



2020 - 2030

USF Master Plan Updates

Data Collection & Analysis

Element 7: General Infrastructure

UNIVERSITY OF SOUTH FLORIDA

SARASOTA - MANATEE CAMPUS

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Element 7:

Sarasota Infrastructure

Element 7 General Infrastructure

This element ensures the provision of adequate capacity for stormwater management, potable water, sanitary sewer, solid waste, chilled water, electrical power and other fuels, and communications facilities required to meet the future needs of the University. The General Infrastructure Element included in this element shall consist of Stormwater Management, Potable Water, Sanitary Sewer, Solid Waste, Chilled Water, Electrical Power and Other Fuels, and Communications.

7.1 Stormwater Management

Stormwater management plays a key role in the overall management of water resources, and negating the negative impact of development. Central Florida continues to see diminishing water quality and increasing amounts of saltwater intrusion into the surficial groundwater table. Therefore, designing and maintaining efficient stormwater systems is essential to the long-term sustainability of the University. The stormwater management system for this campus has to meet treatment requirements set forth by the Southwest Florida Water Management District (SWFWMD).

There are a number of best management practices (BMPs) to meet these stormwater standards. Traditional BMPs include wet detention and dry retention ponds. New trends for BMPs are intended to minimize impacts from development by using Low Impact Development (LID) techniques. The goal of LID is to minimize impacts of the development, mimic pre-development hydrology, and promote the infiltration of stormwater to recharge the surficial aquifer.

A. Inventory and assess all public and private facilities and natural features which provide stormwater management for the campus, including natural and man-made stormwater systems.

1. Facility Capacity Analysis by geographic service area, indicating capacity surpluses and deficiencies.

Figure 7-1 Stormwater Management Plan shows the existing campus, and the key components that comprise the stormwater system. USF Sarasota-Manatee campus' stormwater system consists of a network of yard and curb inlets, drainage pipes, and grassed swales that convey stormwater runoff from east to west. Any stormwater generated within the campus travels westward and ultimately outfalls into Sarasota Bay, due west of campus. The campus has more stringent treatment criteria than typical sites because the stormwater discharges into Sarasota Bay, which is classified by SWFWMD as an Outstanding Florida Water (OFW), and by FDEP as an Impaired Water Body.

2. Analyze the general performance of existing stormwater management facilities, evaluating current level of service, conditions, and impact of facility upon adjacent natural resources.

USF Sarasota-Manatee campus has one key component to its stormwater management system. As identified in Figure 7-1, the campus has a 1.91 acres wet detention pond at the west of the campus, adjacent to the wetlands within the eastern half of the Crosley Estate. This stormwater pond is designed to handle the campus runoff volume at full build-out of 250,000 sf, and must treat 150% of the normal treatment volume for discharge into Class 3 waters. In addition, the reduction of nutrient discharge to receiving waters needs to be addressed. Stormwater runoff is routed to this wet detention pond through underground stormwater pipes. Treatment swales along the northern property boundary also treat and convey stormwater within the campus grounds. Treated runoff is discharged into the bay through a 48" outfall pipe. This pipe is located within a 15-foot wide dedicated utility easement.

3. Proportional capacity of shared facilities between the university and local governments that are required to meet existing university needs, including capacity allocation.

There are no shared stormwater facilities between the University and the local government. Stormwater treatment systems within the campus are exclusive to the campus. Treated stormwater outfalls to Sarasota Bay. Because the University's main campus grounds are not adjacent to Sarasota Bay, an easement was granted by Manatee County, through the Crosley Property, to allow a 48-inch stormwater pipe to convey the treated stormwater to the bay.

4. General performance of natural stormwater management and hydrologic features

The most prevalent hydrologic component of the USF SARASOTA-MANATEE campus is its proximity to Sarasota Bay. It allows the University to design their stormwater system without consideration to attenuation, since the campus discharges directly into an unrestricted tidal water body, which can be seen in Figure 7-1 Stormwater Management.

The entire campus sits atop Pomello Fine Sand which has very good infiltration rates. By preserving much of the campus as open space, stormwater runoff generation rates are low. There are no wetlands on the campus.

B. Problems and opportunities for stormwater management facility expansion or replacement to meet the projected needs of the university.

The existing campus stormwater pond is designed to have adequate treatment volume for the existing campus, plus the full 250,000 sf of building. According to the Campus Master Plan, the full build-out calls for replacing approximately 150,000 sf of existing open space with building footprint to include student services space, student residential space, and an integrated science and technology complex (ISTC). Revisions to the campus layout resulting in the creation of impervious area above the current plan, will require additional stormwater treatment systems. Because the stormwater pond is so close to the property boundary, expansion to the treatment pond is limited, and the expansion would be insufficient to handle all additional building program within campus.

C. Existing regulations and programs which govern land use and development of natural drainage features, including an analysis of the strengths and deficiencies of those programs and regulations in maintaining the function of stormwater management features.

As noted in section A of this element, the campus falls under the existing rules set forth by the SWFWMD. These rules focus on standards for water quality and water quantity. In addition, the reduction of nutrient discharge to receiving waters needs to be addressed. New LID BMPs are being allowed to meet this criteria.

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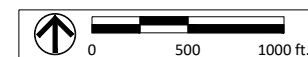
2020 - 2030
Sarasota-Manatee Campus
Master Plan Update

- Campus Limits
- Study Areas
- Floodplain
- Stormwater Pipes
- Stormwater Collection Area
- Existing USFSM Facilities

Element 7
General Infrastructure

DCA Figure 7.1
Stormwater Management

Date
ADOPTED 06/13/2023



7.2 Potable Water

As local water authorities struggle to meet the potable demand of the growing population, it becomes apparent that consumers must take steps to reduce their daily consumption of potable water. Potable water, at USF SARASOTA-MANATEE, is the source for drinking water, toilet facilities, fire protection, and water supply to the on-site mechanical chiller plant and ice storage facility. Currently, the local water authority is able to meet the campus' demand.

Minimizing potable water consumption is critical for long-term sustainable growth on campus. State and federal regulations continue to become more restrictive regarding the use of potable water, as costs for providing clean drinking water continue to rise.

A. Inventory and assess all public and private facilities (including main distribution lines) which provide potable water to the campus

1. Facility Capacity Analysis by geographic service area, indicating capacity surpluses and deficiencies.

The potable water provider to USF SARASOTA-MANATEE is Manatee County. The USF SARASOTA-MANATEE campus water demand is, according to campus records, approximately 3,100 gallons per day, or less than 0.02% of the total water plant capacity. The Manatee River, which is the source of drinking water for the County, has sufficient capacity to meet the service area demands, with no identified concern for deficiency.

2. General performance of existing potable water facilities, evaluating current level of service, conditions, and impact of facility upon adjacent natural resources.

The existing water facilities are capable of delivering potable water to the campus at a level that meets the allowed CDA level of service for potable water and fire protection as illustrated in Figure 7-2. The utility mains for the water and fire are large enough to meet current and anticipated demands. Currently, there are no known impacts upon adjacent natural resources.

The most recent Campus Development Agreement (CDA) defines the level of service (LOS) to be 0.24 Gallons per Day (GPD)/square foot (sf) of building space. Comparing the current consumption rate to the LOS in the CDA, the University's current consumption rate is .02 GPD/square foot for the existing 155,740 square feet of building. This indicates that the current building is consuming water at a lower rate than estimated.

3. Proportional capacity of shared facilities between the University and local governments that are required to meet existing university needs, including capacity allocation.

The USF Sarasota-Manatee campus water demand is, according to campus records, currently just below 6,000 gallons per day. This volume is delivered to the campus through a county-owned eight-inch water main along US 41, and enters the campus adjacent to the main access drive. The water mains beyond the meter and backflow assemblies are the property and responsibility of the University. The water treatment facility produces an estimated 28 million gallons of water per day. Campus capacity is less than 0.2% of the total for the plant.

4. Underground hydrology of the campus, including its potential as a potable water source.

Due to the proximity of the campus to the Sarasota Bay, the groundwater table and the surficial aquifer in the region are subject to saltwater intrusion. To safeguard against that occurrence, groundwater should not be extracted for such uses as potable supply.

Although there is not a cost benefit for using a "package" desalinization plant to generate a drinking water supply for a campus of this size, the Sarasota Bay could serve as a source of water for such an application.

B. Problems and opportunities for potable water facility expansion or replacement to meet the projected needs of the University.

Potable Water and Fire Protection supplies are provided for by Manatee County. Utilities fees collected by the county are used to construct and maintain adequate water delivery infrastructure throughout unincorporated Manatee County.

C. Existing regulations and programs which govern land use and development of potable water facilities, including an analysis of the strengths and deficiencies of those programs and regulations in maintaining the function of potable water delivery.

The Department of Environmental Protection has regulations in place to safeguard private drinking water supply. All water authorities are required to comply with these federal regulations. Additionally, the Cedar Hammock Fire District, in collaboration with the State Fire Marshall and USF Building Code Administrator, reviews the campus fire system to ensure there is adequate fire protection on campus.

D. Existing and future uses and opportunities for the use of reclaimed water on the campus and identify the source and entity having operational responsibility for the provision of reclaimed water on or near campus.

As part of the plan to develop a sustainable campus environment, the opportunity to use reclaimed water would be welcomed. The most practical use for reclaimed water at the University would be for irrigation. The campus currently uses a shallow groundwater well as its source for irrigation, since potable water is not allowed for irrigation. Currently, there are no reclaimed water mains within the US 41 right-of-way. As the US 41 redevelopment project advances, which would require enhanced planted medians and right-of-way, the likelihood of Manatee County extending reclaimed mains all the way to the Manatee/Sarasota County line increases. At such time, the campus could retrofit the existing irrigation system to utilize reclaimed water.



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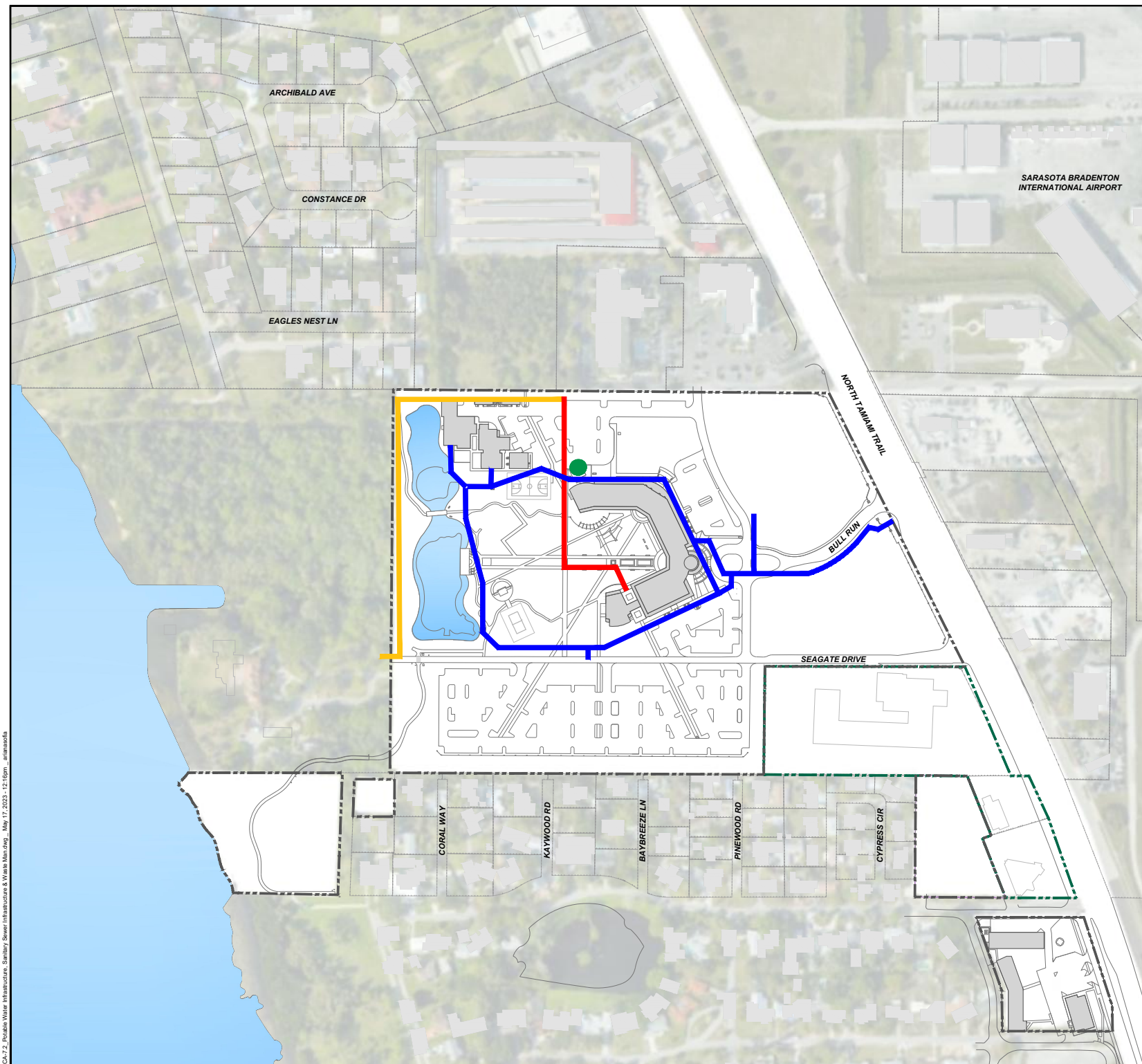
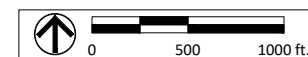
2020 - 2030
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- Campus Limits
- Study Areas
- Water Main
- Gravity Sewer
- Force Main Sewer
- Waste Management Facility
- Existing USFSM Facilities

Element 7
General Infrastructure and
Utilities

DCA Figure 7.2
Potable Water
Infrastructure, Sanitary
Sewer Infrastructure &
Waste Management

Date
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7.3 Sanitary Sewer

The wastewater collection system for the campus is operated and maintained by USF SARASOTA-MANATEE. There is a single gravity sewer main within the USF Sarasota-Manatee campus, as illustrated in Figure 7-2. This gravity main flows north, out of the campus, and further north to the Southwest Sewage Treatment Plant, located in the City of Bradenton.

Additionally, a 4-inch force main flows south to north, alongside the west property boundary. This force main originates from a privately-owned and operated lift-station within the Crosley Estate property, and ties into an existing gravity sewer manhole within the utility easement along the northern boundary of the University property.

A. Inventory and assess all public and private facilities (including main collection lines) which provide sanitary sewer services to the campus. Assessment should include:

1. Facility Capacity Analysis by geographic service area, indicating capacity surpluses and deficiencies.

The existing gravity main is designed to accept future connections for the additional 170,000 sf of campus building, as identified in the 2020-2030 USF SARASOTA-MANATEE Campus Master Plan. However, these lines are limited in their ability to service regions of the campus, due to the distance of the building to the end of the existing sewer manhole. Additional campus building program, constructed in areas other than proposed in the 2020-2030 USF SARASOTA-MANATEE Campus Master Plan cannot connect to the existing gravity sewer system. Therefore, future land use changes, that are significantly different from the 2020-2030 USF SARASOTA-MANATEE Campus Master Plan, will require a gravity main re-design.

2. General performance of existing sanitary sewer facilities, evaluating current level of service, conditions, and impact of facility upon adjacent natural resources.

The existing sanitary sewer main on campus is 8-inch diameter, with slopes ranging from 0.4% to 3%. In this existing design configuration, these gravity mains have the capacity to convey between two to 10 times the existing discharge rates. The existing gravity sewer system easily meets the required level of service specified in the Campus Development Agreement.

The gravity sewage collection system is a safe and effective way to convey sanitary sewage off-campus for treatment. Since conveyance is underground, and treatment occurs off-campus, student exposure to untreated sewage is practically eliminated.

3. Proportional capacity of shared facilities between the University and local governments that are required to meet existing university needs, including capacity allocation.

The Southwest Sewage Treatment Plant processes as much as 22 million gallon per day wastewater treatment plant, which serves almost all of unincorporated Manatee County. Per the Campus Development Agreement, USF SARASOTA-MANATEE is currently allowed to contribute (at maximum build-out of 250,000 sf), 28 gallons of sewage per minute on an average daily basis, to the sanitary collection system. Twenty eight (28) gallons per minute equates to less than one fifth of one percent of the total treatment plant capacity.

B. Problems and opportunities for sanitary sewer facility expansion or replacement to meet projected needs of the university.

Wastewater effluent drains to a sewage treatment plant in Manatee County. The Southwest Water Treatment Plant, located in Bradenton, Florida, receives and treats all the sewage generated by the USF SARASOTA-MANATEE campus. Plant expansion would not be required in order to accept additional sewage generated by campus growth. However, the extent of on-campus sewage collection (gravity sewer mains) would have to expand.

C. Existing regulations and programs which govern land use and development of sanitary sewer facilities, including an analysis of the strengths and deficiencies of those programs and regulations in maintaining the functions of sanitary sewer collection.

As a University, USF SARASOTA-MANATEE has the right to construct, operate, and maintain a privately owned wastewater collection and distribution system. The University has chosen to send its wastewater effluent to the city operated treatment facility. USF SARASOTA-MANATEE Office of Facilities Planning and Management is required to submit FDEP Form 62-604.300(8)(a) Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System, along with designs and supporting calculations to the Florida Department of Environmental Protection (FDEP). The effluent amount must be approved by the wastewater facility serving collection/transmission systems, in this case Manatee County, prior to submittal to FDEP.

7.4 Solid Waste

Solid Waste on the USF Sarasota-Manatee campus is collected and processed by Manatee County. Private collection companies are contracted for the collection and removal of solid waste and recyclable materials from campus. Currently, USF SARASOTA-MANATEE spends approximately \$9,229.19 annually in solid waste disposal, excluding costs associated with recycling. As an effort to extend the lifetime of the county landfill, USF SARASOTA-MANATEE strives to reduce construction, maintenance, and student waste through minimization and recycling. The campus' solid waste and recyclable materials collection site is on the north side of the main campus building, within a secured enclosure, as shown in Figure 7-2.

Private recycling companies are utilized for certain categories of recycled materials. Currently, USF SARASOTA-MANATEE recycles the following: cardboard, mixed paper, aluminum cans, glass and plastic, fluorescent bulbs, fixture ballasts, electronics equipment, and batteries, at an expense of approximately \$325 per month.

A. Inventory and assess all public and private facilities which provide solid waste collection, storage and disposal services to the campus. Assessment should include:

1. Facility Capacity Analysis by geographic service area, indicating capacity surpluses and deficiencies.

The Solid Waste Division of the Utilities Department operates the Manatee County Lena Road Landfill which provides for the collection, transportation, and disposition of the solid waste generated within its service area. An independent study was performed in 2002 by Finkelstein and Associates, P.A., to assess the service life of the landfill. Using a rate of 7.07 lb./capita/day, it was confirmed that the landfill had sufficient capacity to provide service through its closing year 2034.

2. General performance of existing solid waste facilities, evaluating current level of service, conditions, life-cycle, and impact of facility upon adjacent natural resources.

Through the most recent Campus Development Agreement (CDA) between USF Sarasota-Manatee campus and Manatee County, the County has agreed to maintain a level of service and ensure safe and accessible locations for recycling and solid waste receptacles.

3. Proportional capacity of shared facilities between the University and local governments that are required to meet existing university needs, including capacity allocation.

The most recent CDA states that Manatee County will be responsible for solid waste disposal at a level of service of 7.1 lbs/capita/day. With compaction rate of 940 lbs/day, and a maximum landfill disposal of 108,093 cubic yards per acre, the Manatee County Lena Road Landfill will be able to maintain their level of service through the 10-year planning period.

B. Problems and opportunities for solid waste facility expansion or replacement to meet projected needs of the University.

There are no identifiable needs for solid waste facility expansion or replacement. The most recent Campus Development Agreement between the USF Sarasota-Manatee campus and Manatee County does not define the need for additional off-campus solid waste improvements to maintain the County's adopted level of service standards for solid waste.

C. Existing regulations and programs which govern land use and development of solid waste facilities, including an analysis of the strengths and deficiencies of those programs and regulations in maintaining the functions of solid waste collection, storage, and disposal.

Florida Administrative Code, Chapter 62-701 addresses the regulations for Solid Waste Management Facilities. In February of 2015, FDEP issued revisions to the current regulations. In general, these regulations define a solid waste facility, its prohibitions, design guidelines, operational requirements, closure and long-term care procedures.

Established within the guidelines, FDEP mandates that recyclable waste be removed from waste stream prior to deposit in the landfill. Other requirements, such as prohibition to divert whole tires to landfills, are also in place and are intended to extend the landfill lifetime. Yard debris is collected using separate systems so that organic plant matter is not deposited into landfills.

D. Opportunities or available and practical technologies for the reduction, recycling and re-use of solid waste generated by the University.

Currently, USF Sarasota-Manatee does not have a waste minimization plan. Recycling efforts are implemented within the main campus, buildings to collect those materials the contracted recycling company will collect. With increasing recycling efforts from USF SARASOTA-MANATEE Student Government and waste minimization, recycling efforts continue to improve on the campus

E. Existing agreements for the collection, storage, and disposal of university-generated solid waste, including allocated capacity and duration of service. Identify any future limitations on university development resulting from these factors.

Solid Waste generated at USF Sarasota-Manatee is processed at the Manatee County Lena Road Landfill in Bradenton, Florida. Within the 10-year planning period, USF SARASOTA-MANATEE development is not limited by landfill capacity. USF SARASOTA-MANATEE and Manatee County will begin negotiations to renew the CDA following adoption of the 2020-2030 Campus Master Plan.

7.5 Hot Water

This chapter does not apply as the current campus heating source is electric resistance heat.

7.6 Chilled Water

This chapter is not a required element of the Campus Master Plan; however it has been included to facilitate utilities infrastructure planning in support of the future growth plans for the campus. Additionally, energy production and consumption are significant factors in the carbon footprint of the campus and as such provide one of the greatest opportunities for reducing the campus's greenhouse gas emissions (GHGE) in support of the College and University Presidents Climate Commitment.

A. Inventory and assessment of existing conditions

Chilled water for the campus is provided by a single chiller plant (Building SMP). The plant consists of a combination of air cooled, water cooled, and ice storage production equipment. The total capacity of the chilled water production equipment is 920 tons with a firm capacity of 500 tons and an ice storage capacity of approximately 10,200 ton-hrs. The Central Energy Plant (CEP) has been planned for an expansion up to 1,280 tons with a firm capacity of 920 tons and an ice storage capacity of approximately 20,500 ton-hrs.

Chilled water is distributed to the campus by a variable primary pumping system by four chilled water primary pumps with a capacity of 680 gpm at 70 feet of discharge head. Two of the four pumps provide redundancy to the chilled water system.

Table 7.6-1 Chillers-Central Energy Plant							
Chiller	Type	Refrigerant Type	Rated Tons	GPM	Delta T Deg. F	Age	Notes
3	York	R134A	325	933	9	15	Installed 2010
5	Trane	R134A	320	750	14	15	Installed 2010
2	York	HFC-134A	334	933	9	1	Installed 2021

Table 7.6-2 Cooling Towers-Central Energy Plant							
No.	Pump GPM	Pump TDH (ft)	Pump HP	No. of Fans	HP/Fan	Nom. Ton Cap.	Age
CT-1	800	50	15	1	15	320	Installed 2010

B. Problems and opportunities for expansion/replacement

The CEP has been designed and planned for future build out to support a campus of 250,000 square feet. The USF SARASOTA-MANATEE 2020-2030 Campus Master Plan projects a ten-year growth to approximately 335,000 square feet. Based upon these growth rates the production and distribution capacity will not be capable of supporting the campus. The CEP will need to be expanded to support the rapid growth of the campus with consideration given to establishing a north, central, and south service district.

C. Existing regulations/programs which govern sub-element and assessment

This sub-element is regulated by the Florida Building Code and local authorities having jurisdiction over enforcement of the Florida Building Code requirements.

D. Future uses/opportunities for increased efficiency

As the Campus expands there will be opportunities to evaluate and optimize the chilled water distribution system. Expansion of the CEP to serve the 10 year growth plans will require new underground distribution piping. A requirement for new underground distribution piping would be an opportune time to consider installation of a central heating plant to allow for hot water generation for distribution throughout the campus. The existing facilities utilize electric resistance heat which is among the most costly and highest carbon emitting energy sources available.



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- Campus Limits
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- Existing USFSM Facilities

Element 7
General Infrastructure and
Utilities

DCA Figure 7.3
Chilled Water Distribution

Date
ADOPTED 06/13/2023



7.7 Electrical Power and Other Fuels

This chapter is not a required element of the master plan; however, it has been included to facilitate utilities infrastructure planning in support of the future growth plans for the campus. Additionally, energy production and consumption are significant factors in the carbon footprint of the campus and, as such, provide one of the greatest opportunities for reducing the campus's greenhouse gas emissions (GHGE) in support of the College and University Presidents Climate Commitment.

A. Inventory and assessment of existing conditions

The campus is served by a 13.2 KV Florida Power and Light (FP&L) distribution feeder. The FP&L distribution feeder enters campus from overhead power lines located on US 41 (North Tamiami Trail) and is routed underground within a ten foot easement routed through the campus.

Currently, the FP&L distribution feeder feeds two pad-mounted 13.2KV primary – 480V/277V secondary transformers which provide service to the main buildings (SMC, SMA and SMB) and the Central Energy Plant. Each service is secondary level service (i.e. 480V or 208V) and is separately metered by FP&L.

The main building (SMC) service is under the FP&L General Service Large Demand (GSLD-1) rate structure. The Central Energy Plant is under the FP&L General Service Large Demand – Time of Use (GSLDT-1) rate structure. The time of use rate structure for the Central Energy Plant is specifically suited to take advantage of the off-peak production of chilled water for the ice storage system. The ice storage provides reduction in the peak demand by utilizing the ice storage system for chilled water production during on peak time of use periods.

A portion of the interior lighting in the main building (SMC) is provided with manual controls. USF SARASOTA-MANATEE has initiated a multi-phase plan to convert manual controls to automatic lighting sensors where appropriate. Continued implementation of this conversion to automatic lighting controls using occupancy sensors, time clocks or programmable lighting control systems will reduce the energy consumption of the building.

Table 7-1 shows electric energy consumption data for the Sarasota-Manatee campus.

Table 7-1 Electric Energy Consumption Data							
ELECTRIC ENERGY CONSUMPTION DATA							
Building Number	Building Name	Building SF.	Facilities Class	Peak KW	Peak WATTS/SF	Annual KWH	Electricity KWH/SF/YR
SMC	Main Campus Building	134,540					
Subtotal		134,540	TBD	432		1,409,760	10.48
SMD	Modular Lab	2,520					
	Subtotal	2,520	N/A	N/A		24,892	9.88
SMP	Central Energy Plant	10,612					
SMA	Modular Lab 1	599					
SMB	Modular Lab 2	599					
	Subtotal	11,810	N/A	N/A		1,580,880	133.86
	Viking Campus						
VKA		6,195				44,960	7.26
VKB		3,834					
VKC		4,486					
VBK	Bookstore	3,544	N/A	N/A		65,280	18.42
	Subtotal	18,059	N/A	N/A		110,240	6.10
	Total	166,929				3,125,772	18.73

Table 7-2 shows projected building electrical loads including future campus construction.

Table 7-2 Projected Building Electrical Loads

New Building Description	Projected Building Sq ft.	Estimated Peak Watts (sf)	Estimated Peak KW
Building 1 (Student Center/Housing)	100,000	10	1,000
Building 2 (Nursing/STEM)	75,000	15	1,125
Central Energy Plant (Addition)	5,000	17	85
TOTALS	180,000		

B. Problems and opportunities for expansion/replacement

The electrical service is provided by Florida Power and Light. Therefore, new services must be coordinated with FP&L during the design of each new service. FP&L is responsible to ensure capacity is available to serve existing and new buildings. New construction will be required to coordinate with the existing FP&L easement through campus.

C. Existing regulations/programs which govern sub-element and assessment

This sub-element is regulated by the Florida Building Code and local authorities having jurisdiction over enforcement of the Florida Building Code requirements.

D. Future uses/opportunities for increased efficiency

Efficiency measures under this sub-element include lighting power reduction using energy efficient LED technologies, automatic lighting control devices, high efficiency motors and transformers and designing to limit voltage drop of conductors as a minimum to comply with the Florida Building Code.

7.8 Communications

A. Inventory and assessment of existing conditions

The main communication distribution is located in the Main Distribution Frame (MDF) room within the main building (SMC). The communication service provider for the campus is Frontier Communications. Redundancy is provided via Crown Castle. Intermediate Distribution Frame (IDF) rooms are located within the building to ensure horizontal cabling does not exceed 90 meters per EIA/TIA Guidelines. Horizontal cabling within the main building (SMC) is Category 5e and Category 6a (CAT6 and CAT6a). Environmental conditioning within the MDF room is served by the building air handling system and chilled water from the central energy plant. Redundant cooling for the MDF room is provided by back-up DX equipment located on the roof.

B. Problems and opportunities for expansion/replacement

The existing MDF room can be utilized as the main network node to serve new buildings. Expansion of communication equipment can be co-located within the main building (SMC) main network node. Distribution pathways for outside plant cable will need to be positioned principally along primary circulation patterns and seams between development sites so as to minimize disruption by new construction.

C. Existing regulations/programs which govern sub-element and assessment

This sub-element is regulated by the Florida Building Code and local authorities having jurisdiction over enforcement of the Florida Building Code requirements.

D. Future uses/opportunities for increased efficiency

Co-location of communication equipment provides increased redundancy and energy efficiency by allowing communication equipment to enter into low power consumption mode during off-peak periods.

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