Solid Waste

Sub-Element

CONTENTS

SECTION				PAGE
II	**B.**	**SOLID WASTE SUB-ELEMENT**		3
	1.	INTRODUCTION		3
		a.	History	3
		b.	Planning and Legislative Overview	3
		c.	Terms and Concepts	5
	2.	INVENTORY AND ANALYSIS		7
		a.	Collection System	7
		b.	Solid Waste Disposal	7
		c.	Facility Capacity	7
		d.	General Performance - Level of Service	7
			1) Landfill Acreage Demands	9
			a) First Five Year Period - 1990-1995	9
			b) Second Five Year Period - 1996-2000	10
			2) Performance Assessment	10
			3) Land Use Compatibility	10
		e.	Impact on Natural Resources	10
			1) Groundwater, Aquifer Recharge, Wellfields	10
			2) Suitability of Soils	11
		f.	Resource Recovery	11
		g.	Landfill Closure Plans	13
			1) Dyer Boulevard	13
			2) North County Regional	14
		h.	Regulatory Framework	14

LIST OF TABLES

NO.	NAME	PAGE
1	WASTE GENERATION UNIT RATES	8
2	GREENACRES PER CAPITA SOLID WASTE GENERATION	9
3	GREENACRES LANDFILL ACREAGE DEMAND	9

II B SOLID WASTE SUB-ELEMENT

1. INTRODUCTION

Purpose: The purpose of the Solid Waste Sub-Element is to ensure that capacity is available to support the City's future population, that adequate disposal methods in accordance with Federal, State and Local regulations are being implemented, and that all necessary steps to preseve landfill capacity are being implemented.

a. History

The Solid Waste sub-element is a requirement of Chapter 163, F.S. and Rule 9J5.011FAC. The collection of solid waste in the City of Greenacres is provided through contractual agreements with private haulers. The City entered into a franchise agreement with Williams Sanitation Service to collect garbage and trash within the City for a five-year period from January 1, 1972 to December 31, 1976. The contract also offered Williams Sanitation the option to renew the contract for an additional five-year period under the same terms and conditions as the original agreement.

Veolia Environmental Services Solid Waste Services, Inc. d/b/a Onyx Waste Services SE, Inc. currently holds the exclusive franchise for garbage collection within the City of Greenacres.

The Lantana Road Class 1 Landfill which previously served the City, was closed to the public on March 1, 1987 in compliance with the Florida Department of Environmental Regulation Consent Order No. OGC Case No. 85-0686. The Dyer Landfill was subsequently officially closed by the Department of Environmental Protection in 1996. The City of Greenacres is now served by the North County Landfill located on Jog Road north of 45th Street.

b. Planning and Legislation Overview

Both State and Federal legislations exist for regulating the disposal of solid waste. The Resource Conservation and Recovery Act (Public Law 94-580) was enacted in 1976, to utilize and better manage, the growing volume of solid waste. This Act established resource recovery as a national priority.

Palm Beach County Solid Waste Authority (SWA) is responsible for planning and management of solid waste facilities serving the City of Greenacres. The Palm Beach County Solid Waste Authority was an independent special taxing district created by the Florida Legislature under the Palm Beach County Solid Waste Act, Chapter 75-473, Laws of Florida, Special Acts of 1975, as amended and supplemented (the "Act").

In 1991, the Solid Waste Authority was established under the jurisdiction of Palm Beach County Board of County Commissioners and now functions as a County Department.

The Solid Waste Authority has verified that there is sufficient capacity to serve the City of Greenacres for the next five and ten year periods. The North County landfill which currently serves the City of Greenacres, in September of 2007, had an estimated 33,789,220 cubic yards of landfill capacity remaining.

The Florida Resource Recovery and Management Act founded in 1980, adopted federal guidelines and directed DEP to develop and implement a hazardous waste management program. Amendments to the Florida Act in 1983 provided direction and funds to establish a cooperative hazardous waste management program at local, regional and state levels of government.

"The Palm Beach County Solid Waste Authority was established for the purpose of developing and implementing plans for an integrated county-wide solid waste management system comprised of recycling, resource recovery, transfer station and landfill facilities to serve the future needs of the County at reasonable costs. The Act gives the Authority the power to construct and operate solid waste disposal facilities including resource recovery facilities and to require that all solid waste collected by private and/or public agencies within the County be delivered to processing and disposal facilities designated by the Authority."

The 1988 Comprehensive Solid Waste Management Plan, prepared by the Palm Beach County Solid Waste Authority, is consistent with the State's mandate. That document projects waste generation rates and analyzes disposal opportunities in order to meet the needs of SWA's entire service area through the year 2030. Relying on SWA's plan, this plan projects and analyzes needs specifically for the City of Greenacres to sufficiently satisfy the time frame of this document. In 1990, in accordance with Chapter 159 of the state statutes governing special districts, the SWA prepared an annual status report.

In planning the future of solid waste removal for the City of Greenacres and the coordination needed between regulating agencies, three issues are identified. Each stems from the central question of how the City can most efficiently and economically process its solid waste in an environmentally sound manner. These issues are discussed in detail in subsequent sections of this element. These issues are:

1. to provide for safe and sanitary collection, processing and disposal of solid waste.
2. Federal, State, and local agencies responsible for the prevention,

control or abatement of air, water and land pollution.
3. the City's role in the resource recovery program.

c. Terms and Concepts

One of the most common errors committed by City of Greenacres residents in dealing with solid waste collection is that of properly defining types of solid waste, i.e., "garbage" and "trash." Both garbage and trash are defined in the franchise agreement as well as the conditions under which collection will be made. (See below)

GARBAGE - is defined as "all household or commercial refuse such as kitchen accumulations of animal, fruit or vegetable matter and other refuse such as tin cans, bottles and glass, paper and boxes, and other containers of foodstuffs, and such other refuse that may accumulate in the ordinary household or commercial establishment."

TRASH - is defined as "grass, leaves, flowers and shrubbery trimmings that will fit in receptacles."

Solid wastes are non-liquid materials that have been discarded. Solid waste (synonymous with refuse), is a broad term that includes a number of subcategories. It may be classified by point of origin (such as agricultural, industrial, domestic or construction waste) or by the kind of waste involved (such as rubbish, ashes, garbage, special waste or abandoned automobiles). For the purposes of this element, the following definitions have been adopted from Section 9J 5003.

SOLID WASTE - is defined as "sludge from a waste treatment works, water supply treatment plant, or air pollution control facility or garbage, rubbish, refuse, or other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from domestic, industrial, commercial, mining, agricultural, or governmental operations."

HAZARDOUS WASTE - is defined as "solid waste, or a combination of solid wastes, which, because of its quantity, concentration, physical, chemical or infectious characteristics, may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or may pose a substantial present or potential hazard to human health or the environment when improperly transported, disposed of, stored, treated, or otherwise managed."

For the purpose of this Element, the term "solid waste" excludes hazardous waste and has been used to include the following classifications which indicate general characteristics of the materials and their sources of generation.

RESIDENTIAL WASTES are mixed household wastes, including yard wastes, generated by the general population.

COMMERCIAL WASTES are generated by the commercial and institutional sectors. Physical characteristics of these wastes are similar to those of residential wastes, in that they consist largely of combustible materials in the form of paper and food waste from offices, restaurants, retail establishments, schools, hospitals, motels, and churches.

INDUSTRIAL WASTES include wastes generated by industrial processes and manufacturing operations excluding hazardous wastes. These wastes also include general industrial housekeeping and support activity wastes.

SPECIAL WASTES include wastes having special characteristics or requiring special handling. These wastes include oversized bulky wastes and materials generated in demolition and construction projects.

The primary focus of this Element is to identify the facilities which the City will utilize in managing and disposing of solid waste and hazardous waste generated by the City during specific planning periods.

Solid waste facilities include transfer stations, processing plants and landfills. For hazardous waste, only transfer stations will be addressed since disposal of such wastes within solid waste landfills is not permitted in Florida (Section 403.722, F.S.).

TRANSFER STATION - is defined as "a facility for the temporary collection of hazardous waste prior to transport to a processing plant or to a federally qualified hazardous waste disposal facility". For the purposes of this Element only permanent facilities which would require attendance by trained operators will be addressed.

PROCESSING PLANT - is defined as "a facility designed for incineration, resource recovery or recycling of solid waste prior to its final disposal". This Element will address only such facilities as would serve the needs of the City as a whole. The purpose of these facilities may include any or all objectives of reduction of the volume of wastes disposed, energy recovery from wastes or recovery of reusable materials.

LANDFILL - is defined as the "final disposal site of solid wastes, and as it implies, involves burial of the wastes". Landfills are classified for regulatory purposes according to the characteristics of the wastes they are permitted to receive.

The Franchise Agreement of the Solid Waste Authority requires two times per week collection, two times per week bulk trash collection, once

per week vegetation collection and once per week recyclable collection.

2. INVENTORY AND ANALYSIS

a. Collection System

Collection of solid waste in the City of Greenacres is handled by privately owned waste hauling companies. At present, Veolia Environmental Services Solid Waste Services, Inc. d/b/a Onyx Waste Services SE, Inc. holds the exclusive franchise for garbage collection and trash pickup. This garbage collection franchise has been renewed and will remain in effect until September 30, 2011.

b. Solid Waste Disposal

Solid waste generated in the City of Greenacres is presently delivered to the Authority Class 1 Landfill, referred to as the North County Landfill. This landfill is owned and operated by Palm Beach County Solid Waste Authority.

c. Facility Capacity

The only operational landfill serving the entire Palm Beach County is the North County Landfill. According to the Solid Waste Authority, there is capacity at this landfill to accommodate Palm Beach County's population to the year 2021. This Facility is located on Jog Road north of 45th Street in suburban West Palm Beach.

1) North County Regional Resource Recovery and Solid Waste Disposal Facility

Approximately 313 acres are available for the Class I and Class III landfills at build out.

The new sanitary landfill is located on the Northern Resource Recovery Facility site which consists of a 121-acre Class I (garbage) landfill area and a 192-acre Class III (trash) landfill area. The first phase of development for the Class I (garbage) landfill occupies approximately 30 acres.

Class I landfill space at the Site is allocated for disposal of ash and residue generated by the Facility in addition to the Non-Processible Wastes delivered to the Facility.

d. General Performance-Level of Service

A combination of the following methods for projecting future waste generation in the County has been used to estimate the amount of Solid Waste to be disposed of at the Authority's facilities:

1. Population projections;
2. Per capita generation rates; and
3. Historical records

In order to evaluate the solid waste disposal capabilities and needs of the City of Greenacres, existing landfill acreage is compared with current and projected demand for landfill, based upon population estimates. Calculations are carried out through the year 2020. Projections are based on data from the North County Solid Waste Disposal Facility.

The Palm Beach County Solid Waste Authority has projected the per capita solid waste generation for the City and is defined in Table No. 2.

Table No. 1
Waste Generation Unit Rates
(Pounds per capita per day)

Garbage	4.28
Trash	.96
Vegetation	.55
Land Clearing & Building Debris	.29
Sludge & Dewatered Sludge	.26
Clean Fill	.16
Tires	.02
Miscellaneous	.02
Recyclables (from Garbage)	.59
TOTAL	7.13

The L.O.S. remains at is 7.13 pounds per capita per day. This rate has remained constant due to awareness and education on recycling and the reduction in the generations of solid waste.

TABLE No. 2
GREENACRES PER CAPITA
SOLID WASTE GENERATION

Year	Greenacres Population	lbs per day	L.O.S. lbs per day
1990	29,173	5.43	7.1
1995	23,296	6.06	7.1
2000	28,128	5.46	7.1
2005	32,765	5.22	7.1

Source: 1. Palm Beach County Solid Waste Authority
2. The City of Greenacres Engineering, Planning and Building Department, May 1997.

1) Landfill Acreage Demands

Using information from Table No. 2 landfill acreage demands have been projected on Table No. 3 and are expressed in five (5) year time frames.

TABLE No. 3
GREENACRES LANDFILL ACREAGE DEMAND

Year	Cumulative Tons	Cumulative Acres	Existing Acreage
1990-1995	153,645	22.04	313
1996-2000	189,928	27.25	313
2001-2005	226,811	32.54	313
TOTAL	570,384	81.83	313

Source: The City of Greenacres, Engineering, Planning and Building Department, 1997.
Note: 1) Existing Acreage represents total acreage at buildout (121 acres for Class 1, 192 acres for Class III)
2) Acreage totals are based on 6,970.3 tons per acre. cumulative acreage has been adjusted by a factor of 20% for ditches, retainment ponds and buffers.
3) Average annual populations were used from each 5 year period.

a) First Five Year Period - 1990 to 1995

With the opening of the North County Regional Resource Recovery and Solid Waste Disposal Facility in 1989, 313 acres were available for Class I and Class III landfills.

Table No. 3 projects that the City of Greenacres will need approximately 22 acres of landfill acreage to satisfy the demands of the City during this 5 year period. Twenty-two acres represents about seven percent (7%) of the total landfill area.

b) Second Five Year Period - 1996 to 2000

Table No. 3 also projects that an additional 27.25 acres of landfill will be required to satisfy the growing demand of the City during this five (5) year period. This acreage, combined with the first five (5) year period represent a combined total of 49.29 acres or fifteen point seven percent (15.7%) of the total landfill acreage at buildout.

2) Performance Assessment

In general, landfill practices at the North County Regional Resource Recovery and Solid Waste Disposal Facility provide solid waste disposal for the City in an economically and environmentally sound manner. This landfill meets proposed EPA guidelines for site selection, site design, leachate control, gas control, runoff control, operation, and monitoring of the site. Also the available landfill acreage is sufficient to service the City of Greenacres to the year 2021.

3) Land Use Compatibility

The Northern Resource Recovery Facility was built in 1987/1988. This represents the culmination of a siting effort which began in 1978, a nine-year time span, and is representative of the institutional barriers faced by a public agency as a result of the political and regulatory process.

e. Impact on Natural Resources

1) Groundwater, Aquifer Recharge, Wellfields.

The Palm Beach County Department of Environmental Resources Management (ERM) administers and enforces the Wellfield Protection Ordinance which regulates and prohibits the use, handling, production and storage of

certain substances near wellfields. Restrictions of the ordinance also apply to sites designated by the Board of County Commissioners as future wellfields.

Through cooperation with ERM, the Solid Waste Authority identified existing and proposed water supply wellfield systems, avoiding landfill locations which would have a negative effect on wellfields. Also adequate cooperation exists between the Solid Waste Authority and South Florida Water Management District (SFWMD) in avoiding 100-year flood prone areas and shallow aquifer zones.

In addition to SFWMD stormwater retention requirements, coordination with the various drainage districts was required for the study area including Northern Palm Beach County, Acme Improvement and Lake Worth Drainage Districts to ensure no adverse potential impacts on canals and the Loxahatchee National Wildlife Refuge.

2) Suitability of Soils

The North County Regional Solid Waste Disposal Facility is located in the Sandy Flatlands Physiographic area identified in the Conservation Element of this Plan. The U.S. Department of Agriculture, Soil Conservation Service, General Soils Map, issued in 1978, identifies the soils in the landfill area as:

a. WABASSO-RIVIERA-OLDSMAR Association: nearly level, poorly drained sandy soils that have a loamy subsoil; some have a weakly cemented sandy layer over the loamy subsoil.

b. RIVIERA-BOCA Association: nearly level, poorly drained sandy soils that have a loamy subsoil; some are moderately deep over limestone.

f. Resource Recovery

In Chapter 84-198, Laws of Florida (1984), the Florida Legislature has declared that "It is critical to encourage energy conservation in order to protect the health, prosperity, and general welfare of this State and its citizens". The Legislature has further declared that the "combustion of solid waste by small power production facilities for the production of electricity not only represents conservation efforts well directed towards that

goal, but also represents an environmentally preferred alternative to conventional solid waste disposal in this State".

It has been determined that the traditional means of disposing municipal solid waste (MSW) is inadequate to meet the needs of this rapidly growing County for two primary reasons:

1) there is a paucity of land which could feasibly be used for landfilling and available land is inordinately expensive; and

2) the landfilling of putrescible garbage poses a serious long-term threat to the quality of the groundwater which supplies the domestic water needs of County residents.

The Palm Beach County's Solid Waste Authority Comprehensive Solid Waste Management Plan will be the guiding document for development of these facilities serving the City of Greenacres. While the Solid Waste Authority's Comprehensive Solid Waste Management Plan is prepared under the requirements of Chapter 403, Florida Statutes, it is designed to assist and accommodate local governments in meeting the intent of Chapter 163, Florida Statutes, and Rule 9J-5 as they develop their local plan elements.

The Authority filed an application with the Federal Energy Regulatory Commission (FERC) for certification of its proposed resource recovery plant as a qualifying small power production facility pursuant to Section 201 of the Public Utility Regulatory Policies Act of 1978 (PURPA) and rules promulgated by FERC in April, 1985.

The Power Plant Site Certification was approved by the Governor and Cabinet of the State of Florida at their meeting on Tuesday, July 29, 1986. This certification addressed all state and local environmental compliance and solid waste regulations to be met prior to construction and during operation of the Facility.

On January 21, 1987, a ground breaking ceremony was conducted for the development of the first waste-to energy facility to address the solid waste disposal needs of the County and to reduce the continued reliance on landfills for direct disposal of solid waste. The project involves the construction and operation of a 2000 TPD Resource Recovery Facility and ancillary facilities on a portion of the 1,320 acre site designated as the North

County Regional Resource Recovery and Solid Waste Disposal Facility.

g. Landfill Closure Plans

1) Dyer Boulevard

The Solid Waste Authority received a Closure Permit from the DEP to finish closing 138 acres of old sections of the Dyer Boulevard Landfill.

The Solid Waste Authority has developed a Closure Plan and End Use Plan for the Dyer Boulevard Landfill. These plans have been reviewed and approved by the Authority Board, the Department of Environmental Protection and Palm Beach County Parks Department, and were developed with the assistance of the Citizens Advisory Committee and homeowners surrounding the Dyer Boulevard Landfill.

The Land Reclamation and Restoration Project involves planting of indigenous plants to stimulate reforestation in the area. Low land and pine flatwood communities are planned to recreate the natural environment. Native vegetation to be included in this project will be slash pine seedlings to stimulate pioneer vegetation around the perimeter, native grasses, palmetto palms and oaks. Located in the retention area are cypress heads, sawgrass and wax myrtles.

In January, 1988, the Authority received an "Award of Recognition" from the Florida Nurserymen and Growers Association, 1987 Landscape Awards Program for the Dyer Boulevard Restoration Project. The restoration project proceeds concurrent with the facility expansion activities and active landfilling in order to complete the entire project by the end of 1997. The design concept for the Dyer Boulevard restoration was based upon a passive recreation use. Park plans include picnic pavilions, a botanical garden, a golf driving range, open play areas, nature walks, jogging trails and extensive native landscaping to screen the park from surrounding development.

The landscaping for this project and all Authority projects is based upon a complete native theme that will, in the course of time, regenerate itself into the natural vegetation

system that existed prior to the site being used for a landfill.

2) North County Regional Solid Waste Disposal Facility

The End Use Plan is designed to incorporate active and passive park activities utilizing native Florida vegetation as landscape and buffer material. The active recreation activities are located east of Jog Road on top of the completed landfills and in the borrow lake area and include boat access and marina, frisbee, golf course, soccer and football, general purpose ball field and picnic areas.

Passive recreation comprised of nature trails, lookouts for birds and over wetland and other native plant communities will be encompassed west of Jog Road in the conservation area. The abandoned shell pits are used as mitigation areas and will be landscaped with site specific native plant communities.

h. Regulatory Framework

The potential environmental impacts of solid waste facilities have led to the development of an extensive network of permitting requirements at the federal and state levels. Impacts on air and water quality are reviewed by the U.S. Environment Protection Agency (EPA) and the Florida Department of Environmental Protection (DEP), and where dredging and filling might occur, by the U.S. Army Corps of Engineers (COE). The South Florida Water Management District also provides State level review for water quality and quantity impacts. Actual construction and operation of solid waste facilities requires further permits and review by DEP. For processing plants which will generate electrical power or require tall emission stacks, further DEP and Federal Aviation Administration (FAA) review may be required.

For hazardous waste, the national Resource Conservation and Recovery Act (RCRA) of 1976 directed EPA to develop a national program to regulate and manage hazardous waste and provide incentives for states to adopt consistent programs. The National Comprehensive Emergency Response and Compensation Liability Act (CERCLA) passed in 1980, provided EPA with authority and funds to respond to incidents requiring site clean-up and emergency mitigation (the EPA "Superfund" Program). This act also defined the liability of business engaged in hazardous waste generation, transport and disposal, and provided enforcement processes.

At the state level, the Florida Resource Recovery and Management Act (Sec. 403.7, F.S.), passed in 1980, adopted federal guidelines and directed DEP to develop and implement a hazardous waste management program. This act provided for:

1. adoption of federal hazardous waste definitions;
2. a system to monitor hazardous waste from generation to disposal;
3. an annual inventory of large hazardous waste generators;
4. permit requirements regulating treatment, storage and disposal of hazardous waste;
5. funds for hazardous waste spill and site clean-up;
6. hazardous waste management facility site selection procedures; and
7. fines and penalties for violators.

Amendments to the Florida Act in 1983 provided directions and funds to establish a cooperative hazardous waste management program between local, regional and state levels of government. These changes included provisions for county-level hazardous waste management assessments, regional and statewide facility needs assessments, and site selection for hazardous waste management facilities at the county, region and state levels.

Palm Beach County Solid Waste Authority (SWA) is responsible for planning and management of solid waste facilities serving the City of Greenacres. This includes processing permit applications for new facilities and ensuring that existing facilities are operated in conformance with permit requirements and in compliance with water quality objectives.