2020 - 2030
USF Master Plan Updates

Goals Objectives & Policies

Element 7: General Infrastructure & Utilities

UNIVERSITY OF SOUTH FLORIDA

SARASOTA - MANATEE CAMPUS

TABLE OF CONTENTS:

Goals, Objectives, and Policies (GOP)

Element 7 Infrastructure

Element 7:

Sarasota Infrastructure

Element 7 General Infrastructure and Utilities

The overarching goal of the General Infrastructure and Utilities Element is to implement systems that adequately meet the present and future needs of USF Sarasota-Manatee, without limiting long-term University growth. By increasing the efficiency of utility infrastructure and reducing the consumption and depletion of resources, the campus can better ensure these systems are adequate to support campus growth.

Proper management of campus resources yields specific benefits to the University. The University can create usable open space and protect natural areas by requiring new utilities to be placed within designated utility corridors, shown in Figure 7-1, Infrastructure and Utility Corridor. Stormwater systems can be modified to not only improve water quality, but also enhance the campus landscape. Reductions to energy consumption, wastewater, and solid waste generation directly reinforce the University's commitment to greenhouse gas reduction, support sustainability for the University and reduce costs. The sub-elements define specific goals, objectives, and policies that will be utilized by the University in developing the USFSM 2020-2030 Campus Master Plan.

7.1 Stormwater Management Sub-Element

The USFSM 2020-2030 Campus Master Plan for stormwater management focuses on maximizing pervious area throughout the campus while constructing new buildings. In addition, the 10-year plan implements stormwater management Best Management Practices (BMPs) to protect water quality on campus and in nearby Sarasota Bay.

With limited campus acreage, open space becomes too valuable to be utilized for only stormwater retention and treatment and, therefore, consideration needs to be given by USFSM to the development of subsurface stormwater collection, where runoff can be collected beneath recreational open space and surface parking lots. Additionally, a stormwater infiltration system helps to recharge and maintain the surface groundwater elevation, and aid in preventing saltwater intrusion into the groundwater table.

Goal

The Stormwater Management goal for the USF Sarasota-Manatee Campus Master Plan is to provide an adequate stormwater management system that accommodates the future University stormwater needs.

Summary of Objectives and Policies

Objective 7.1.1
Provide a sufficient stormwater management system in a design that supports and enhances the overall master plan scheme, and strives to reduce stormwater runoff volumes.

Policy 7.1.1.1: The University shall identify the stormwater detention systems, natural and environmental areas, and flood plains as a "no build" zone, except for recreation support facilities.

Policy 7.1.1.2: The University shall construct stormwater facility improvements as identified on Figure 7-2.

Policy 7.1.1.3: The University shall coordinate through its capital improvement projects and building program to ensure that stormwater storage and conveyance pipes are located and constructed to avoid conflicts with future building programs.

Policy 7.1.1.4: The University, prior to the design and construction of any stormwater collection system, shall thoroughly investigate issues including geotechnical information, regulations, and existing utilities.

Policy 7.1.1.5: The University shall maintain a capacity tracking system to ensure capacity is available for the impacts of new construction.

Objective 7.1.2
Recognizing that natural drainage on the main campus parcel flows westward toward Sarasota Bay, appropriate considerations will be given for maintaining and protecting the natural drainage patterns and hydrological conditions.

Policy 7.1.2.1: The University shall enhance the above-ground stormwater facilities and natural open space system with the following appropriate design features:

- Gradual and varied side slopes
- Natural aquatic plant material
- Walkways, boardwalks or other approved permeable materials.

Policy 7.1.2.2: Recognizing that increasing the tree canopy reduces the amount of runoff entering stormwater ponds, the University shall implement a tree planting program, making it a priority to plant areas adjacent to roadways, surface parking lots, and other paved surface areas.

Objective 7.1.3
Prevent any further degradation and improve the quality of receiving waters.

Policy 7.1.3.1: The University shall implement an ongoing, regularly scheduled stormwater facility maintenance program to ensure adequate water quality and design capacity of the facilities.

Policy 7.1.3.2: The University shall coordinate, as appropriate, with Florida Department of Environmental Protection (FDEP) and Southwest Florida Water Management District standards (SWFWMD) regarding the National Pollutant Discharge Elimination System (NPDES) program.

Policy 7.1.3.3: The University shall continue to construct on-site stormwater treatment systems (the majority of which shall be subsurface infiltration systems) that remove suspended solids and nutrients per State and Southwest Florida Water Management District standards (SWFWMD).

Policy 7.1.3.4: The University shall mitigate University-generated stormwater and minimize stormwater-borne pollutants through the implementation of a system of Best Management Practices (BMPs), which includes, but is not limited to:

- Incorporating stormwater management retention and detention features into the design of parks, trails, commons, and open spaces, where such features do not detract from the recreational or aesthetic value of a site.
- Use of slow release fertilizers and/or carefully managed fertilizer applications timed to ensure maximum root uptake and minimal surface water runoff or leaching to groundwater.
- Educating maintenance personnel about the need to maintain motor vehicles to prevent the accumulation of grease, oil and other fluids on impervious surfaces, where they might be conveyed to surface and ground waters by runoff, and the need to regularly collect and dispose of yard debris.
- Avoiding the widespread application of broad spectrum pesticides by involving only purposeful and minimal application of pesticides, aimed at identified target species.
- Coordinating pesticide application with irrigation practices to reduce runoff and leaching into groundwater.
- Use of pervious surface treatments to minimize the need for impervious surface area, thereby reducing the amount of runoff generated on-site.
- Incorporating features into the design of fertilizer and pesticide storage, mixing and loading areas that are designed to prevent or minimize spillage.
- Support licensing for ground maintenance vendors including - grounds superintendents and staff - to permit handling and administering restricted pesticides and to ensure that fertilizers will be selected and applied to minimize surface water runoff and leaching to ground water.

Policy 7.1.3.5: The University shall implement a policy that no stormwater discharges may cause or contribute to a violation of water quality standards in waters of the State. Post-development runoff shall have nutrient levels low enough to actually improve water quality upon entering Sarasota Bay.

Objective 7.1.4
Coordinate and phase the increased stormwater facility capacity to meet the future needs of the University.

Policy 7.1.4.1: The University shall ensure that the detailed Stormwater Management Sub-Element will comply with the host communities and SWFWMD level of service regulations for quantity and quality. In addition, the University shall adopt a level of service standard for stormwater

quality and quantity as established in Chapters 40D-4, 40D-40 and 40D-400 FAC.

Policy 7.1.4.2: The University shall construct permanent stormwater management facilities, that shall be in place and operational, at established levels of service, in conjunction with the construction of any new University improvements. If permanent facilities cannot be operational prior to construction, a temporary stormwater treatment system must be operational prior to site disturbance.

Policy 7.1.4.3: Subject to available funding, the University shall devise and implement ongoing monitoring and evaluation activities to survey, document and assess the existing and future system needs, as a result of proposed land redevelopment, transportation system improvements, reconfiguration of existing drainage conveyances, and improvements within the drainage basins. These engineering study efforts shall address the data and analysis requirements contained in Rules 6C-21.207(1) and (2) F.A.C., and shall also:

- Establish priorities for replacement, correcting storm water management facility deficiencies, and providing for future facility needs.
- Establish the timing and phasing requirements and identify the projected funding sources for storm water management facility improvements to meet future USF Sarasota-Manatee campus needs.
- Classify existing utility corridors as no build zones. In the event the utility cannot be avoided, the USF Sarasota-Manatee Office of Facilities
- Following the completion of the engineering study described in Policy 7.1.4.3, the University shall prioritize and correct identified storm water system deficiencies subject to available funding. The adopted campus master plan will be amended as needed to reflect the survey results and priorities assigned to them.

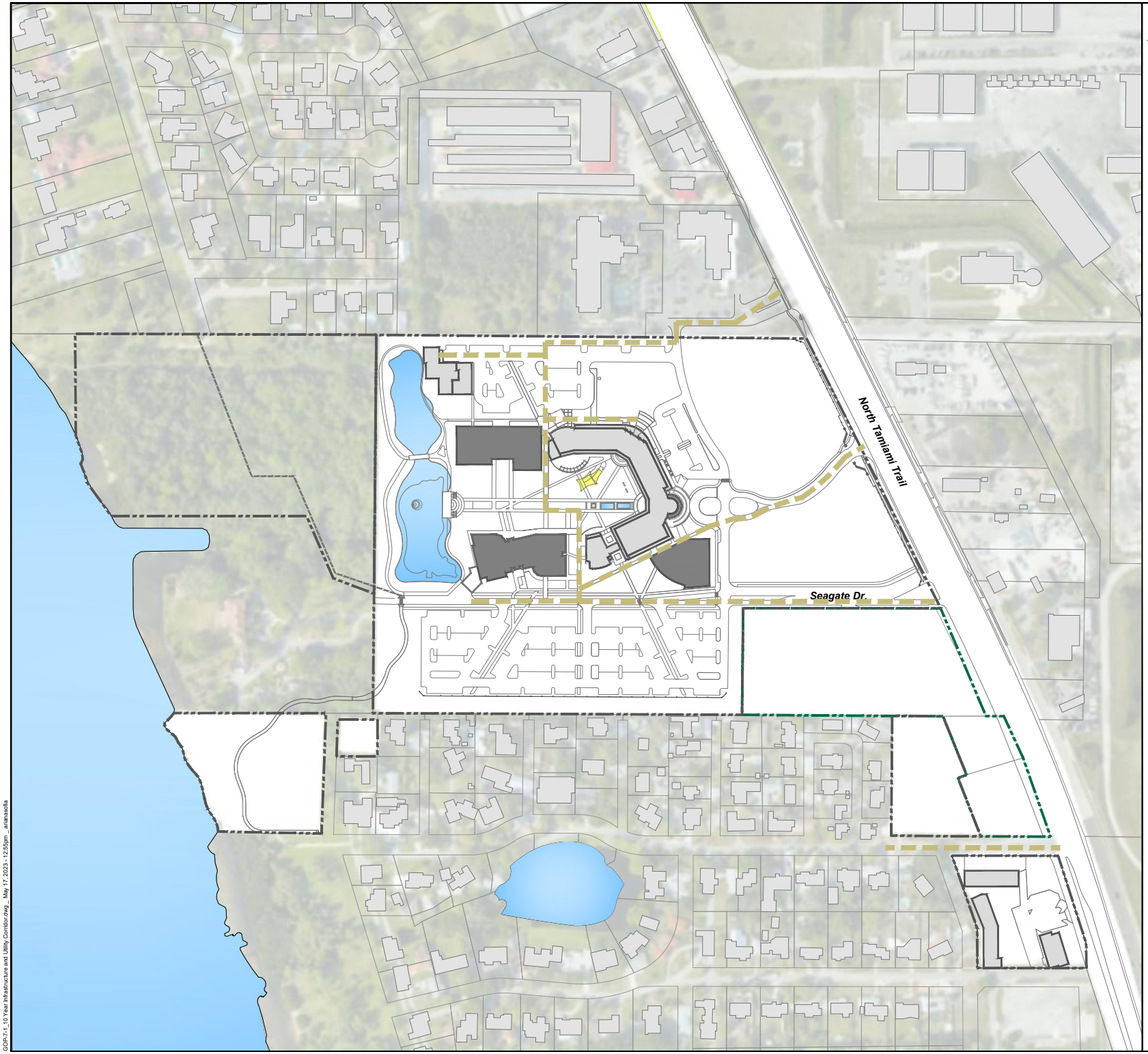
Policy 7.1.4.4: The University shall ensure proper coordination between the construction of any future retention areas and/or underground storm water system with the removal of existing parking areas and infrastructure.

Policy 7.1.4.5: The University shall coordinate planning and design efforts through its capital improvement projects and building program to ensure that existing storm water pipes that are to be relocated or replaced shall be consistent with the Storm water Management Sub-Element.

Policy 7.1.4.6: The University shall, by utilizing its capital improvement program, continue to identify appropriate phasing programs for the construction of the storm water management facilities in a logical and coordinated manner to meet the University's future needs as described in Element 11, Capital Improvements.

Policy 7.1.4.7: The University shall review all proposed construction and development on campus to ensure that any proposed increase in campus impervious surfaces shall be implemented only upon a finding that existing facility capacity is already in-place to accommodate the increased impacts, or that additional capacity will be funded and in-place at the time of planned construction.

Policy 7.1.4.8 : The University shall annually review future construction programs and priorities for deficiency remediation as part of the capital improvements requirements and procedures to ensure capacity and capital improvements required to meet future University needs are provided when required, based on needs identified in other master plan elements.



UNIVERSITY of
SOUTH FLORIDA

2020 - 2030
Sarasota-Manatee Campus
Master Plan Update

- Campus Limits
- Study Area
- Infrastructure and Utility Corridor
- Existing USFSM Facilities
- New Building

Element 7
General Infrastructure and Utilities

GOP Figure 7-1
Infrastructure and Utility Corridor

Date
ADOPTED 06/13/2023

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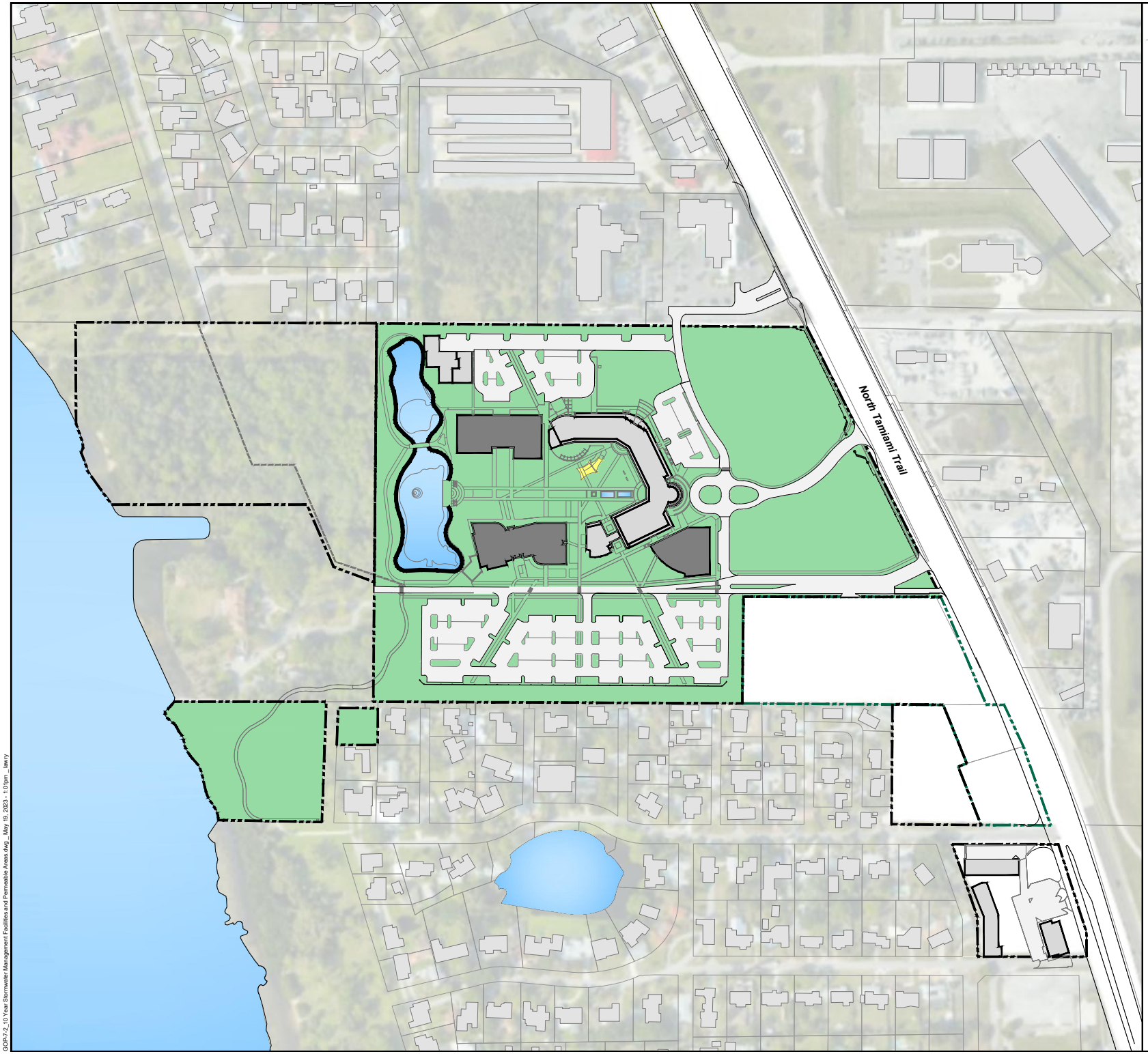
GOP-7-1_10 Year Infrastructure and Utility Corridor.dwg _ May 17, 2023 - 12:55pm _ arianaso4a



UNIVERSITY of SOUTH FLORIDA

2020 - 2030 Sarasota-Manatee Campus Master Plan Update

- Campus Limits
- Study Area
- Permeable Area
- Stormwater Collection Area
- Existing USFSM Facilities
- New Building

Element 7
General Infrastructure and Utilities

GOP Figure 7-2
10 Year Stormwater Management Facilities and Permeable Areas

Date
ADOPTED 06/13/2023

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GOP-7-2_10 Year Stormwater Management Facilities and Permeable Areas.dwg, May 19, 2023 - 1:01pm, lawry

7.2 Potable Water Sub-Element

It is recommended that the University continue to receive its potable water supply and fire protection from Manatee County.

Goal:

The Potable Water goal for the USF Sarasota-Manatee Campus Master Plan is to develop a potable water infrastructure system that accommodates the future University potable water needs. In addition, the University shall implement policies to reduce wasteful consumption of water.

Objective 7.2.1
Provide at a minimum a level of service of 0.24 gallons per day (GPD) per square foot of building area and provide distribution and building plumbing systems to maintain a building operating pressure of 40 psi minimum.

Policy 7.2.1.1: The University shall establish and adopt the following level of service standards for potable water and fire flow:

- Provide a minimum a level of service of 0.24 GPD per square foot of building area for general office / classroom space.
- Provide adequate fire protection with a goal of 3,000 GPM for four hours.
- Maintain an operating pressure of a minimum of 40 psi throughout the building systems.
- System identified in Figure 7-3 is designed to achieve and maintain these standards.

Policy 7.2.1.2: Proposed increases in consumptive uses shall be approved only upon a finding that existing potable water treatment and distribution facility capacity is already in-place to accommodate the increased need, or that additional capacity will be funded and on-line when needed.

Objective 7.2.2
Provide adequate fire protection with a goal of 3,000 GPM for four hours.

Policy 7.2.2.1: The University shall provide sufficient fire protection with strategically placed fire hydrants during the construction of new facilities.

Policy 7.2.2.2: The University, in order to provide sufficient fire protection, shall install fire hydrants only on six-inch or larger water lines.

Policy 7.2.2.3: The University shall conduct on-site fire flow tests at least annually to verify adequacy of fire protection or identify deficiencies. The tests shall be conducted in accordance with the methodology described in the American Water Works Association Manual Number 31, entitled "Distribution System Requirements for Fire Protection" and NFPA 25. The results of such tests shall be provided to the appropriate Cedar Hammock Fire Department personnel.

Objective 7.2.3
The University shall continue to implement and expand its water conservation program.

Policy 7.2.3.1: The University shall implement and promote its water conservation program as follows:

- The use of xeric landscaping materials, technology, and maintenance practices, including the maintenance or installation of selected native and environmentally fitting vegetative species, low irrigation and compact hydrazone concepts, are encouraged for all new and renovated building, ancillary, and site facility construction.
- Maintain existing well for landscape irrigation purposes.
- Maintain and install sub-metering on existing and new facilities to be able to monitor accurately the amount of water being utilized in the various irrigation and building facilities.
- The University shall create an awareness program of water usage utilizing the information above.
- Shall establish computerized, rain-sensitive system controls for all irrigation systems.

- Explore opportunities to coordinate with the host communities in providing a reclaimed water irrigation system, if system is extended to the University area.
- Continue to explore use of collected storm water or other gray water sources for landscape irrigation purposes.
- Consider the use of air conditioning condensate collection for all new buildings. Prioritization shall be established for retrofitting existing facilities to collect condensate on the basis of availability and proximity to a source requiring reuse water.
- Require use of efficient low water volume plumbing fixtures in new and renovated University buildings. Ultra-low-flow fixtures will be required to support LEED certification for University buildings, for new construction as well as renovated buildings.
- Conduct annual water audits in addition to other leak detection programs such as metering.

Objective 7.2.4
Cooperate with Manatee County Public Works Department and other appropriate State and Federal agencies to ensure safe and sufficient water supply at a cost effective rate.

Policy 7.2.4.1: The University shall, through its capital improvements program, ensure that potable water service capacity is available to meet future potable water facility service needs as prescribed in Element 11, Capital Improvements.

Policy 7.2.4.2: The University shall maintain, as appropriate, a “technical design standards” manual to ensure the compatibility of future potable lines for ease of on-going maintenance.

Policy 7.2.4.3: The University shall coordinate the provisions of off-campus potable water facilities required to meet future University needs with the host community or appropriate service provider as described in Element 10, Intergovernmental Coordination. The University shall follow established procedures for coordinating with appropriate Sarasota and Manatee County Public Works officials relative to University’s water needs. The USF Sarasota-Manatee campus shall pursue any inter-local agreements or memoranda of understanding necessary to ensure that potable water will be supplied to meet the future needs of the University.

Objective 7.2.5
Correct any existing potable water facility deficiencies and maximize its level of service where feasible.

Policy 7.2.5.1: The University shall maintain "loops" within the water system and avoid dead-end distribution lines. New water mains shall be designed to be in close proximity to existing utilities, following established utility corridors where possible, thereby minimizing impact to areas of open space.

Policy 7.2.5.2: The University shall establish an on-going maintenance program to replace deteriorated or undersized pipes, to the extent that available funding allows. Existing utility corridors shall be classified as no build zones.

Policy 7.2.5.3: The University shall, through its capital improvements program, ensure that when a project requires the relocation of potable water utilities, that those utilities be appropriately upgraded and replaced as necessary to provide service to the capital improvements programmed in Element 11, Capital Improvements.

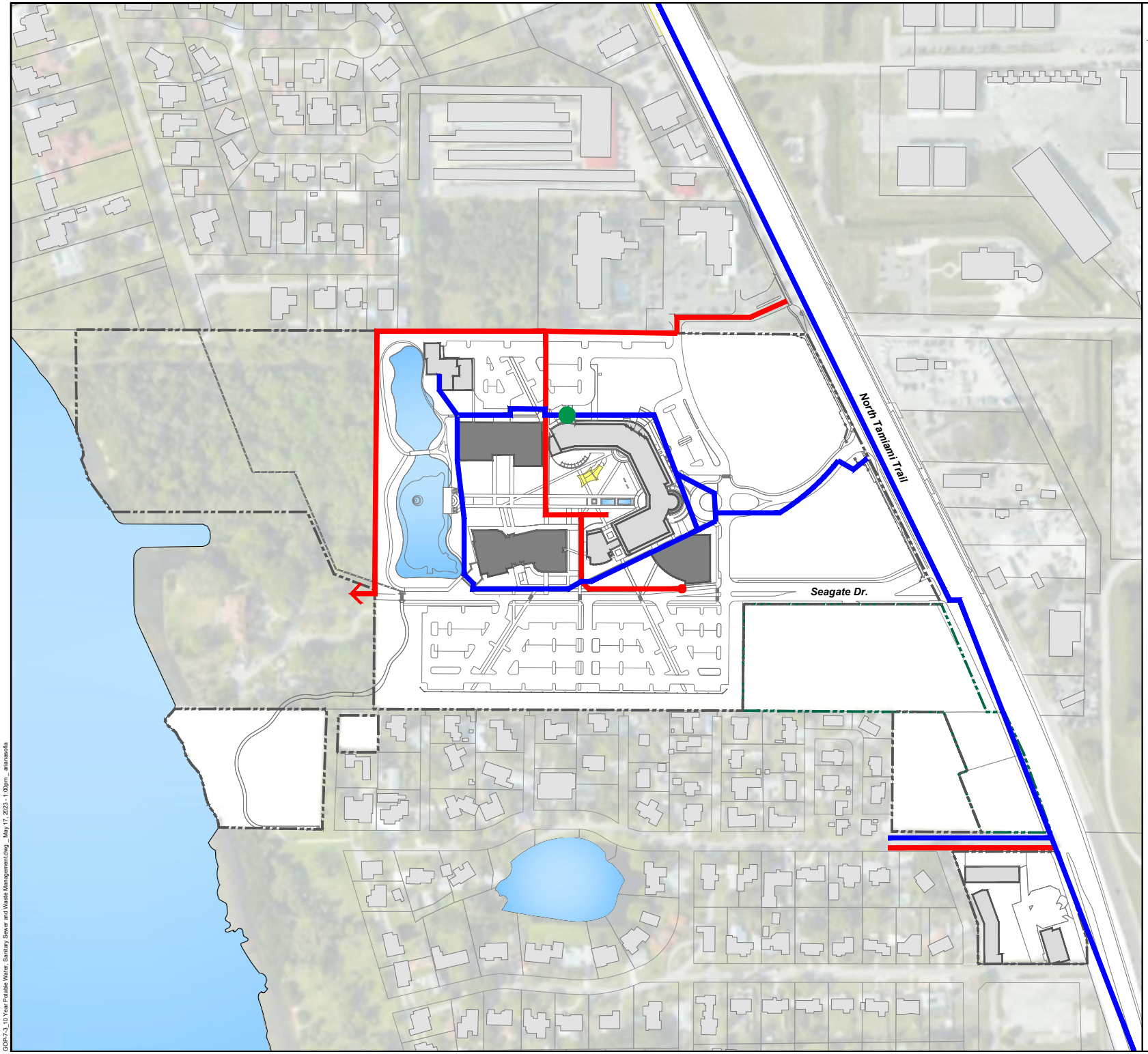
Policy 7.2.5.4: The University shall investigate and ascertain presence of hazardous material when any existing lines (installed prior to 1980) are to be relocated, replaced or removed. Older mains have the potential to contain asbestos, also known as "transit."

Policy 7.2.5.5: The University shall annually review future construction programs and priorities for deficiency remediation as part of the capital improvements requirements and procedures to ensure that potable water facility improvements required to meet future University needs are in place and operational, at the adopted levels of service, prior to occupancy of any new University building.

Policy 7.2.5.6: The University shall implement and maintain a hydraulic model of the potable water system on campus. The model should identify areas of low pressure. Alternatives should be developed to increase pressure to the affected areas. Areas for potential water service expansion should also be considered.

Objective 7.2.6
Protect and conserve potable water sources and facilities.

Policy 7.2.6.1: The University shall identify the new potable water corridors as "no build" zones.



UNIVERSITY of
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2020 - 2030
Sarasota-Manatee Campus
Master Plan Update

- Campus Limits
- Study Areas
- Water Main
- Sewer Main
- Waste Management Facility
- Existing USFSM Facilities
- New Building

Element 7
General Infrastructure and Utilities

GOP Figure 7-3
10 Year Potable Water, Sanitary Sewer and Waste Management

Date
ADOPTED 06/13/2023

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GOP-7-3_10 Year Potable Water, Sanitary Sewer and Waste Management.dwg, May 17, 2023 - 1:00pm, arianaofa

7.3 Sanitary Sewer Sub-Element

It is recommended that the University continue to maintain its current connection to the Manatee County Southwest Sewage Treatment Plant, via a system of gravity sanitary sewer mains. The University shall work with the maintenance staff of the Crosley Estate to also ensure the estate's force main remains active during periods of future campus construction.

Goal

The Sanitary Sewer goal for the USF Sarasota-Manatee Campus Master Plan is to provide an adequate sanitary sewer system that accommodates the future University sanitary sewer needs.

Objective 7.3.1
Provide for reliable and efficient collection and transmission of all wastewater generated by the University in an environmentally safe manner.

Policy 7.3.1.1: The University shall continue a preventative maintenance program for existing lines as established in this Sanitary Sewer Sub-Element.

Policy 7.3.1.2: The University shall coordinate with the host communities to ensure that off-campus sanitary sewer facilities that may be affected by additional demands are improved as appropriate in accordance with procedures identified in Element 10, Intergovernmental Coordination. The University shall continue to follow established procedures to coordinate with appropriate City and County officials relative to University sewage requirements. USF Sarasota-Manatee campus shall pursue any inter-local agreements or memoranda of understanding necessary to ensure that sanitary sewer will be supplied to the campus to meet the future needs of the University.

Policy 7.3.1.3: The University shall recognize that future adjustment may be required in the sanitary sewer improvement program in response to changes in building programs and funding.

Policy 7.3.1.4: The University shall ensure that proposed increases in consumptive uses, whether residential or non-residential, shall be approved only upon a finding that existing sanitary sewer treatment and collection system capacity is already in-place to accommodate the increased load, or that additional capacity will be funded and in-place when needed.

Objective 7.3.2
Maintain at a minimum the wastewater collection service at its present level of service with the implementation of the 10-year master plan.

Policy 7.3.2.1: The University shall ensure that the detailed sanitary sewer master plan provides adequate capacity within the sanitary sewer system design to handle the wastewater generation rates estimated for the 10-year plan.

Objective 7.3.3
Coordinate any required sanitary sewer relocation and improvement program with the implementation of the capital improvement program and master plan.

Policy 7.3.3.1: The University shall identify the main sanitary sewer trunk lines as "no build" zones. In the event the utility cannot be avoided, the USF Sarasota-Manatee Office of Facilities Management should be contacted.

Policy 7.3.3.2: The University shall, through its capital improvements program, ensure that the sanitary sewer system will be appropriately upgraded and expanded on-campus as necessary to meet the future University needs described in Element 11, Capital Improvements.

Policy 7.3.3.3: The University shall annually review future construction programs and priorities for deficiency remediation as part of the capital improvements requirements and procedures to ensure capacity and capital improvements required to meet future University needs are provided when required, based on needs identified in other master plan elements.

Objective 7.3.4
Correct any existing and future sanitary sewer deficiencies needed to maintain a reliable level of service.

Policy 7.3.4.1: The University shall investigate and ascertain presence of hazardous materials when any of the existing lines are to be upgraded, removed or relocated. Appropriate action will be taken by the University to have these lines removed, remediated, or replaced by a certified contractor or be allowed to remain if associated risks are minimized.

Policy 7.3.4.2: The University, through the Office of Facilities Management, shall annually review future construction programs and priorities for deficiency remediation as part of the capital improvements requirements and procedures to ensure that sanitary sewer facility improvements required to meet future University needs are in place and operational, at the adopted levels of service, prior to occupancy of any new University building.

Policy 7.3.4.3: The University shall devise and implement ongoing monitoring and evaluation activities to survey, document and assess the existing and future sanitary sewer system needs. This study shall address the data and analysis requirements contained in Rules 6C-21.207(7) and (8), F.A.C., and shall also:

- Establish priorities for replacement, correcting sanitary sewer facility deficiencies found, providing for future facility needs.
- Establish the timing and phasing requirements and identify the projected funding sources for sanitary sewer facility improvements determined to be needed to meet future USF Sarasota-Manatee campus needs.

Objective 7.3.5
Reduce the impacts of sewage generation.

Policy 7.3.5.1: The University shall implement, where practical, the following techniques for reducing the impacts of sewage generated on the campus:

- Utilizing low volume plumbing fixtures.
- Implementing a leak detection and repair program.
- Re-routing air-conditioning condensate drain lines from the sewer system to alternate locations (such as rain barrels, cisterns, infiltration areas).

7.4 Solid Waste Sub-Element

Goal

The Solid Waste goal for the USF Sarasota-Manatee Campus Master 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.

Objective 7.4.1
Coordinate with Manatee County in establishing an appropriate level of service for solid waste collection.

Policy 7.4.1.1: The University shall continue to assist in providing solid waste collection services for the campus.

Policy 7.4.1.2: The University shall establish a level of service standard for solid waste collection consistent with Manatee County Solid Waste Division.

Policy 7.4.1.3: The University shall coordinate the provision of on and off-campus solid waste collection and disposal facilities required to meet future University needs with the host community or appropriate service provider as outlined in Element 10, Intergovernmental Coordination. USF Sarasota-Manatee shall pursue any inter-local agreements or memoranda of understanding necessary to ensure that solid waste collection and disposal services will be supplied to the campus to meet the future needs of the University.

Policy 7.4.1.4: The University shall develop and administer specific training to all employees who handle solid waste.

Objective 7.4.2
Define procedures to reduce University-generated solid waste and increase scope of recycling and reuse programs.

Policy 7.4.2.1: The University shall continue to take steps to reduce the quantity of solid waste generated by expanding its recycling program to include additional interior and exterior, easily accessible drop-off locations. These drop-off facilities shall be installed in the individual buildings, residential areas or in other convenient locations. The University will strive to provide, at a minimum, for the recycling of paper, corrugated cardboard, glass, plastics, and metals. Awareness programs directed toward students, faculty and staff shall be included in this recycling program.

Policy 7.4.2.2: The University shall recycle and/or salvage construction, demolition and land clearing waste as practical and possible.

Objective 7.4.3
Establish a program to modify existing solid waste collection locations for convenient service while avoiding potential pedestrian conflicts and visual impacts.

Policy 7.4.3.1: The University shall 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.

Policy 7.4.3.2: The University shall, during the design of specific building programs, evaluate the relationship of the proposed buildings with the existing buildings, and identify opportunities to reconfigure, enhance or screen solid waste collection facilities from pedestrian corridors.

Objective 7.4.4
Encourage and support proper management in the disposal of hazardous and other special wastes.

Policy 7.4.4.1: The University shall meet all State and Federal regulations in the collection and transportation of its hazardous wastes and materials.

Policy 7.4.4.2: The University shall coordinate the collection and disposal of hazardous waste and materials with the USF Office of Environmental Health and Safety.

Policy 7.4.4.3: The University shall monitor the volume and type of hazardous waste collection and temporary storage on-site to determine feasibility of constructing and operating the next higher level of storage facility on campus. If such a determination is made to proceed, the University shall amend the adopted campus master plan to reflect the timing, location, and scope of such a facility.

Objective 7.4.5
Establish procedures to correct any existing solid waste facility deficiencies.

Policy 7.4.5.1: The University shall ensure that solid waste collection and disposal facilities are appropriately provided and phased accordingly to meet the future University needs while correcting any disposal facility deficiencies. USF Sarasota-Manatee does not anticipate the need for any solid waste facility improvements at this time. If this condition changes, the University shall amend the adopted campus master plan to identify said improvements, and to establish the timing and phasing requirements and priorities for the improvements.

Policy 7.4.5.2: The University shall establish that the timing and phasing of disposal facility improvements shall be coordinated with Element 11, Capital Improvements.

Policy 7.4.5.3: The University shall annually review future construction programs and priorities for deficiency remediation as part of the capital improvements requirements and procedures of the Florida Board of Trustees to ensure capacity and capital improvements required to meet future University needs are provided when required, based on needs identified in other master plan elements.

Sub Element 7.5 Hot Water Sub-Element

The existing campus does not utilize centralized steam or hot water heat.

Goal:

The Hot Water Sub-Element goal for the USF Sarasota-Manatee Campus Master Plan is to explore the feasibility of alternative heating sources as it relates to utilizing natural gas hot water boilers.

Objective 7.5.1
Study the feasibility of alternative heating sources.

Policy 7.5.1.1: The University shall investigate the feasibility of utilizing natural gas hot water boilers at either a campus level or at the building level.

Policy 7.5.1.2: The University shall continue to evaluate the feasibility of utilizing solar collectors to provide primary hot water heating at either a campus level or at the building level.

7.6 Chilled Water Sub Element

Additional chilled water plant capacity will be required to serve the program growth projected in the USFSM 2020-2030 Campus Master Plan. Additionally, procedures for metering chilled water loads in order to facilitate load management and conservation measures will be incorporated into new construction as applicable. The next phasing of chiller, thermal storage and cooling tower additions to the Central Energy Plant (CEP) has been implemented since much of the planned growth will occur in the central section of campus.

The growth will result in greater energy and water consumption and impact on the environment. These factors can be mitigated through selection, installation, and thoughtful operation of the systems.

As signatory of the American College and University Presidents' Climate Commitment, the University has established goals for becoming carbon neutral by 2070. Improvements in the efficiency of the chilled water systems will have direct impact on the greenhouse gas emissions performance of the campus.

(See Figure 7-4, Chilled Water.)

Goal:

The Chilled Water Sub-Element goal of the USF Sarasota-Manatee Campus Master Plan is to provide an adequate chilled water service to the campus facilities in the most cost efficient manner that will support future expansion while limiting the generation of greenhouse gas emissions (GHG).

Objective 7.6.1
Expand the Central Energy Plant (CEP).

Policy 7.6.1.1: The University shall require that a computerized life cycle cost analysis of the HVAC system be submitted for all new and renovated facilities to determine the amount of chilled water which will be required from the central chilled water system.

Policy 7.6.1.2: The University shall implement chilled water facility improvements based on the following priorities:

- Expand the system to accommodate new chilled water needs.
- Consideration given to heat pump chiller technology for simultaneous chilled and hot water generation.

Objective 7.6.2
Extend the existing chilled water distribution system to accommodate future renovated facilities.

Policy 7.6.2.1: The University shall require that the current Chilled Water Utility Plan be modified based upon the amount of chilled water required for each new and/or renovated facility.

Policy 7.6.2.2: No outside sources from either private or public facilities will be required for chilled water production because all chilled water originates from within the campus.

Policy 7.6.2.3: The University shall establish and adopt a level of service standard per Design and Construction Guidelines. (https://www.usf.edu/administrative-services/facilities/design-construction/guidelines-standards.aspx)

Policy 7.6.2.4: The Office of Facilities Management will be responsible for reviewing all proposed development projects to ensure that adequate chilled water capacity exists.

Policy 7.6.2.5: Proposed increases in chilled water use, whether residential or non-residential, shall be approved only after finding that existing chilled water distribution capacity is already on-line to accommodate the increased need, or that additional capacity will be funded and on-line at the forecasted time of need. The University shall pursue policy 6-039 for impact fees for modifications to distribution system required by new facilities.

Policy 7.6.2.6: The University shall continue to adhere to its policy for replacing ozone-depleting refrigerants with environmentally safe refrigerants.

Policy 7.6.2.7: The University shall develop and implement a campus utility load profile for chilled water peak demand to determine the campus diversified peak load factor and establish firm capacity of the existing chiller plants that will be essential in accommodating future campus growth.

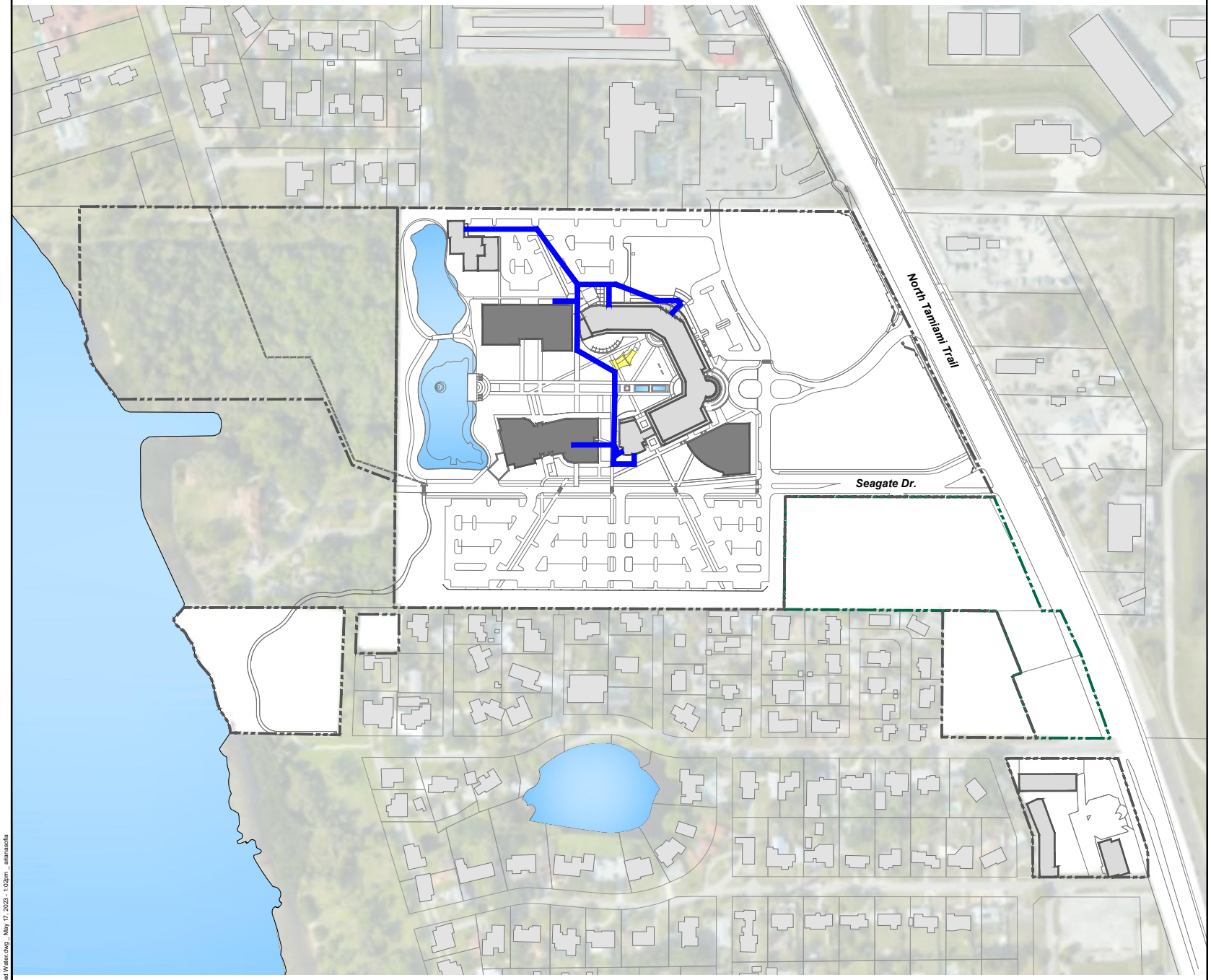
Policy 7.6.2.8: The University shall set and implement a 100% firm capacity criterion to optimize the central energy plant capacity redundancy to an acceptable level commonly used in educational institutions and still provide satisfactory cooling load demand when chilled water equipment failures occur.

Policy 7.6.2.9: The University shall evaluate possible ways to preserve the life service of existing chilled water piping by providing corrosion protection to the underground chilled water distribution system.

Policy 7.6.2.10: The University, through the Office of Facilities Management, shall maintain complete verified hydraulic models for the modification and expansion of the piping system throughout the campus.

Policy 7.6.2.11: The University shall develop and implement non-destructive testing procedures and practices to evaluate the status of existing underground piping systems.

Policy 7.6.2.12: The University, through the Office of Facilities Management, shall meter chilled water loads to implement load management and load history for planning and conservation measures.



UNIVERSITY of
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2020 - 2030
Sarasota-Manatee Campus
Master Plan Update

- Campus Limits
- Study Areas
- Chilled Water
- Existing USFSM Facilities
- New Building

Element 7
General Infrastructure and Utilities

GOP Figure 7-4
10 Year Chilled Water

Date
ADOPTED 06/13/2023

0 500 1000 ft.

GOP-7-4_10 Year Chilled Water.dwg, May 17, 2023 - 1:02pm, arianasofia

7.7 Electrical Power and Other Fuels Sub-Element

The campus is served by Florida Power and Light (FPL) from 13.2 KV distribution feeders located on US 41 (North Tamiami Trail). All new electrical services to future buildings will be required to be coordinated with FPL.

Given the goal to become carbon neutral by 2070 under the American College and University Presidents' Climate Commitment, the University should seek to significantly reduce the amount of purchased electricity required to operate the campus. Energy conservation measures should be addressed first, however, opportunities to diversify the fuel mix for electricity production using renewable energy should continue to be investigated. Switching to other means of electricity production, such as solar or co-generation, offers significant reductions in greenhouse gas emissions.

Goal

The Electrical Power and Other Fuels Sub-Element goal for the USF Sarasota-Manatee Campus Master Plan is to provide adequate, reliable, and cost effective electrical service to support campus operations and expansions through the 10-year planning period.

Objective 7.7.1
Update and implement design and construction standards to establish the levels of service and installation required to ensure that adequate, reliable, and cost effective electrical service is provided to future and rehabilitated facilities.

Policy 7.7.1.1: The University shall implement electrical energy system improvements as described in this sub-element. The timing and phasing requirements for these improvements are established in Element 11, Capital Improvements.

Policy 7.7.1.2: The University shall develop a phasing schedule coordinated with FPL to meet Future University needs when required. The adopted campus master plan shall be amended as needed to reflect any changes to the timing and phasing requirements.

Policy 7.7.1.3: The University shall hold regularly scheduled meetings with FPL to negotiate the terms and conditions under which FPL would continue to provide primary service to future University facilities.

Policy 7.7.1.4: The University shall include FPL participation in all modifications to the master plan and in planned expansion programs to ensure adequate electrical service will be available when needed.

Policy 7.7.1.5: The University shall require that a computerized life cycle cost analysis be submitted for all new and renovated facilities to determine whether natural gas and/or electricity will be the source of fuel.

Objective 7.7.2
Continue to reduce energy losses in the USF Sarasota-Manatee Campus owned distribution system and in USF Sarasota-Manatee owned and operated facilities.

Policy 7.7.2.1: The University shall continue to study the use of alternative energy sources (e.g., solar power, co-generation, on-site generation for peak demand shaving, etc.).

Policy 7.7.2.2: The University shall continue the use of energy efficient lighting fixtures, electronic ballasts, LED fixtures, and high lumen efficiency lamps in all new and renovated buildings and shall continue to implement upgrades as technology evolves and funding is available.

Policy 7.7.2.3: The University shall consider the use of infrared survey equipment to determine the status of the primary electrical distribution for energy reliability.

Policy 7.7.2.4: The University shall require that the electrical design of all future building construction be designed to achieve a minimum LEED Silver certification.

Policy 7.7.2.5: The University shall continue to identify energy conservation opportunities to reduce greenhouse gas emissions and reduce the electrical demand.

Policy 7.7.2.6: The University shall coordinate with FPL easements within the campus interior.

Objective 7.7.3
Continue to update a computerized data based load tabulation of electric power requirements, for existing facilities and for new buildings proposed in the master plan, which can be upgraded for changes on as needed or programmed basis.

Policy 7.7.3.1: The University shall continue to require that a report be submitted for each new and/or renovated facility indicating the amount of electricity which will be required for each renovated and/or new facility.

Policy 7.7.3.2: The University shall continue to require that the campus electrical power distribution system be modified to meet the electricity demands created by the renovated and/or new facilities.

Policy 7.7.3.3: The University, through the Office of Facilities Management, shall continue to be responsible for reviewing all proposed development projects to ensure that adequate electrical energy capacity exists.

Policy 7.7.3.4: The University shall approve proposed increases in electrical energy use only after finding that existing electrical energy distribution capacity is already in-place to accommodate the increased need, or that additional capacity will be funded and in-place at the forecasted future time of need. New loads shall be evaluated and selectively added to the existing campus electrical distribution.

Objective 7.7.4
Deleted

Policy 7.7.4.1: Deleted

Objective 7.7.5
Identify, inventory, and study any emergency generators on the campus.

Policy 7.7.5.1: The University shall keep an updated inventory of emergency generators on campus.

Objective 7.7.6: Develop a means or standard for the assessment and mitigation for disaster preparedness in existing and future buildings.

Policy 7.7.6.1: The University shall determine the potential risk, liability and economic impact of long term power outages for existing and new buildings.

Policy 7.7.6.2: The University shall assess the environmental exposure of electrical service equipment for worst case weather scenarios.

7.8 Telecommunications Sub-Element

The extent of the USFSM telecommunications infrastructure currently is primarily limited to the existing main building (SMC). As new buildings are added to the campus, consideration should be given to co-locating communication equipment within the main building (SMC) to serve the planned campus expansion. New major telecommunications corridors should be positioned principally along primary circulation patterns and seams between development sites so as to minimize disruption by new construction.

In general, the University shall continue on a path of identifying opportunities to manage growth with sustainability. Principles shall be incorporated that follow the path of Florida's Energy Plan adopted by the Florida Department of Environmental Protection and recommended policies of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Standards.

Goal

The Telecommunications Sub-Element goal for the USF Sarasota-Manatee Campus Master Plan is to provide each existing building and planned new buildings on the USF Sarasota-Manatee campus with communications connectivity for telephone, data, and video/media networks.

Objective 7.8.1: To plan, design and implement communications infrastructure at the USF Sarasota-Manatee campus in order to correct existing deficiencies and meet the voice, data and video communications needs of the 10-year planning period.

Policy 7.8.1.1: The University shall endeavor to identify funding for design and construction to extend the communications infrastructure to encompass campus facilities.

Policy 7.8.1.2 The University shall endeavor to identify funding for design and construction to extend fiber optic cable to campus facilities and provide connectivity for faculty, staff, and students.

Policy 7.8.1.3: The University shall actively participate with local exchange carriers (LEC) and the local CATV companies and other service companies in all modifications to the master plan and in planned expansion programs to ensure adequate telecommunications will be available when needed.

Policy 7.8.1.4: The University shall endeavor to identify funding for design and construction to upgrade and create additional licensed and unlicensed wireless systems to meet the needs of the University's educational mission.

Policy 7.8.1.5: The University shall implement telecommunications system improvements. The timing and phasing requirements for these improvements are established in Element 11, Capital Improvements.

Policy 7.8.1.6: The University shall implement telecommunications system improvements based on the following priorities:

- Elimination of existing system deficiencies
- Maintaining the existing system
- Expanding the system to accommodate new telecommunications system needs.

Policy 7.8.1.7: The University, through Technology Services, shall be responsible for reviewing all proposed development projects to ensure that adequate telecommunications system capacity exists.

Policy 7.8.1.8: The University shall approve proposed increases in telecommunications system use only after a finding that existing telecommunications system capacity is already in-place to accommodate the increased need, or that additional capacity will be funded and on-line at the forecasted future time of need.

Objective 7.8.2
Standardize on a data local wide area network, for campus-wide use, that will serve USF Sarasota-Manatee's network needs through the 10 year planning period and beyond.

Policy 7.8.2.1: The University shall endeavor to identify funding for design and construction to provide adequate copper connectivity for voice, multi-mode fiber for data, and single mode fiber for video/data to all buildings at the USF Sarasota-Manatee campus.

Policy 7.8.2.2: The University shall identify, inventory, and study any electromagnetic field generators on the campus.

Policy 7.8.2.3: The University shall endeavor to identify funding to perform an inventory and study of electromagnetic fields on campus.

Objective 7.8.3
Identify, inventory, and assess any media or high bandwidth application on the campus.

Policy 7.8.3.1: The University shall endeavor to identify funding to perform an inventory and study of video systems on campus.

Objective 7.8.4
Maintain a periodically revised USF Sarasota-Manatee voice/data/video Construction Standard for use in all new construction and renovation projects requiring these services.

Policy 7.8.4.1: The University, through Technology Services, shall produce, distribute, and update as necessary a set of construction standards for campus-wide voice/data/video systems, based on technology to support the University through the 10 year planning period.

Policy 7.8.4.2: The University, through Technology Services, and the Office of Facilities Management, shall provide oversight and coordinate with other responsible departments to coordinate the joint use of underground infrastructure trenches to minimize redundant construction costs.