

9. 6C-21.207 GENERAL INFRASTRUCTURE ELEMENT

The purpose of this element is to ensure the provision of adequate capacity for stormwater management, potable water, sanitary sewer and treatment, and solid waste facilities required to meet the future needs of the University. The General Infrastructure Element shall consist of a Stormwater Management Sub-Element, a Sanitary Sewer Sub-Element, a Potable Water Sub-Element and a Solid Waste Sub-Element.

STORMWATER MANAGEMENT SUB-ELEMENT

Information Sources

- George F Young Inc, research notes, June, 2002
- Interviews with USF Staff, June, 2002
- Evaluation and Appraisal Report, by Sasaki Associates, Inc, September 2000
- 1998 Master Plan revisions (part)
- 1995 Master Plan and Data and Analysis Report (part)

Purpose

The Stormwater Management goal for the St. Petersburg campus plan is to provide an adequate stormwater management system that accommodates future University stormwater needs while correcting any existing facility deficiencies.

6C-21.207 (1). Data Requirements

(1)(A). An inventory of all public and private facilities and natural features which provide stormwater management for the Campus, including detention and retention structures, storm drainage pipe systems, natural stream channels, rivers, lakes, wetlands, etc.

The Campus currently encompasses about 46 acres of land, including the peninsula that extends into Bayboro Harbor. There are twelve existing drainage basins within the campus boundaries. These drainage basins have direct outfall to Bayboro Harbor via two existing box culverts through the campus property. There are ten dry and one wet stormwater treatment pond (s) located within the Campus. Each of these ponds is classified as an on-line system by SWFWMD. USFSP has added a pond with conveyance system from the pond to the existing Fourth Street, South, system to support the CRI building.

(1)(B). For facilities shared with the host community, a description of the proportional capacity of the facility required to meet existing University

needs, including a description of any capacity that may have been previously allocated to the University by the host community.

The individual stormwater treatment facilities (detention ponds and future underground vaults) connect to the existing City stormwater system. The shared facilities are driven by the lot / block design.

The City of St. Petersburg has updated the stormwater piping within Third Street South and is shown on Figure 9-C. This system varies in size from 12” to 48” RCP.

(1)C Stormwater Management facility data

A physical inspection and survey of the storm sewer system in Basin B-12 (peninsula area) should be conducted to determine the actual physical condition of the facilities and to complete the mapping of the facilities.

Summary of Inventory Findings

Stormwater runoff is conveyed by the City’s storm sewer piping network to Bayboro Harbor, which is located immediately south of the Campus. The University’s facilities are required to comply with City of St. Petersburg and the Southwest Florida Water Management District (SWFWMD) stormwater quality and quantity regulations. All buildings that are proposed to be constructed during the current ten year program can be easily connected to the City’s and the University’s stormwater system. In several instances however, it will be necessary to modify or re-align existing drainage lines that traverses the future Multi Purpose Academic Student Service Facility building as well as the future USGS expansion building.

In addition to the storm sewer pipelines, the Campus is served by ten dry retention ponds and one wet retention pond, which provide treatment for stormwater runoff. The proposed ten year plan will eliminate four existing dry ponds, which will be replaced by several underground stormwater vaults. There are a total of three underground vaults and four surface detention systems provided to meet stormwater quality standards.

6C-21.207 (2). Analysis Requirements

(2)(A). Facility capacity analysis, by geographic service area, indicating capacity surpluses and deficiencies for: 1) Existing conditions, based on the facility design capacity and the current demand on facility capacity; and 2) The end of the planning time frame, based on the projected demand at current level of

service standards for the facility, projected student populations and land use distributions, and any available existing surplus facility capacity.

A treatment credit accounting system should be established for the Campus.

- (2)(B). *The general performance of existing stormwater management facilities, evaluating the adequacy of the current level of service provided by the facility, the general condition and expected life of the facility, and the impact of the facility upon adjacent natural resources.*

All buildings that are proposed to be constructed during the current ten year program can be easily connected to the City's and the University's stormwater system.

- (2)(C). *An analysis of the problems and opportunities for stormwater management facility expansion or replacement to meet the projected needs of the University.*

Due to the city-block configuration of the campus and existing utilities within the rights-of-way, stormwater facilities may need to be accommodated through a number of solutions. Opportunities include integrating stormwater treatment into plaza areas and underground vaults. Incorporation of stormwater ponds within the proposed green space and park area along Bayboro Harbor should also be explored. Considering the city block layout of the campus, stormwater treatment should be addressed on a case by case basis. Since the campus discharges directly into Bayboro Harbor, a designated Outstanding Florida Waters (OFW), the required treatment volume must include 50% additional volume.

At the appropriate time, the University should relocate the existing drain lines located beneath the future Multi-Purpose Academic Student Services Facility building as well as the future USGS expansion building.

- (2)(D). *Existing regulations and programs which govern land use and development of natural drainage features shall be analyzed, including the strengths and deficiencies of those programs and regulations in maintaining the functions of natural stormwater management features.*

The University of South Florida and the City of St. Petersburg have executed an agreement governing future development within the St. Petersburg Campus of the University. The intent of the agreement is to establish an orderly process by which the University will interface with the City in the coming years regarding future

development of the Campus. In addition, the agreement established the scope of the University's future development, the impacts of that development the improvements necessary to accommodate future development and fees for utility services. All campus development, as identified in the adopted USFSP Campus Master Plan, may proceed without further review by the City if it is consistent with the terms of the agreement and the Campus Master Plan that was adopted in November 1995.

All modifications to the stormwater management system at USFSP Campus will require the review of the City of St. Petersburg Engineering as well as the Southwest Florida Water Management District.

POTABLE WATER SUB-ELEMENT

Information Sources

- George F Young Inc, research notes, June, 2002
- Interviews with USF Staff, June, 2002
- Evaluation and Appraisal Report, by Sasaki Associates, Inc, September 2000
- 1998 Master Plan revisions (part)
- 1995 Master Plan and Data and Analysis Report (part)

Purpose

The Potable Water goal for the St. Petersburg campus plan is to provide an adequate potable water system that accommodates the future University potable water needs while correcting any existing facility deficiencies.

6C-21.207 (4). Data Requirements

- (4)(A)** *An inventory of existing potable water facilities on the campus (map, narrative) indicating location and sizes of main distribution lines.*

Since the 1995 Master Plan, reclaimed water and potable water systems have been expanded on Campus. Two, one-block loops have been completed east and west of Third Street South, between Fifth and Sixth Avenues South. An irrigation loop encompassing the main campus and the peninsula has also been completed. The potable water loop has been completed on the peninsula. Several meters have been added to the systems.

There are currently no moratoriums for water (potable, fire or reclaimed) service laterals. There is currently a moratorium on the extension of reclaim water mains.

- (4)(B)** *For facilities shared with host community, a description of the proportional capacity of the facility required to meet existing university needs, including a description of any capacity that may have been previously allocated to the University by the host community.*

The City of St. Petersburg currently provides potable water to the St. Petersburg campus. The City has expressed confidence that sufficient potable water service levels are available to adequately serve the campus for the next 10 years. Additionally, reclaimed water is available to the campus to reduce potable water

demands. The City has recently updated its reclaimed water system which the Campus uses for irrigation and cooling. For these reasons, minimal improvements will be necessary since the responsibility for providing potable water to the campus rests with the City of St. Petersburg.

Maintenance of lines from the meters into the buildings is the responsibility of the University. Meters are variously owned and maintained by the University or by the City.

(4)(C) Potable water facility data

The potable water facilities provided by the City of St. Petersburg, located within and near the campus include the following:

- 16 & 12 inch trunk mains along 6th Avenue and First, Third and Fourth Streets,
- 8 & 6 inch distribution mains along internal and perimeter streets,
- ¾ to 2 inch domestic service mains serving individual buildings and
- 6 & 8 inch diameter fire mains and fire hydrants throughout the Campus.

Future potable, fire and reclaimed water service laterals are expected, however no new water distribution mains are anticipated.

Summary of Inventory Findings

The City's capacity is adequate at this time. However, the City's capacity is dependent on five wellfields in Pasco and Hernando Counties creating some long-term concern for saltwater intrusion. The City also has a new potable water line along Fourth Street which will be available for future use.

6C-21.207 (5) Analysis Requirements

(5)(A). Facility Capacity Analysis

The City wellfields capacity is 83 million gallons per day. The current demand on potable water within the peninsula area is 1.2 million gallons and the main campus is 300,000 gallons. The City also provides water to other Cities and unincorporated County areas.

There are no identified deficiencies on campus. Future study and metering should enable the University to adequately project demand of new construction.

- (5)(B). The general performance of existing potable water facilities, evaluating the adequacy of the current level of service provided by the facility, the general condition and expected life of the facility, and the impact of the facility upon adjacent natural resources.***

The City's capacity is adequate at this time partly due to the fact that 80% of the the sanitary sewer collected by the City is returned as reclaimed water for irrigation and cooling. Potable water is available for backup of these systems, if necessary.

- (5)(C). An analysis of problems and opportunities for potable water facility expansion or replacement to meet projected needs of University***

All development proposed to be constructed during the 10 Year Program can easily be connected to the City's potable water distribution system. The City also has a new potable water line along Fourth Street which will be available for future use.

Meters should be separated to serve individual buildings. This will serve to better manage conservation efforts, monitor use and identify leaks. Some older lines in the penninsula area should be replaced as appropriate.

The 2000-2002 University Budgets provide \$100,000 for potable water and fire systems.

- (5)(D). A description of the campus underground hydrology, including its potential for use as a potable water source.***

Located between the urban framework of downtown St. Petersburg and Bayboro Harbor, the underground hydrology is not suitable for use as a potable water source. The City requires that landscaping utilize the City reclaimed water system for irrigation. Potable water for the City, due to the salt intrusion, is from wellfields in northern Pinellas and Hillsborough counties and outlying areas.

- (5)(E). An analysis of existing local, state and federal regulations governing potable water systems.***

USF, in preparing building plans and submitting local permits, will include a water application. The City of St. Petersburg, in providing the potable water, must comply with a series of regional, state and federal regulations. However,

for permitting of a building with a water connection less than 2-inch in diameter only the City will be involved. Large than 2-inch in diameter will require a permit through the Department of Health and Rehabilitative Service (HRS). HRS is responsible for ensuring compliance with the Florida Department of Environmental Protection (DEP) Codes.

Summary of Findings

The USF St. Petersburg Campus appears to be sufficiently supplied by potable water through the City of St. Petersburg. A network of distribution mains encompass and bisect the campus. In addition, the availability of reclaimed water allows for irrigation of the landscaping and special features.

SANITARY SEWER SUB-ELEMENT

Information Sources

- George F Young Inc, research notes, June, 2002
- Interviews with USF Staff, June, 2002
- Evaluation and Appraisal Report, by Sasaki Associates, Inc, September 2000
- 1998 Master Plan revisions (part).
- 1995 Master Plan and Data and Analysis Report (part)

Purpose

The Sanitary Sewer goal for the St. Petersburg campus plan is to provide an adequate sanitary sewer collection system that accommodates the future University sanitary sewer needs while correcting any existing facility deficiencies.

6C-21.207 (7) Data Requirements

(7)(A). An inventory of the existing sanitary sewer system on Campus

The City of St. Petersburg provides sanitary sewer service to USFSP via the Albert Whitted Treatment Facility. Dames & Moore completed a Campus Sanitary Sewer Assessment Study. Based on the information addressed in this study, the sanitary sewer system is adequate to provide the required level of service for the campus over the 10-year study period.

(7)(B). For facilities shared with host community

All campus-discharged wastes are conveyed by the City's collectors and interceptors to the nearby Southeast Wastewater Treatment/Reclaimed Water facility. Those lines existing within the rights-of-way are owned and maintained by the City. Those lines remaining in abandoned rights-of-way continue to be owned and maintained by the City through easements. Those lines within the peninsula area are owned and maintained by the University.

(7)(C). Sanitary Facilities Data

Facilities located within or near the Campus are:

- gravity sewers along First Street and in alleys adjacent to Third and Fourth Streets and Seventh Avenue,
- force main along Seventh Avenue and
- various 6 to 10 inch gravity sewers serving buildings.

Summary of Inventory Findings

The condition of the City's overall collection system was the object of a comprehensive Sewer System Evaluation Study completed in March, 1998. This report does not identify any critical areas of concern in the portion of the system that serves the campus.

Existing sanitary sewer mains in the proximity of the future Science and Technology Facility, the parking facility (located on the north side of Sixth Avenue south, between Third and Fourth Streets south) and the USGS expansion will either need to be relocated or re-aligned to facilitate the future developments.

6C-21.207 (8) Analysis Requirements

(8)(A). A facility capacity analysis, by geographic service area, indicating capacity surpluses and deficiencies for: 1) existing conditions, based on the facility design capacity and the current demand on facility capacity; and 2) the end of the planning time frame, based on the projected demand at current level of service standards for the facility, projected student populations and land use distributions, and any available existing surplus facility capacity.

The Dames & Moore study found that the City's facilities are modern, well operated, and have sufficient capacity to accommodate the current quantity of raw wastes generated by the University.

(8)(B). The general performance of existing sanitary sewer facilities, evaluating the adequacy of the current level of service provided by the facility, the general condition and expected life of the facility, and the impact of the facility upon adjacent natural resources.

The City of St. Petersburg is reviewing the performance of the existing sewage treatment plant. The existing plant has a permitted capacity of 12.4 MGD and can adequately handle future developments at USFSP. The existing treatment plant is being reviewed for its performance and overall efficiency. Due to site constraints, the City of St. Petersburg cannot expand or improve the existing

facility or its efficiency. If the City of St. Petersburg decides to close the Albert Whitted Treatment Facility, the existing sewage flows will be diverted to one or several nearby treatment facilities (the Southwest Treatment Facility, Northeast Treatment Facility or Northwest Treatment Facility).

(8)(C). Analysis of problems and opportunities for sanitary sewer facility expansion or replacement to meet projected needs of the University

The University will continue to contribute a relatively small proportion of the overall capacity of the City's three principal sewers located within and near the campus. The Dames & Moore study states that all the buildings proposed to be constructed during the 1995 Master Plan's 10 Year Program can easily be connected to the City's collection system. It will not be necessary for the City to install additional sewers to serve future buildings.

(8)(D). An analysis of existing local, state and federal regulations governing sanitary sewer collection and treatment systems.

In addition to previous requirements, the University and the City have entered into a Development Agreement intended to govern future development of the campus.

The Wastewater treatment plant is regulated by the Florida Department of Environmental Protection (FDEP). Sewer main and connections will require a DEP permit. Upon applying for appropriate permits with the City, the applicant must submit anticipated wastewater requirements. There are a number of regulations that govern wastewater treatment and their facilities. In summary, the City is governed by the Federal Water Pollution Control Act, which is implemented by the US Environmental Protection Commission (EPC) at the Federal level. The FDEP is responsible at the State level.

SOLID WASTE SUB-ELEMENT

Information Sources

- George F Young Inc, research notes, June, 2002
- Interviews with USF Staff, June, 2002
- Evaluation and Appraisal Report, by Sasaki Associates, Inc, September 2000
- 1998 Master Plan revisions (part)
- 1995 Master Plan and Data and Analysis Report (part)
- <http://www.stpete.org/Planning1.htm> (City of St. Petersburg Comprehensive Plan)

Purpose

The Solid Waste goal for the St. Petersburg campus plan is to provide for future University solid waste collection and disposal requirements in a safe, cost effective, environmentally sound, and an aesthetically satisfactory manner.

6C-21.207 (10) Data Requirements

(10)(A). An inventory of the existing solid waste collection and disposal systems on the campus (map, narrative) including facilities for the storage and/or disposal of hazardous and medical wastes.

Located on the campus are five solid waste receptacles, totaling a capacity of 45 cubic yards. The Marine Science Laboratories, located on the peninsula also are generators of hazardous waste. The dumpsters, which are maintained by the City of St. Petersburg, collect the waste twice a week. In addition, USFSP, in cooperation with the City, assists in a recycling program.

(10)(B). The amount of the solid waste generated by the University

The University currently produces 5,650 cubic yards per year of solid waste plus 90 – 100 cubic yards per year of recyclable solid wastes

(10)(C). For facilities shared with the host community, a description of the proportional capacity of the facility required to meet existing University needs, including a description of any capacity that may have been previously allocated to the University by the host community.

The City, through its Comprehensive Land Use Plan, has implemented a concurrency management system. Through its permitting procedures, the City monitors the solid waste generated or anticipated on an annual basis. This monitoring is to assist in determining whether expansion of disposal facilities needs to be addressed. However, it has been indicated that there appears to be no immediate limitations regarding the disposal of solid waste in reference to the USFSP Master Plan or expansion.

(10)(D). Operation responsibility, demand, capacity and service

The City of St. Petersburg is responsible for the collection of solid waste on the USFSP campus. The solid waste which is collected twice a week is separated. The burnable waste is transported to the Pinellas County Refuse to Energy Incinerator located in Pinellas Park. The non-burnable, non-recyclable, solid waste is transported to the Pinellas County landfill. The City of St. Petersburg has mandated a 10 percent recycling of all solid waste, which the University has been able to meet or exceed.

The Marine Science Laboratory is a generator of hazardous waste which is transferred once weekly including any chemical, nuclear and other materials by Health and Safety. The disposal location information has not been provided. Any contaminated engine oil or fuel oil is transported monthly to a disposal unit in Tampa. Hazardous wastes are disposed of according to all federal, state and local regulations.

6C-21.207 (11) Analysis Requirements

(11)(A). Facility Capacity Analysis,

The solid waste which is collected twice a week is separated. The burnable type waste is transported to the Pinellas County refuse-to-energy incinerator located in Pinellas Park. The non-burnable recyclable solid waste is transported to the Pinellas County landfill. In 1989, the City of St. Petersburg adopted a level of service of 1.3 tons per person per year for solid waste disposal. In 1990, it was estimated that the LOS requirement was 1.07 tons per person per year.

The University currently produces 5,650 cubic yards per year of solid waste plus 90 – 100 cubic yards per year of recyclable solid wastes.

The City of St. Petersburg's current comprehensive plan indicates a level of service of 1.304 tons per person and an expectation that the City can accommodate expected solid waste disposal needs through 2020. The City is aiming to increase its recycling capacity to 25% of solid waste and to work with Pinellas County so that county-wide recycling is at 30%.

(11)(B). The general performance of existing collection and disposal facilities, evaluating the adequacy of the current level of service provided by the facility, the general condition and expected life of the facility, and the impact of the facility upon adjacent natural resources.

Solid waste for the campus is collected twice a week and separated. This program appears to be acceptable to the general performance of solid waste collection.

According to the City's Comprehensive Land Use Plan, it appears that the solid waste collection system and refuse-to-energy facilities have the capacity to accommodate the expansion of the University.

The Campus should establish or modify the existing solid waste collection locations for easier service and to avoid potential pedestrian conflicts. The removal of Second Street and Seventh Avenue roadways as a part of the central core project will limit accessibility for solid waste pick up. The University should establish a unified screening program for solid waste collection locations. Included will be the implementation of aesthetic coordination as well as standardized solid waste containers.

The University is satisfied with their services.

(11)(C). An analysis of the problems and opportunities for solid waste collection and disposal facility expansion or replacement to meet projected needs of the University

Utilization of the geometric block pattern of the Downtown for the master plan establishes convenient service corridors to the buildings. By utilizing existing alleys as service corridors as well as pedestrian walkways in off-peak hours, solid waste collection appears to be adequate. Opportunities to separate existing service areas from major pedestrian and access points should be considered in the development of individual architectural building programs.

Procedures to reduce University-generated solid waste and increasing recycling and reuse programs should be defined.

The University feels no need to expand or replace any facilities at this time.

(11)(D). An analysis of existing local, state and federal regulations governing solid waste collection and disposal systems

In 1976, the US Congress adopted the Resource Conservation and Recovery Act (RCRA) to address the issues associated with hazardous waste management. The RCRA requires that states develop and implement their own hazardous waste programs. As a result of this adoption, a variety of regulations have been implemented from one federal agency to another causing increasing complexity. Shipper, carriers and disposers have to comply with regulations under RCRA, the Florida Department of Transportation, the Hazardous Material Transportation Act, and the EPA Clean Water Act. In addition, there is the Toxic Substance Control Act, the Clean Air Act, Comprehensive Environmental Response Compensation and Liability Act (SUPERFUND), and the Occupational, Safety and Health Act.

In 1980, the Florida legislation adopted Hazardous Waste Guidelines in conjunction with the EPA regulations. In 1985, the Florida legislation adopted a "Right to Know Law" advising employees that employers are required to tell employees of any chemicals or hazardous waste in the work place. This law also requires companies to inform the local fire department of these hazardous materials in order for them to be located within the facility.

On October 1, 1988, Chapter 88-130 Laws of Florida, a new solid waste management law went into effect. The goal of this act is to reduce solid waste by 30 percent by 1994. It stated that each county within the state must implement a recycling program by July 1, 1989.

No regulations have changes since the 1995 Master Plan.

The University should establish a level of service of 0.015 cubic yards per square foot annually for solid waste collection, based on the 1995 Master Plan. This has not been accomplished.

(11)(E). An assessment of opportunities or available and practical technologies for reduction, recycling and re-use of solid waste generated by the University

There are three basic approaches to recycling. They are as follows:

- Removing recyclable materials before they are discarded into solid waste containers to be picked up.
- Removing recyclable materials from the mixed solid waste at a central processing facility.
- Removing recyclable materials after incineration.

Recovery of contamination recyclable materials is based upon factors such as material contamination, public participation and programs decisions. Generally public participation and recycling programs are more effective than drop-off centers.

(11)(F). An analysis of the terms of any agreements for the collection and/or disposal of University-generated solid waste, including allocated capacity and duration of service. Identify any future limitation on university development resulting from these factors.

There is no information regarding agreements that the University has with the City for the collection and disposal of solid waste. The University is required to abide by citywide recycling and hazardous waste disposal regulations. Each master plan update and any new University developments are reviewed by the City and any capacity issues would arise at that time.