated by customers in the water service area.

In 2009, the City of Melbourne submitted its most current CUP request. The distribution area for Melbourne is approximately 100 square miles, with an average daily water demand of 15 MGD, and a peak demand of 19 MGD. West Melbourne’s demand is just a fraction of Melbourne’s overall water system (1.3 MGD out of the average daily demand of 15 MGD).

### **Level of Service**

West Melbourne’s average annual daily flow (AADF) of potable water in 2006 was 1.46 MGD for a population of approximately 15,777 (according to the adopted 2007 Water Supply Work Plan). To project future demands, the population that will be served must be estimated and an appropriate LOS value must be applied

The potable water LOS standard was established by using a combination of data from the approved 2007 WSWP, the 2010 Secondary Consumptive User Permit water usage amounts, 2008 to 2009 population factors and an estimate of 2.1 persons per equivalent residential unit (ERU). The peaking factor was determined using “Harmon’s Peaking Factor Formula” as a generally accepted civil engineering calculator of peak usage.

### **Future Demand**

The potable water treatment plants are owned and operated by the City of Melbourne. The following information regarding the Melbourne potable water supply and system has been taken from the Public Facilities Element of the Melbourne Comprehensive Plan.

### ***Initial Planning Increment***

The initial planning increment encompasses a five-year period extending through the year 2015. The City of Melbourne recently received its five-year modifications extending through the year 2019. The City of West Melbourne received its “secondary” consumptive use permit (CUP) in 2010 and the City’s annual water usage was coordinated with the City of Melbourne. Florida Administrative Code requires a CUP for a secondary use of water that exceeds 100,000 gallons per day (annual average of daily usage), and has not been included for consistency as part of the CUP application for the primary water supplier.

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Melbourne is working on the necessary withdrawal, treatment and disposal issues at their water treatment plants with the Florida Department of Environmental Protection (FDEP). The City of West Melbourne contributes through the payment of impact fees (connection fees) which are used for the capital improvement projects that Melbourne may need for addressing potable water facility or LOS deficiencies.

West Melbourne has begun to improve their water distribution system by installing large transmission mains in key parts of the city. One project has been completed, and at least one more project will be completed in the initial five-year planning period (2015). These improvements will be evaluated and a determination will be made as to the need of any improvement during the remaining part of the short term planning horizon and the ten-year planning period to 2020. The benefits of improvements to the potable water distribution system include increased water pressure and volume, which in turn leads to enhanced fire protection to West Melbourne customers. As new water mains are installed, connections to other existing mains are made to provide for looping and back feeding of the overall distribution system.

West Melbourne installed a master meter along Palm Bay Road for the purpose of a possible future connection to the City of Palm Bay. The connection would serve as a source of emergency water supply for fire events.

### ***Remaining Planning Increment***

Melbourne has already expanded the capacity of its Reverse Osmosis Water Treatment Plant (ROWTP) to meet long term demands due to customer base growth. It is expected that there will be future development and population growth in the West Melbourne area. Table PF-1 presents a summary of the estimated increases in population and associated water demand projections, as documented in the WSWP (see Appendix of this element) and the projected water demand. In the middle column and the column to its right, these estimates are revised to address the Shimberg Center projections based on the City's adopted LOS standard of 210 gallons per day per ERU (previously adopted in the City's 2008 Large Scale Comprehensive Plan Amendment). The last column contains estimates of potable water use as shown in the attached WSWP.



**Table PF-1**  
**Summary of Population Projections and Water Demand**

Year	Population Projections	Equivalent Residential Units (ERU)	Projected Water Needs based on 210 gallons per day/ERU (2008 LOS)	Potable Water Supply Work Plan based on 300 GPD/ERU (2007 adopted LOS)
2010	19,137	7,000	1.47 MGD	no projection
2012	20,817	7,700	1.61 MGD	2.52 MGD
2015	23,337	8,750	1.84 MGD	no projection
2017	25,017	9,450	1.98 MGD	3.08 MGD

Source: 2007 Water Supply Work Plan (residential and non-residential) and 2008 Adopted LOS of 210 GPD per ERU

As shown in Table PF-1, the 2007 Water Supply Work Plan (WSWP) has a higher projection of potable water demand of 3.08 MGD than the City's projection of 1.98 MGD in the ten-year planning period to the year 2017. This difference is attributable to two reasons, including the City's 2007 potable water LOS standard which used the higher 300 GPD/ERU rate, and a higher estimate of proposed commercial and industrial sites to be developed. The year 2007 was a year in which growth was still anticipated in the City, despite the beginning of the economic recession elsewhere in the State and the nation.

The City will be required to update its WSWP within a specified time after the SJRWMD updates its regional District Water Plan. The specified period for each city that is impacted to update its plans are determined legislatively in the Florida Statutes. The adopted WSWP plays an important role in water modeling, and is then used to further refine the City's proposed needs in the CUP.

The City of West Melbourne received its revision to the secondary CUP from SJRWMD on February 26, 2010. The projected 2019 average daily potable water use is 2.57 MGD for secondary uses such as households, commercial/industrial uses and water utility uses (fire hydrant flushes and similar activities). This proposed usage is more representative of the City's adopted lower LOS standard and the decline in the amount of water used per capita (62.70 gallons per day as noted in the SJRWMD secondary consumptive use permit), which the SJRWMD has noted is lower than other local governments' average rates of usage.

### Conservation Programs and Reclaimed Water

The City has implemented a water conservation program that includes irrigation restrictions, education, an escalating rate system, reuse (reclaimed water) availability, testing and rehabilitation, and preventative system maintenance. Per the description in the City's 2010 CUP, the water use within the

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service area includes usage in households, commercial and industrial businesses, institutional uses and water utility uses.

### ***Irrigation***

The City of West Melbourne's current water conservation program is composed of irrigation restrictions, codes for new construction and remodeling projects, a rate structure encouraging efficient use of water, and a residential irrigation reclaimed water program. The SJRWMD has implemented a mandatory watering restriction schedule for potable water across its multiple county jurisdiction. A summary of SJRWMD's restrictions and exceptions can be found at the following internet web address: <http://floridaswater.com/wateringrestrictions/restrictions.html>.

The primary conservation measure involves an irrigation restriction program for potable water. Portions of city code must be amended to be congruent with SJRWMD requirements. Current West Melbourne requirements can be found in Article III of Chapter 58 of the Code, and generally provide that:

- Irrigation for commercial and residential purposes can only occur between limited daylight hours (this must be amended to defer to the SJRWMD restrictions).
- The loss of water through defective plumbing is prohibited.
- More stringent requirements will be implemented in the event of the declaration of a water shortage emergency.

In addition, information regarding irrigation restrictions can be found on the City's web site and has been provided periodically in the City's newsletter. The City acknowledges that its irrigation code does not implement the SJRWMD's landscape irrigation restrictions. This is one set of changes that shall occur within one year after adoption of the Horizon 2030 Comprehensive Plan.

### ***Buildings***

Another potable water conservation measure relates to new construction and remodeling projects. This measure is summarized in the Horizon 2030 Comprehensive Plan as part of the data and analysis information in the Conservation & Open Space Element and this set of criteria has also been codified. The City, complying with the Southern Building Code, requires that water usage for new plumbing fixtures conform to the Standard Plumbing Code. These codes ensure that low water usage devices are built into the operating facilities used in most households and businesses (showers, toilets, faucets, etc.).



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### **Rate Structure**

The rate structure for potable water customers serves as the third conservation measure, as it was established to encourage the efficient use of water. Currently all residential customers with a ¾-inch service meter are required to pay a base charge of \$13.14 per month, which includes up to 2000 gallons. Customers will be charged \$4.64/1000 gallons for any amount greater than 2000 gallons each month.

### **Reuse Water**

The final component of the City's conservation program is the reclaimed or reuse water residential irrigation system. The reuse district is comprised of over approximately 2,094 homes in eight (8) residential subdivisions generally between Minton Road and Hollywood Boulevard (see attached "Reuse District" map). The majority of the homes within these subdivisions are relatively new, with the average construction year of the homes being 2002. The reuse district encompasses approximately 930 acres. In 2010, an approximate average daily flow was 1.024 MGD of reclaimed water used for irrigation, offsetting the use of higher quality potable water on 2,094 accounts for an average of 489 gallons per day (GPD) per account.

## **IDENTIFICATION AND ANALYSIS OF SANITARY SEWER**

### **Sanitary Sewer Introduction**

West Melbourne currently owns a sanitary sewer treatment plant located at 1415 Henry Avenue, as well as the collection and transmission system for the sanitary sewer. The plant is operated under contract by Veolia Water North America to operate the Ray Bullard Reclaimed Water Facility, which serves most of the developed area within the City with exception of several subdivisions that use septic systems. The subdivisions and developed areas still on septic are generally in the northwest portion of the City and include Sylvan Estates, Timberlake, The Falls at Sheridan, and individual houses along the following roads: Lake Ashley Circle, Dundee Circle, Manor Place, Sugar Pine and Pine Needle (see attached "Septic Areas" map). The City provides central sewer approximately 8,248 households based on current lot counts and billing data. The sanitary sewer treatment plant has a capacity of 3.0 million gallons per day (MGD) to treat the sanitary sewage (see attached "Proposed Sanitary Sewer Service Area & Facilities" map).

### **Geographical Service Area**

The geographic service area for sanitary sewer service in West Melbourne is primarily the existing city limits (see attached "Proposed Sanitary Sewer Service Area & Facilities" map). This map also indicates

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the proposed service area, which has both a larger potential sewer service area as negotiated in the 2001 settlement agreement with Palm Bay, Melbourne, West Melbourne, and Brevard County, as well as the few parcels (including a shopping center in Melbourne Village) outside the city limits served with sewer through pre-annexation agreements or other contractual arrangements.

The City of West Melbourne is the only provider of sanitary sewer service in the city limits and no agreements have been entertained for service to other municipalities. However, the City serves some users in unincorporated Brevard County and a few non-residential uses in Melbourne Village. The City's proposed area includes all of Melbourne Village since there is the potential for the extension of our current sanitary sewer collection lines north of US 192. City Code permits septic tanks only in outlying areas not serviceable by the sanitary sewer collection system or in times when capacity is not available at the sewer treatment plant. In circumstances where septic tanks must be used due to unavailable capacity, Code requires dry sewer lines to be installed and connection to the City sewer system as soon as feasible. The location of areas still serviced by septic tanks is shown on the attached "Septic Areas" map. The City's codes regarding septic systems and connection to sanitary sewer are not consistent with the Florida Department of Environmental Protection (FDEP) rules, so as another required update after the adoption of the Horizon 2030 Comprehensive Plan, staff will update the City's land development regulations.

Near areas of existing septic tanks, the predominant soils include Eau Gallie Sand, Myakka-Urban Land Complex, and Myakka Sand (see attached "Soil Types" map). These soils are classified by the United States Department of Agriculture (USDA) as poorly drained with moderately severe limitations for septic tanks due to the high water table. However, permits for septic tanks can be issued when soil conditions are corrected through replacement and/or when drain fields are elevated. Permitting for septic tanks within the City is handled by the Brevard County Health Department..

### **Design Capacity**

The sanitary sewer system is designed to provide sufficient collection, treatment and disposal services for meeting current and projected demand. The City, through its permitting processes and land development regulations, ensures that adequate sanitary sewer transmission capacity exists to serve new development and redevelopment. Moreover, the City analyzes impacts of certain development proposals (rezonings, changes in future land use designations, and other development orders) on the City's concurrency management system. The City's continued implementation of land development regulations, permitting processes, and the concurrency management system should ensure that the adopted sanitary sewer LOS standard is met through the planning period to the year 2015).

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FDEP issues permits to all sanitary sewer treatment facilities in the state to regulate their compliance with Florida statutes and FDEP rules. The City's sanitary sewer treatment plant is currently operating in compliance with all rules and regulations stated within the operating permit.

The treatment process at the plant is summarized as follows:

1. Preliminary treatment—The process that includes removal of coarse materials and grit from the influent (raw) sanitary sewer stream.
2. Secondary treatment—The biological process that removes soluble organics and suspended organic solids from the flow received from the preliminary treatment process.
3. Chlorination—Disinfection in the event of emergency discharge of effluent into onsite percolation ponds.
4. Filtration and high level disinfection for public access reuse.
5. Deep well injection—Effluent disposal.
6. Solids handling—The process that include aerobic digestion of secondary biological sludge solids and scum in tanks, as well as aerobically digested sludge solids dewatering by belt filter pressing.

### **Current Demand**

The average 12 month demand on the sewer treatment plant is currently 1.659 MGD, leaving a balance of 1.34 MGD. The sewer treatment plant is performing in compliance with all Florida Statutes and all FDEP rules and regulations.

### **Level of Service**

The current LOS for the West Melbourne sewer facility has been set at an average daily flow of 210 gallons per ERU and maximum daily flow of 575 gallons per ERU. The 210 GPD/ERU is the same as the 2008 Large Scale Amendment LOS standard, but the City has added a peak hour flow (maximum daily flow) with this Horizon 2030 Comprehensive Plan. Presently, approximately 1.66 MGD, the 12 month average demand and the established LOS, will assure adequate capacity for future growth. The LOS standard was determined in much the same manner as the potable water standards.

### **Projected Facility Needs**

The current average volume in the sanitary sewer system is 1.66 MGD. By 2017, the City's projected sanitary sewer use will be 1.98 MGD, based on the adopted LOS of 210 GPD per ERU, or 1.80 MGD if the modified population projection of 22,765 persons are considered (see Table PF-2). These projections are

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still lower than what might have been projected if the City still used the LOS standard of 300 GPD/ERU, where in 2017 the projected use was 2.83 MGD.

Primary effluent disposal is through deep injection well which is permitted by FDEP for up to 6.0 MGD. The secondary method of effluent disposal is through reuse. The reuse district includes two parks (Clements Woods and Hammock Lakes) and several residential subdivisions. Sewer plant capacity is 3.0 MGD, however, the ability to distribute reuse is slightly less than this total amount (2.48 MGD), because of the permitted capacity of the reuse filters which are rated by FDEP. This circumstance is typical in reuse systems due to the processes of converting sanitary sewer to reuse water for irrigation.

The sanitary sewer facility processes sewage into high quality reclaimed water for irrigation use with U.S. Environmental Protection Agency (EPA) and FDEP regulations. The reuse process reduces the impact on current ground water supplies which are better utilized for potable drinking water. Additionally, the City provides for the operation and maintenance of 59 sanitary sewer lift stations. These stations transport raw sanitary sewer to the sanitary sewer treatment plant for processing.

Effluent disposal from the sewer plant is a blend of percolation/drain fields and irrigation through the reclaimed water system. As the sanitary sewer system continues to develop, the reclaimed water system will become the primary means of effluent disposal.

**Table PF-2  
City of West Melbourne Summary of Sanitary Sewer Projections**

Year	2009 West Melbourne Capital Improvements Element			Shimberg Center Estimates		Projection of ERU based on current ERU and projection	Sewer Need Projections (210 GPD/ERU)  MGD
	Population Projection	ERU	Projected Sewer Needs	Population Projection	Projected Sewer Needs		
2010	19,137	9,132	1.92MGD	17,122	1.88 MGD	8,248 (base year)	1.66 MGD
2015	23,337	10,882	No projection	19,603	2.21 MGD	9,998	2.02
2017	25,017	11,582	No projection	21,763	2.47 MGD	10,698	2.17

Sources: 2009 West Melbourne Capital Improvements Element, 2010 population and customer information and University of Florida Shimberg Center for Housing Studies, 2010

The above were projections from the Capital Improvements Element which included current customers and projected near future customers who have entered into sewer agreements or reserved capacity



### IDENTIFICATION AND ANALYSIS OF SOLID WASTE

#### **Solid Waste Introduction**

By Special Act of Legislation, the responsibility for solid waste handling and disposal has been placed upon Brevard County. West Melbourne's responsibility is to provide collection services to those within the service area. In accordance with this Act of legislation, Brevard County operates and owns the landfills and transfer stations. The City fulfills its obligation by providing collection services through a contractual franchise agreement with Waste Management, Inc., a private company. West Melbourne does not operate a shared facility for solid waste disposal.

Solid waste from the City's service area is delivered to the county-owned transfer station, located east of I-95 on Sarno Road in Melbourne. Solid waste is classified as either Class I (garbage and other household waste) or Class II (construction and demolition materials). Class I waste is compacted and transported by truck to the County's central processing facility near the City of Cocoa, where the material is shredded, milled, compacted, and buried in the sanitary landfill. Class II waste is disposed of on-site at the Sarno Road transfer station.

Solid waste disposal fees are collected by the County along with property taxes. Residential property owners are assessed a flat rate, while non-residential accounts are assessed according to the type and amount of waste generated.

Solid waste disposal fees are collected by the County along with property taxes. Residential property owners are assessed a flat rate, while non-residential accounts are assessed according to the type and amount of waste generated.

#### **Geographic Service Area**

The geographic service area includes all areas within the present city limits. By virtue of the contractual franchise agreement, Waste Management serves all residents and businesses located within West Melbourne and has sole and exclusive rights to collect solid waste. The agreement with Waste Management establishes guidelines for the collection and disposal of all household garbage (food, books, magazines, packaging, furniture, appliances and tools), yard waste (grass clippings leaves, shrubs, tree trimmings and limbs), and construction materials (building and demolition debris such as fencing, bricks, floor tiles, doors and similar waste).

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Through permitting processes, land development regulations and a concurrency management system, the City ensures that adequate solid waste collection capacity exists to meet the adopted LOS standard. Moreover, the City analyzes impacts of certain development proposals such as rezonings and comprehensive plan amendments through the performance of concurrency management analyses as per the concurrency management system. The City does not anticipate any problems in meeting its solid waste LOS standard during the planning period.

### Level of Service

By contractual agreement with Waste Management, Inc. (a private company), West Melbourne provides solid waste collection services. By virtue of this agreement, Waste Management Inc. has sole and exclusive rights to collect refuse within the City. This agreement has set collection services to be performed a minimum of one time per week without regard to total quantity or poundage. This type of agreement is typical and, since limits are not set by weight or volume, it assures the pickup of all solid waste, thereby protecting the health and welfare of the citizens. Waste Management is able to comply with its agreement with the City by virtue of a franchise agreement it has with Brevard County. This agreement permits Waste Management to dump all collected refuse from the South Brevard County area at an approved transfer station.

There are three classes of refuse according to the Florida Administrative Code rules, and these are:

- Class I – non-hazardous (household waste coming from municipalities and unincorporated areas)
- Class II – non-hazardous, receives same Class I waste, but at a reduced rate, 20 tons or less per day
- Class III – construction and demolition debris and non-putrescible household waste from yards and gardens

Various county landfills accommodate some or all three classes of waste and are designed for the entire county population (cities and unincorporated areas).

All Class I (municipal solid waste) is transferred from the City for disposal at the Sarno Transfer Station, where it is consolidated into the County's transfer trailers and transported to the Central Disposal Facility in Cocoa for disposal. The slurry wall landfill at the CDF is expected to reach capacity in September 2014, at which time Cell 1 of the new CDF South Landfill adjacent to the slurry wall landfill will be available for disposal. The South CDF Landfill has a projected capacity of 30 years. The City has adopted a solid waste disposal LOS standard of 8.32 pounds per capita per day, the same level of service standard as unincorporated Brevard County.

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The solid waste disposal system has the capacity or is being designed to meet solid waste disposal demand beyond 2030. The South County Solid Waste Management Facility landfill located near US 192, west of I-95, is currently being permitted and consists of approximately 2,980 acres with approximately 500 acres of Class I landfill area and 200 acres of Class III disposal area. This exceeds the present level being generated and, therefore, should assure adequate facilities for the immediate future.

### **Projected Facility Needs**

As of 2010, the South CDF Landfill has a projected capacity for 30 years. West Melbourne's per capita LOS standard is identical to unincorporated Brevard County and the County is projecting adequate facilities for the future.

There are no existing or projected facility needs of a capital nature to addressing solid waste, which is part of the Capital Improvement Element. All capital improvements made to the solid waste infrastructure system are completed by Brevard County.

## **IDENTIFICATION AND ANALYSIS OF STORMWATER**

### **Stormwater Introduction**

The City of West Melbourne is divided mostly into three drainage basins including Crane Creek, Melbourne-Tillman and St. John's River. The Crane Creek drainage basin primarily serves the area north of US 192, the Melbourne-Tillman drainage basin serves the area south of US 192, and the St. Johns River drainage basin serves the northwest area of the City, west of I-95. Since the City is in the process of preparing a Master Drainage Plan, an updated drainage basin map is not yet available.

The City's drainage system consists of minor and major drainage systems. The minor systems provide relief from frequent stormwater runoff events and typically consist of curbs and gutters, street inlets, underground culverts, open channels and swales, and on-site retention/detention systems. The major drainage systems are regulated floodways and large canals which serve flood flow conditions and are designed to accommodate much larger storm events. The major drainage systems that serve West Melbourne are controlled by either Brevard County, the Melbourne-Tillman Water Control District (MTWCD), and the St. Johns River Water Management District (SJRWMD). West Melbourne does not operate a shared facility for stormwater management.

A stormwater management plan must be provided for the following activities:

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- The submittal of a site plan. The submittal of a subdivision plat.
- Filling, clearing, and/or drainage of land as an adjunct to construction.
- Altering any ditches, dikes, terraces, berms, swales, or other stormwater facility.

### **Geographic Service Area**

The geographic service area for stormwater management and drainage is the present city limits.

### **Stormwater Design Capacity**

Through the City's site plan, subdivision platting, and construction plan review processes, the City actively regulates, controls, and issues permits when a proposed project has met the criteria set forth in the land development regulations (LDR). The LDRs contain chapters exclusively for design of drainage systems and stormwater management requirements. Largely adopted from similar regulations used throughout the County, the drainage criteria require the designing engineer (as well as the reviewing engineer) to address the following items:

1. Side lot drainage.
2. Proposed elevation of each building site and finished floor elevation.
3. All existing and proposed drainage facilities with size and grades.
4. Proposed orderly disposal of surface water runoff.
5. Centerline elevations of all streets located or to be located within the area encompassed by the site plan.
6. Retention/detention systems including discharge point and downstream effects.
7. Wetland impacts
8. Design standards

These design and review items, along with the other reviewing mechanisms locally and inter-governmentally, should alleviate drainage problems and minimize adverse environmental and natural resource impacts.

### **Current Demand**

All proposed facilities shall be designed to prevent flood, safety and or health hazards. Since 1989, the existing rules and regulations appeared adequate to ensure proper drainage for the City. Permitting agencies such as Brevard County and MTWCD control the discharge rate and amount during the



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permitting process. As capacity levels are reached in the current system, West Melbourne will require developers to meet any new criteria which may be established by the permitting agencies.

As indicated on the “Vacant/Undeveloped Land” map, there is some land remaining to be developed within the current city limits and all new development must follow the most current SJRWMD and City drainage requirements. Any future impacts to the drainage basins will be addressed with future permitting, and with the use of the City’s Stormwater Master Plan that Brevard County is currently completing.

West Melbourne requires all new development to retain the first inch of rainfall over the entire site. The post-development runoff for an entire site shall not exceed the rate of flow and timing of runoff produced by conditions existing before development for the 25-year storm event. A positive outfall of retention facilities is required to prevent localized flooding and to direct the final flow of runoff. The cumulative impact of the stormwater runoff on downstream flow shall be considered during design. Due to the positive outfall requirements, outside agencies are included in the City's development and permitting processes. When outside agencies are involved, the agency with the strictest regulation supersedes all others.

Through county-wide drainage summits, West Melbourne will continue to support implementing unified design criteria for all development within particular drainage basins in order to continue to minimize the negative impact of future development.

### **Level of Service**

The City has adopted the following LOS standards for storm water quantity and quality:

- 1-inch retention, 24 hour, 25-year storm event.
- The peak rate of post-development runoff shall not exceed the peak rate of pre-development runoff.

Stormwater LOS is maintained through permitting processes and LDRs, ensuring that new development maintain the same level of runoff after construction that existed prior to construction. The outcome would be no net increase to the amount of water the drainage system has to convey due to new development. Over the years, the City has added to and improved the stormwater system for the purpose of capturing runoff from the City’s own projects, including new roads and other facilities which increase runoff. The City also improves the stormwater system by continuing to restore both the functionality and aesthetics of West Melbourne’s open ditches by cleaning and removing obstructive

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vegetation and enhancing the flow characteristics of roadside surface drainage network in an effort to eliminate nuisance flooding. The City does not anticipate problems meeting the storm water LOS standards during the planning period.

### **Existing Facility Needs**

Regular maintenance of the major drainage facilities has a tremendous impact on the City's ability to provide adequate drainage for its residents. All stormwater runoff utilizes major drainage facilities that are controlled by outside agencies to discharge out of the City. If not properly maintained, major drainage facilities cannot handle City's stormwater volume. The major drainage facilities that serve the City also serve other jurisdictions which may or may not have the same regulations imposed by West Melbourne.

Most of the City's drainage problems are associated with the Crane Creek drainage basin which is controlled by Brevard County. No proportionate capacity has been assigned to West Melbourne by Brevard County. During the County's Crane Creek Master Drainage Plan Study, the area within the boundaries of West Melbourne that drains into Crane Creek was included into the analysis of the entire system. The County utilized West Melbourne's design criteria along with the County's discharge criteria to determine the overall impact to Crane Creek. Based on the future impact and the existing conditions, Brevard County adopted a plan for the Crane Creek Drainage System.

MTWCD periodically updates a model of their drainage basin to determine the overall impact West Melbourne has on their canals. Since water does not recognize political boundaries, a plan for the Crane Creek drainage basin was devised in the 1990s to take care of any problems found within the entire. In the 1990s, the three main governmental jurisdictions—Brevard County, West Melbourne, and Melbourne—all committed to funding for Crane Creek drainage problems within their respective jurisdictional boundaries. MTWCD deals with drainage issues in the Crane Creek drainage basin as they arise.

### **Projected Facility Needs**

#### ***Initial Planning Increment***

By utilizing existing cleaning and replacement operations, the City will be able to maintain drainage facilities for the future growth. No new facilities will be required except for continuation of the on-site retention requirements. The City shall continue to work on and update the Master Drainage Plan. As development occurs, particular attention must be paid in the areas of drainage and the downstream

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impact on adjacent areas will be assessed. Efforts to work together with Brevard County, Melbourne, and the MTWCD must continue. Drainage summits are utilized and ought to be continued as method of sharing information and concerns. Joint funding of projects that impact the different communities should also continue.

The City of West Melbourne will continue to support the concept of unified drainage basin design criteria to further assure adequate future capacity in the overall system.

### ***Final Planning Increment***

The main concentration should be on maintaining the existing drainage systems within the City. Continued efforts in working with the entities that control the major canals must be a priority.

## **IDENTIFICATION AND ANALYSIS OF GROUNDWATER AQUIFER RECHARGE**

### **Groundwater Aquifer Recharge Introduction**

West Melbourne has no recharge areas within its city limits. The LDRs address the need to protect and enhance surface and groundwater resources.

### **Geographic Service Area**

The City is using SJRWMD data as the best available data source for identification of groundwater recharge areas and related requirements. West Melbourne is not located within a groundwater aquifer recharge area as identified by SJRWMD, which means the entire city is in a discharge area (see attached "Groundwater Discharge Area" map). In its 2005 report on groundwater recharge, SJRWMD shows West Melbourne as part of a discharge area instead.

### ***Previous 1999 Comprehensive Plan***

In the 1999 Comprehensive Plan, the City relied on data available from Brevard County. According to maps produced by Brevard County Planning and Zoning Department in 1999, there were no prime recharge areas in West Melbourne.

If in future data from SJRWMD indicates West Melbourne is in a groundwater recharge area, the City should regulate development through zoning controls and enforce surface runoff and retention ordinances to protect the aquifer recharge function.

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### ***Discharge Areas***

In areas where the potentiometric level of the Floridan Aquifer is higher than the water table and land mass, there is the potential for free flowing artesian wells. Any of these types of artesian wells on undeveloped or developing properties are required by Florida law to be capped and the State of Florida assists property owners in this endeavor.

### **Facility Needs**

Stormwater retention facilities are required for most development. Landscape codes in industrial, commercial and institutional zones require a ten-foot green area adjacent to all vehicle use areas. Landscaping provides not only beautification, but a means of restoring runoff from the paved areas into the ground. Properties within the reuse district are required to maintain an irrigation system capable of being tied into reuse lines at the time the lines are run and capacity is available from the reclamation facility. West Melbourne currently requires the first inch of runoff to be stored on-site.