4

MUNICIPAL SERVICES

Potable Water

GOAL

To provide a satisfactory and economical supply of high quality water to present and future users.

OBJECTIVE 1

To achieve and maintain acceptable levels of service standards for water quality and availability through both short-term periods of strain and long-term increases in demand.

Policy 1.1) The City has developed a new potable water wellfield drawing from the Floridan Aquifer, and will expand this wellfield and treatment system as necessary to keep pace with future population growth.

Action 1.1.1) The City will periodically monitor and update projections of the existing and potential capacity of the Floridan Aquifer wellfield to estimate when all available water supply for this source will be in use.

Standard 1.1.1.1) The City will maintain an average daily capacity of 150 gallons per capita.

Action 1.1.2) The City will periodically update the Fort Myers Water System Master Plan using the most current growth projections.

Action 1.1.3) By December 2008, the City will establish a program to investigate alternative water supply sources, including, but not limited to:

(a) The establishment of additional wells into the Floridan Aquifer;

(b) The establishment of an aquifer storage and recovery (ASR) program;

(c) Sharing water resources with Lee County and/or other local jurisdictions; and,

(d) Increased use of recycled water for irrigation purposes.

Policy 1.2) The City shall provide needed facilities to increase treatment capacities and water supply, meeting applicable health and environmental standards.

Action 1.2.1) Protect the wellheads of the Floridan aquifer as the primary water supply source by utilizing current, established Best Management Practices (BMP) and land use strategies, which include but are not limited to:

(a) Establishment of protection zones;

(b) Overlay Protection District;

(c) Regulate land uses within protection zones that may adversely impact water resources; and/or,

(d) Prohibit discharge of pollutants within protection zones of wellheads.

Policy 1.3) The City shall provide adequate potable water storage and high service pump facilities.

Action 1.3.1) The City will maintain ground storage and high service pump facilities at the new treatment plant site, as needed.

Standard 1.3.1.1) Maintain current ground, 17 MG, and elevated storage, 0.2 MG, capacity and add additional storage capacity as needed.

Standard 1.3.1.2) Maintain in storage a one-day supply of at least 150 gallons per capita.

Standard 1.3.1.3) Maintain current high-service pump capacity of 34.5 MGD, and additional pump capacity shall be added when necessary.

Policy 1.4) The City shall continue to implement a transmission and distribution line repair/replacement and expansion program.

Action 1.4.1) The City will continue to design and construct the transmission and distribution system work called for in the most current "Fort Myers Water System Master Plan".

Policy 1.5) The City shall not permit development unless adequate piping facilities are in place or assured.

Standard 1.5.1.1) Minimum system pipe size (not service lines) should be 6-inch for single-family development and 8-inch for multi-family, commercial, business and industrial. Minimum fire flow rates shall be maintained in the Land Development Regulations.

Standard 1.5.1.2) Dead-end pipes shall be limited to 8 inch minimum size; 1,000 foot maximum length, with a hydrant or 4-inch blow-off at each dead end, provided adequate fire flow is available for the area type.

Standard 1.5.1.3) A maximum length of 2-inch pipe of 1 block or 1,500 feet, whichever is shorter, between parallel 6-inch or larger lines, may be considered adequate for infill single-family use in existing subdivisions.

Standard 1.5.1.4) As-built drawings of new water or water reuse construction (public or private) shall be required and used to update the system atlas.

Standard 1.5.1.5) Survey quality record drawings along with a Geographic Information Systems (GIS) submittal shall be required for any new water or water reuse construction (public or private).

Standard 1.5.1.6) A fire flow test is required along with hydraulic calculations signed and sealed by a Professional Engineer to show adequate fire protection is available.

Standard 1.5.1.7) Prior to approving a building permit or its functional equivalent, the City will consult with its water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date issuance of a certificate of occupancy or its functional equivalent by the City

Policy 1.6) The City shall not permit occupancy of new development unless adequate water facilities and flow rates for firefighting are in place.

Standard 1.6.1.1) The maximum distance from any property to the nearest fire hydrant, measured along streets, shall not exceed 250 feet for single-family and 150 feet for other uses.

Standard 1.6.1.2) Fire hydrants shall be installed on the largest size pipe practical, but in no case less than a six-inch line for single-family or an eight-inch line for other uses.

Policy 1.7) Single-family uses may infill in existing subdivisions with inadequate piping or substandard hydrant spacing, providing adequate fire flows exist.

Policy 1.8) All new development will be required to use the public water system.

Action 1.8.1) The City will implement and enforce an ordinance providing for over-sizing of lines.

Standard 1.8.1.1) Should the City Master Plan call for the extension of lines sized greater than that required to serve the development, the City may reimburse the developer for cost of materials only above what was needed to serve the development.

OBJECTIVE 2

To reduce demands for potable water and promote water resource conservation wherever possible.

Policy 2.1) The City shall promote potable water conservation and re-use to reduce per capita demand for potable water below 2000 levels by 2010.

Action 2.1.1) Review all local building permit applications for compliance with State water conservation laws.

Action 2.1.2) Participate with South Florida Water Management District staff in public education programs aimed at residential, commercial, and industrial water conservation.

Action 2.1.3) Maintain water rate structures to encourage residential, commercial, and industrial water conservation.

Action 2.1.4) Restrict unneeded water use during periods of water shortage, and comply with the South Florida Water Management District's Shortage Plan.

Standard 2.1.4.1) The City shall issue citations to violators of mandatory water use restrictions.

Standard 2.1.4.2) During water shortage phases, the City shall reduce water distribution pressure by 5 pounds per square inch.

Action 2.1.5) Promote, through regulations, site plan review, and other means, the use of xeriscape technology and other water conservation practices.

OBJECTIVE 3

To assure that costs for improvements to the system's capacity and the enhancement of water quality are distributed in an equitable manner, recognizing benefits to new and existing customers.

Policy 3.1) Locally desired enhancements to the existing system, benefiting current uses, will be financed by current users to the greatest extent possible.

Policy 3.2) Locally desired expansions of the system to meet demands of new and/or future users will be financed by the future users to the greatest extent possible.

Policy 3.3) Improvements to the system necessitated by other Agencies (Federal, State, or others), which are customers of the City water system should be financed by those agencies to the greatest extent possible.

OBJECTIVE 4

To ensure coordination between the City and the South Florida Water Management District (SFWMD) regional water supply plan.

Policy 4.1) The City's 10-Year Water Supply Facilities Work Plan shall be updated within 18 months after updates and amendments to the District's *Lower West Coast Water Supply Plan Update* are approved by the District. The City shall maintain consistency with the SFWMD Lower West Coast Water Supply Plan (2005-2006 Update), as amended, and meet with the SFWMD water supply planning staff on an annual basis to provide the latest estimates and projections of potable water use.

Solid Waste

GOAL

Protect the health, aesthetics, and convenience of the community from the effects of improperly managed solid waste.

OBJECTIVE 1

To provide a satisfactory and economical collection, transport and disposal system for solid waste to present and future customers.

Policy 1.1) The City shall maintain a self-supporting solid waste disposal system, which is equitable and reasonable in cost.

Action 1.1.1) The City shall continue to pursue the disenfranchisement of current Gulf Disposal or other commercial franchise contracts (as property is annexed) to gain a uniform and equitable means of service, except in roll-off services.

Action 1.1.2) Maintain solid waste disposal system with capacity to handle waste at the rate of tons per year per type of family dwelling unit as listed in following table.

Table 1: Solid Waste Disposal Rate

Dwelling Type	*Total (Tons/Year/Dwelling Unit)**
Single Family	1.17
Multi-Family	0.8

*Data from Lee County Solid Waste Division (27 July 2006)

Policy 1.2) The City shall continue to investigate modern and traditional collection methods in order to utilize the best available alternative.

Policy 1.3) The City shall continue to utilize the Lee County Solid Waste Resource Recovery Facility if feasible.

Policy 1.4) The content and characteristics of solid waste will be regulated to avoid environmental damage.

Action 1.4.1) Align local codes with applicable federal and state environmental standards.

Action 1.4.2) Participate in County-sponsored hazardous waste management and storage programs.

Action 1.4.3) The City will enforce an existing ordinance to prevent both regular and horticultural refuse from being placed at the curb excessive amounts of time ahead of scheduled pick-ups. Pick-up times will be publicized.

Action 1.4.4) Maintain Land Development Regulations to require screening of dumpsters as well as a hard surface, level pad for dumpsters to rest on.

Policy 1.5) The City shall discourage urban sprawl by not providing solid waste disposal service to customers outside of its urban reserve area.

Surface Water Management

GOAL

Minimize the hazardous and adverse effects of surface water and tidal surge flooding while maintaining the physical and environmental integrity of the City.

OBJECTIVE 1

Guide development in flood plains in a manner consistent with their natural functions, to minimize risks of property damage and loss of life.

Policy 1.1) The City of Fort Myers subscribes to the findings of the Lee County Comprehensive Emergency Management Plan (CEMP) and maintains a City of Fort Myers Disaster Preparedness Plan consistent with the Lee County Disaster Preparedness Plan. The City of Fort Myers Disaster Preparedness Plan will be updated annually.

Policy 1.2) The City shall regulate development in floodplains and flood prone area, identified by the federal emergency management agency in its flood insurance study of the City of Fort Myers, dated October 17, 1984.

Action 1.2.1) Any structure erected or substantially improved (regardless of use) shall be built according to the flood hazard reduction standards, which may include: construction of structures by methods and practices that minimize flood damage; the regulation of materials used for construction; anchoring techniques to prevent flotation, collapse or lateral movement of the structure; and the regulation of construction to minimize the accumulation of flood waters.

OBJECTIVE 2

Manage Surface Waters to allow for reasonable, beneficial uses, providing for a balance between urban and natural systems, and recognizing that natural productivity is optimized under unaltered conditions.

Policy 2.1) Existing drainage facilities are to be reestablished to manage surface water quality as well as quantity wherever feasible.

Action 2.1.1) Construct the improvements to existing surface water management facilities called for in the following documents: "Surface Water Management, Fort Myers, Florida" (Johnson Engineering, December 1987); “Surface Water Management Fort Myers Planning Area (Johnson Engineering, December, 1984); and Surface Water Management Fort Myers Planning Area, Addition I (Johnson Engineering, September, 1987) (hereinafter referred to as the Johnson Study) as practical and in accordance with the Capital Improvement Element.

Action 2.1.2) "As-Built" drawings of new surface water management facility construction (public and private) will be required and used to update the system atlas.

Policy 2.2) The City will ensure that new surface water management facilities are provided as needed.

Action 2.2.1) Construct the new facilities called for in the Johnson Study as practical.

Policy 2.3) Surface Water Management facilities will be maintained in a fully functioning condition.

Action 2.3.1) Storm sewers will be inspected every five years and maintained or cleaned as needed. Silt basins will be cleaned annually.

Action 2.3.2) All primary channels will be annually inspected and maintained, dredged, or cleaned as needed.

Action 2.3.3) Public Works will continue its periodic maintenance program for ditches.

Standard 2.3.3.1) Ditches shall be periodically deepened to a depth of 6" below culvert inverts, and re-sodded.

Action 2.3.4) Maintain Land Development Regulations prohibit parking in swales.

Policy 2.4) Present and future Rights-of-Way for surface water management will be protected from encroachment.

Action 2.4.1) The City will work with the Lee County Property Appraiser's Office to encourage the mapping of rights-of-way and easements.

Action 2.4.2) Surface water management facilities, including drainage facilities and vegetated buffer zones shall not include parking facilities and shall be buffered from buildings or other encroachment. Vegetated buffer zones shall not include more than twenty-five percent (25%) impervious surface. Drainage easements shall be dedicated when appropriate.

Policy 2.5) Surface Water Management systems will minimize pollutant loads of run-off as well as managing volume and hydroperiod.

Action 2.5.1) Surface Water Management regulations, consistent with South Florida Water Management District Rules and Department of Environmental Protection Rules, will be incorporated into the City's land development regulations.

Standard 2.5.1.1) Post-Development run-off shall not exceed pre-development runoff in rate or quantity, based on a twenty-five year, three-day storm event.

Standard 2.5.1.2) Run-off shall not be channeled directly into natural water bodies or primary channels, but shall be routed through swales, settling basins, surface skimmers, or other devices intended to improve water quality.

Standard 2.5.1.3) Natural watercourses will not be altered unless it can be shown that the watercourse's natural features and functions will be improved by said alterations.

Standard 2.5.1.4) New development shall not discharge stormwater with pollutants greater than the maximum allowed (numeric and narrative criteria) according to the Florida Administrative Code, Rule 62-302.530 Table: Surface Water Quality Criteria, based on the five classifications of water as defined by the Department of Environmental Protection. The individual criteria should be read in conjunction with other provisions in water quality standards, including Rules 62-302.500 and 62-302.510. It is presumed that development meeting the permitting criteria of the South Florida Water Management District will meet this standard.

Action 2.5.2) "Best Management Practices" will be required, during construction periods and for municipal operations as well as in project design.

Policy 2.6) Physical Improvements to land (e.g., roads, culverts, utilities, structures) shall be designed with consideration of Surface Water Management facilities.

Action 2.6.1) The land development regulations of the City shall include this consideration.

Standard 2.6.1.1) No physical alteration may be made within an existing or future surface water management right-of-way that would be inconsistent with this plan or the Malcolm Pirney Studies.

Standard 2.6.1.2) Minimum road crown elevation for new or rebuilt roads must be at or above the flood elevation resulting from a 5-year, 24-hour storm on local streets.

Standard 2.6.1.3) The center two lanes of new or rebuilt roads must be at or above flood levels resulting from a ten year, three day storm on arterial and collector streets.

Standard 2.6.1.4) New or rebuilt structures crossing any primary channel will meet or exceed the specifications of the Malcolm Pirney Studies.

Policy 2.7) The City's Surface Water Management system will maintain adequate levels of service.

Standard 2.7.1.1) Water levels in primary channels will not be allowed over bank levels in a 25-year, 3-day storm event.

Standard 2.7.1.2) Water levels in minor channels will not be allowed over bank levels in a 25-year, 3-day storm event.

Standard 2.7.1.3) A primary channel is any drainage channel included in the Surface Water Management Plan and/or maintained by the City. A minor channel is any drainage channel maintained in a drainage easement or as part of a development's on-site water management system.

Policy 2.8) The City will encourage centralized detention and joint recreational use of surface water management facilities.

Action 2.8.1) Off-site drainage communal facilities will be allowed provided all federal and state regulations are followed.

Policy 2.9) The City shall discourage urban sprawl by not extending surface water management facilities beyond its Urban Reserve Boundary.

Sanitary Sewer

GOAL

To provide a satisfactory and economical wastewater system for present and future users, resulting in the most acceptable environmental impacts.

OBJECTIVE 1

Increase the capacity of the sanitary sewer system to meet present and projected demands.

Policy 1.1) Usable capacity will be maximized through a conscientious reduction of inflow and infiltration.

Action 1.1.1) A vigorous program of TV inspection, grouting, sliplining, and gravity line rehabilitation will be maintained in accordance with the most current Sanitary Sewer System Study/Master Plan.

Standard 1.1.1.1) Peak inflow rates should be held below 6.8 million gallons per day (mgd) for each plant and peak infiltration rates below 1 mgd for both plants.

Action 1.1.2) An effective program to locate "Public" sources of inflow and infiltration will be conducted in accordance with the Flood Study. The Public Works Department will periodically conduct programs to locate “Public” sources of inflow and infiltration.

Standard 1.1.2.1) All gravity sewer lines should be TV inspected at least once every five years.

Standard 1.1.2.2) Manholes in ponding areas or otherwise subject to inundation shall be equipped with watertight inserts or seal-type covers.

Standard 1.1.2.3) No interconnects of storm drainage to the sanitary system will be allowed. Existing interconnects will be removed.

Action 1.1.3) Sources of inflow and combined sewers will be identified through observation or smoke testing and eliminated at the time renovation and remodeling are done on existing buildings through inspections and issuance of certificates of occupancy.

Action 1.1.4) Implement a gravity line replacement program through the Capital Improvement Plan.

Policy 1.2) The sanitary sewer system will be preserved through a preventative maintenance program.

Policy 1.3) Improvements and additions to the sewer system will be consistent with the existing system and sound engineering principles.

Action 1.3.1) Specific system design standards will be adopted as part of the development regulations.

Standard 1.3.1.1) New or replacement gravity lines will be at or exceed the minimum slopes indicated in Table 2, unless limited by connection to downstream gravity sewers or other physical or hydraulic conditions.

Table 2: Minimum Gravity Sewer Line Slopes

Diameter (Inches)	*Preferred Minimum Slope (ft/ft)*
8	0.0040
10	0.0028
12	0.0022
14	0.0017
15	0.0015
16	0.0014
18	0.0012
21	0.0010
24	0.0008
27	0.0008
30	0.0008
36	0.0008
42	0.0008
48	0.0008

Standard 1.3.1.2) Gravity lines shall maintain a scouring, self-cleaning velocity between two and eight feet per second flow.

Action 1.3.2) "As-Built" drawings of new sewer construction (public and private) will be required and used to update the system atlas.

Action 1.3.3) Priorities for replacement, correcting existing facility deficiencies, and providing for future facility needs shall be based on the most current Sanitary Sewer System Master Plan.

Policy 1.4) All new development will be required to utilize a sanitary sewer system.

Action 1.4.1) By December 2008, the City will evaluate whether to prepare and implement an ordinance providing for the over-sizing of sanitary sewer system facilities.

Standard 1.4.1.1) Should the City Master Plan call for extension of lines sized greater than that required to serve the development, the City may reimburse the developer for the cost of materials only above what was needed to serve the development.

Standard 1.4.1.2) The City will consider assisting with extension of lines for only the portion of cost of materials above and beyond the cost of an eight-inch line. This eight-inch line is considered standard and is the developer's obligation to extend.

Policy 1.5) No new development will be permitted unless an adequate sewer system is in place or assured.

Standard 1.5.1.1) Existing gravity sewers will be analyzed based upon existing characteristics to determine capacity. Gravity lines will not flow over 90% of capacity at peak flow conditions.

Standard 1.5.1.2) Unless actual flows can be documented, the following wastewater production rates and peak flow factors shall be used:

Table 3: Wastewater Production Rates

Use	*Rate*
Residential	75 gal/capita/day
Industrial	2500 gal/acre/day
Commercial	1900 gal/acre/day
Shopping Malls	0.2 gal/sq. ft./day
Hospitals	200 gal/bed/day
Schools with Showers	20 gal/student/day
Schools without Showers	12 gal/student/day

Table 4: Peak Flow

Tributary Sewered Area (acres)	*Ratio of Peak to Average Flow*
Less than 100	4.0
100 – 199	3.8
200 – 499	3.6
500 – 999	3.4
1,000 – 1,999	3.2
2,000 – 3,999	3.0
4,000 – 5,999	2.8
6,000 – 7,999	2.6
8,000 – 10,000	2.4

Minimum flow for any service area is assumed to be 0.4 of average daily.

Standard 1.5.1.3) An infiltration allowance of 200 gallons per mile per inch diameter per day should be used in new construction.

Standard 1.5.1.4) Pumping stations must be capable of handling the peak flow condition with the largest pumping unit out of service.

Standard 1.5.1.5) Force mains shall flow at a maximum of seven feet per second (fps) and a minimum of two fps. Connection of a new force main to an existing force main shall require complete hydraulic

analysis to determine the resultant effects. Additional treatment shall be required as needed to prevent anaerobic conditions.

Standard 1.5.1.6) Flows to the sewer plants may not exceed the following rates:

Table 5: Maximum Sewer Plant Flows

Type	*Central Plant (MGD)*	*South Plant (MGD)*
Annual Average Daily	11.0	12.0
Maximum Monthly	16.5	18.0
Maximum Daily	22.0	24.0
Short Term Peak	27.5	30.0

Source: City of Fort Myers Public Works Department

Policy 1.6) Pretreatment of certain wastes will be required (Industrial Pretreatment).

OBJECTIVE 2

Increase the environmental acceptability of the overall impacts of the sanitary sewer system.

Policy 2.1) The Sanitary Sewer System will be built in such a way as to minimize damage to the system and environmental damage in the event of a flood.

Action 2.1.1) Manholes in high hazard flood zones will be replaced with pre-cast manholes coated to eliminate deterioration as part of the sewer line replacement program.

Action 2.1.2) Maintain Pumping station in high hazard flood zones to be as safe in flood conditions as feasible.

Action 2.1.3) The City will maintain supplies of necessary chemicals to mitigate accidental raw sewage spills.

Policy 2.2) Effluent flows will meet or exceed federal and state standards.

OBJECTIVE 3

Finance improvements to the sanitary sewer system capacity and the increased environmental acceptability of the system in an equitable manner, recognizing differing benefits to the general public, new and existing customers.

Policy 3.1) Locally desired enhancements to the existing system, benefiting current users, will be financed by current users to the greatest extent possible.

Policy 3.2) Locally desired expansions of the system to meet demands of new and/or future users will be financed by the future users to the greatest extent possible.

Policy 3.3) Improvements to the system necessitated by other Agencies (Federal, State, or others), which are customers of the City sewer system, should be financed by those agencies to the greatest extent possible.

OBJECTIVE 4

To utilize efficiently the by-products of sewage treatment.

Policy 4.1) The City will effectively re-use treated effluent from the wastewater treatment plants.

Action 4.1.1) Implement the most current City of Fort Myers wastewater re-use study.

Policy 4.2) The City will ensure that sewer sludge continues to be re-used in the most beneficial manner.

Action 4.2.1) Continue to implement the Aerobic Digester at both wastewater treatment plants to produce a useful product.

OBJECTIVE 5

To maintain an equitable arrangement between City sewer users and users in unincorporated Lee County.

Policy 5.1) The City will treat Lee County customers' sewage in accordance with the Interlocal Wastewater Treatment Agreement dated November 16, 1983, and amended on September 12, 1984, April 9, 1986, and March 3, 1993.

Aquifer Recharge

GOAL

Protect, preserve, and enhance the groundwater and other aquifers for human use.

OBJECTIVE 1

Protect the aquifer from contamination by restricting land uses with the potential to contaminate the City's primary water source.

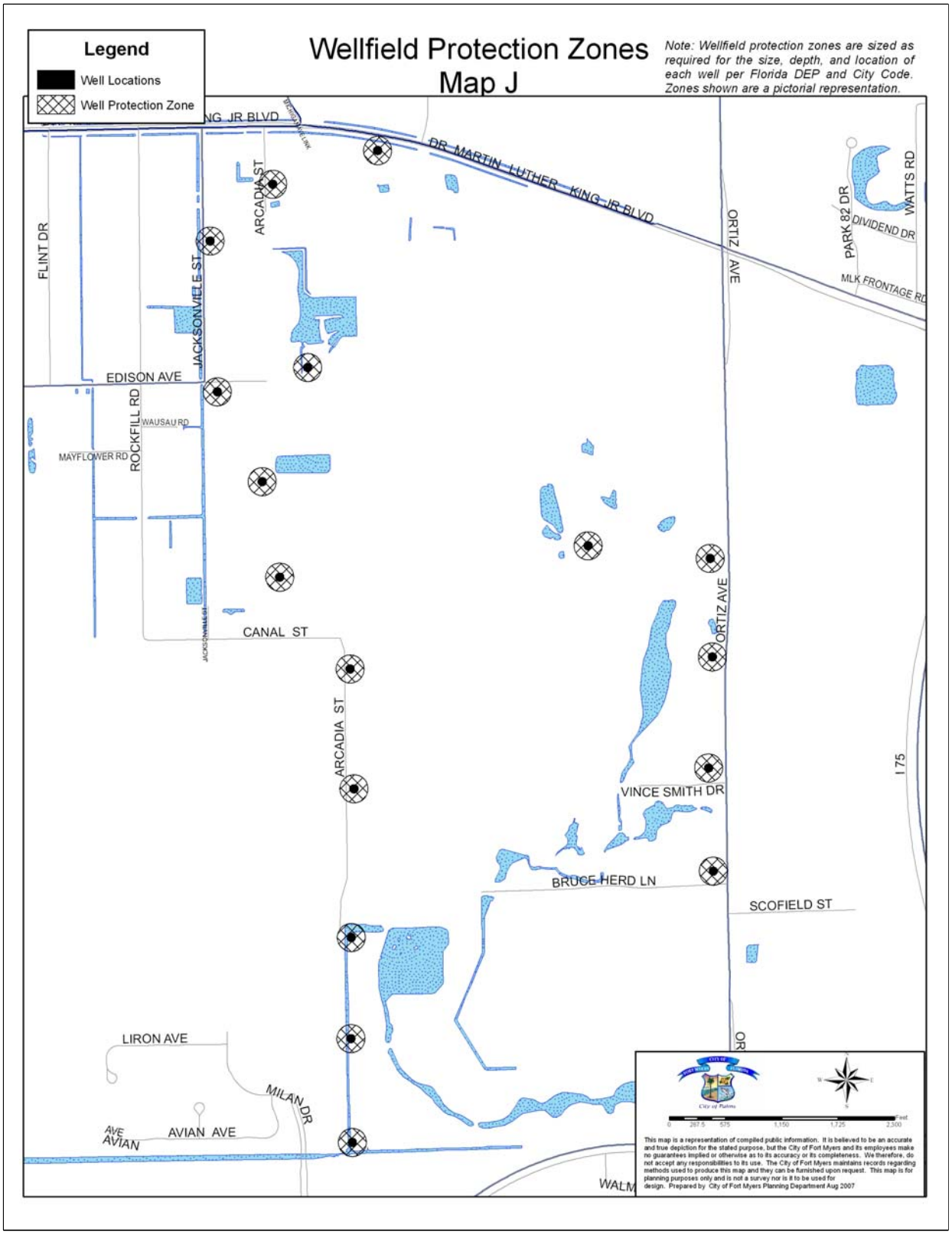
Policy 1.1) Protect aquifer recharge areas through site location review and strict monitoring requirements.

Policy 1.2) The City shall protect aquifer recharge throughout the City by requiring properly functioning stormwater management systems and a minimum percentage of open space for all development projects.

Policy 1.3) The land development code shall require investigation of all sub-surface conditions for land uses that have the potential for contamination of groundwater and shall require uses that have a significant potential for contamination to be monitored. The land development code shall use established Best Management Practices that include but are not limited to: a) Buffer requirements around wells; b) Monitoring of hazardous substance disposal; c) Restriction of certain land uses with a defined area around wells (i.e., any land use that uses, produces, or generates a waste; any listed Resource Conservation and Recovery Act material; or, Environmental Protection Agency priority pollutants); d) Requirements for monitoring wells around consumptive use wells; e) Overlay Protection Districts; and/or, f) Establishment of protection zones. (See Map J for Wellfield Protection Zones.)

Policy 1.4) The City shall, by ordinance, restrict incompatible land uses near recharge areas and prohibit untreated stormwater from entering the recharge areas. Incompatible land uses are uses that use, produce, or generate as a waste any listed Resource Conservation and Recovery Act material or Environmental Protection Agency priority pollutant.

Policy 1.5) By 2008, The City shall adopt a comprehensive wellhead protection ordinance that protects existing and future water supply wells from potential contamination.


Legend
Well Locations
Well Protection Zone
Wellfield Protection Zones
Map J
Note: Wellfield protection zones are sized as required for the size, depth, and location of each well per Florida DEP and City Code. Zones shown are a pictorial representation.
DR MARTIN LUTHER KING JR BLVD
FLINT DR
JACKSONVILLE ST
ARCADIA ST
ORTIZ AVE
PARK 82 DR
DIVIDEND DR
WATTS RD
MLK FRONTAGE RD
EDISON AVE
ROCKFILL RD
WAUSAU RD
MAYFLOWER RD
CANAL ST
VINCE SMITH DR
BRUCE HERD LN
SCOFIELD ST
I 75
LIRON AVE
MILAN DR
AVIAN AVE
This map is a representation of compiled public information. It is believed to be an accurate and true depiction for the stated purpose, but the City of Fort Myers and its employees make no guarantees implied or otherwise as to its accuracy or its completeness. We therefore, do not accept any responsibilities to its use. The City of Fort Myers maintains records regarding methods used to produce this map and they can be furnished upon request. This map is for planning purposes only and is not a survey nor is it to be used for design. Prepared by City of Fort Myers Planning Department Aug 2007