

GENERAL INFRASTRUCTURE ELEMENT

NOTE: Unless otherwise noted, the goals, objectives, and policies herein apply to both the area leased from Broward Community College, BCC, herein referred to as the East Campus, and the proposed expansion onto the UF site, herein referred to as the West Campus.

STORMWATER MANAGEMENT SUB-ELEMENT

Goal 1

To provide adequate stormwater management facilities and services to meet the present and future needs of the University, while preventing negative impacts to the public and surrounding properties.

Objective 1A

Initiate and maintain adequate, accurate records of the stormwater facilities.

Policy 1A-1

Engineering surveys shall be provided to show detailed as-built conditions for recordation, and to identify conditions of the existing facilities.

Policy 1A-2

Maintain, update and keep current accurate, detailed maps and records of existing and newly constructed stormwater management facilities.

Objective 1B

Comply with regulatory agencies.

Policy 1B-1

Obtain a conceptual surface water permit from the South Florida Water Management District (SFWMD) and the Central Broward Water Control District (CBWCD) for the development of the West Campus.

Policy 1B-2

For improvements on the Lease Area, modify the SFWMD conceptual permit (06-02135-S) for the 151 Acre BCC campus which includes the East Campus.

Note: Depending on the scope and phasing proposed it may be in FAU's best interest to revise the conceptual permit for the East campus.

Policy 1B-3

Determine and comply with restrictions for development in flood areas as determined by FEMA, 100 year Broward County Flood map, CBWCD, and SFWMD.

Policy 1B-4

Obtain drainage permits through Central Broward Water Control District (CBWCD) and the Town of Davie.

Policy 1B-5

Comply with elevation requirements for development in flood areas as designated by FEMA and/or SFWMD.

Policy 1B-6

Comply with National Pollutant Discharge Elimination System, NPDES, requirements for development as designated by the Florida Department of Environmental Protection.

Policy 1B-7

Coordinate and obtain approval from the appropriate BCC personnel for any changes to the East campus drainage system.

Objective 1C

Identify and correct deficiencies in the existing facilities, where funding allows. (See Figure 9.1.1-9.1.3)

Policy 1C-1

Inspect existing drainage facilities and repair and clean existing drainage facilities slated to remain to restore them to their original design capacity.

Policy 1C-2

Where funding allows, any undersized pipes or basins shall be upgraded. Existing swales and retention basins shall be cleaned.

Policy 1C-3

Create and implement an inspection and maintenance plan to keep the drainage system operating at its design capacity.

Objective 1D

Expand, revise, and supplement the existing stormwater management system to support expansion and new facilities.

Policy 1D-1

The University shall adopt a stormwater management master plan. This master plan will ideally be compliant with the existing SFWMD conceptual permit on the East campus, and the West campus shall comply with design criteria as established by the SFWMD, CBWCD, and the Town of Davie.

Policy 1D-2

Coordinate with the CBWCD to ensure the receiving waters will remain available to receive campus stormwater discharge.

Policy 1D-3

Use dry detention areas to provide water quality. Exfiltration trench is to be used only if sufficient area is not available for the sole use of dry detention areas.

Policy 1D-4

Plans for future construction shall be reviewed for conformance to the Master Plan in order to confirm the stormwater system is capable of supporting the proposed expansion.

Policy 1D-5

The timing and phasing of the expansions shall be determined to ensure stormwater management facilities can be implemented when needed.

Objective 1E

When planning improvements, protect all receiving waters and natural preserve or hydrologically sensitive areas that may be affected by the proposed improvements.

Policy 1E-1

Use environmentally-friendly designs, such as dry detention areas, exfiltration trench, and providing the maximum feasible amount of pervious areas, etc., where appropriate and as allowed by agency design guidelines for stormwater quality.

Policy 1E-2

Stormwater facilities shall be designed to meet or exceed water quality standards as determined by SFWMD and CBWCD. The post-development discharge rates shall not exceed the pre-development rates unless permission for increased discharge is given by all governing agencies.

Policy 1E-3

The University shall minimize stormwater pollutants through a system of Best Management Practices including, but not limited to the following:

- 1) Incorporating pollution retardant baffles (prb's) prior to all surface water outfalls
- 2) Utilizing swale conveyance and percolation where practical.
- 3) Carefully managing fertilizer applications to use only the bare minimum amount that roots can uptake in a short period of time.
- 4) Educating maintenance personnel about the importance of maintaining vehicles and equipment to limit grease and oil accumulation on impervious areas.
- 5) Educate maintenance personnel about the safe handling of pesticides, herbicides, and hydrocarbons and incorporate features into storage areas to prevent spillage.
- 6) Coordinate pesticide application to occur as long before irrigation as possible to minimize runoff.

Policy 1E-4

A Storm Water Pollution Prevention Plan (SWPPP) is to be created and implemented for all construction activities encompassing more than 1 Acre of land as required by NPDES regulations.

Objective 1F**Establish minimum, acceptable levels of service for the stormwater management system.****Policy 1F-1**

Stormwater management facilities shall be designed to meet the following:

- Buildings shall have a finished floor elevation at or above the 100-year flood elevation of 8.0' NGVD as determined by the Central Broward Water Control District
- Minimum road crown elevation shall be at or above the 10-year flood elevation of 6.5' NGVD as determined by the Central Broward Water Control District
- Underground pipes are to be sized to prevent ponding during the 3 year, 1 hour storm event.
- Property shall have a perimeter berm to limit runoff to the basins allowable during the 25-year, 3-day storm event.
- Maximum allowable discharge is 40 cubic feet per second (cfs) per square mile, as determined by the CBWCD. This equates to a total maximum allowable discharge of 1.25 cfs for the 20 acre West campus. The East campus is master permitted with the 151 acre BCC campus, which equates to a maximum allowable discharge of 9.44 cfs.

Policy 1F-2

Soil infiltration (percolation) is a significant part of the existing stormwater management system on both the East and West campus. This will continue to be utilized for the stormwater design to ensure water quality has been achieved.

Objective 1G**Coordinate the provision of increased facility capacity to meet existing and future needs of the University.****Policy 1G-1**

As development is planned, attempt to incorporate the remediation of existing problem areas that may lie within the vicinity of the planned improvements.

Policy 1G-2

Where possible, development should be phased to begin at the downstream end toward any outfall and continue upstream. Transmission facilities under this scenario are to be sized based on the ultimate buildout of the site.

POTABALE WATER SUB-ELEMENT

Goal 2

To provide adequate water facilities, both potable and fire, to support the expansion of the University.

Objective 2A

Provide adequate fire protection for the campus.

Policy 2A-1

FAU shall monitor the design to insure adequate fire protection of new buildings and facilities, and compliance with local and state fire officials.

Policy 2A-2

All new buildings shall have fire sprinkler systems.

Policy 2A-3

The West campus shall be looped with a minimum of two connections to the off-site water distribution system.

Policy 2A-4

Add fire hydrants on the West and East campus at a maximum spacing of 300 feet. Fire department connections shall be provided for new buildings and must be within 50 feet of a fire hydrant.

Policy 2A-5

Establish a maintenance program to flush all hydrants and exercise all valves within the campus system. Maintain a log of these activities.

Objective 2B

Expand distribution system to serve campus expansion.

Policy 2B-1

The East campus shall expand and modify the existing distribution system as required to adequately serve future development. The East campus shall coordinate expansion with BCC, since the water distribution system is interconnected between the two universities.

Policy 2B-2

The West campus shall connect into the offsite water distribution along College Avenue. The size of the line will be dictated by the number and size of proposed buildings and the size of the student population. The on-site line is to be a minimum diameter of 6-inches.

Policy 2B-3

Future expansion and related water requirements shall be reviewed annually to determine adequacy of planned water facility improvements.

Policy 2B-4

Coordinate with the Town of Davie to determine whether the West campus can be master metered or if utility easements will need to be granted.

Policy 2B-5

Water lines shall be located outside of proposed building footprints.

Policy 2B-6

Coordinate and obtain approval from the appropriate BCC personnel for any changes to the East campus water distribution system.

Policy 2B-7

When designing water transmission system, especially if they are to be private, consider containment of line breaks when spacing valves.

Objective 2C

Initiate and maintain adequate records of the water distribution facilities.

Policy 2C-1

A map shall be compiled and maintained showing the existing water distribution facilities.

Policy 2C-2

Meters shall be monitored to obtain average and peak water consumption data per full time equivalent students.

Objective 2D

Correct deficiencies in the existing facilities. (See Figure 9.2.1-9.2.3)

Policy 2D-1

Undersized pipes shall be upgraded.

Policy 2D-2

Fire hydrant test shall be performed to determine static pressure in water line and water model simulations shall be run to ensure buildings receive adequate pressure for potable water and fire protection.

Policy 2D-3

Install backflow prevention devices on all service lines.

Objective 2E

Coordinate with the host local government for each campus on present and future water demands of the University.

Policy 2E-1

FAU shall establish a procedure and assign responsibility for regularly scheduled coordination meetings with appropriate utility company officials relative to the University's water needs.

Policy 2E-2

Future construction programs shall be reviewed to ensure available water capacity.

Objective 2F

Protect and conserve potable water resources.

Policy 2F-1

Low volume plumbing fixtures shall be installed on future and retrofit construction.

Policy 2F-2

Implement a program to compare meter readings with historical flows and expected flows based on supplied student population and fixture units. Investigate abnormally high flows for possible leaks.

Objective 2G

Establish minimum levels to be maintained for potable and fire flow water.

Policy 2G-1

Water quality, as monitored by the town of Davie, shall meet requirements set forth by the Broward County Public Health Unit, the Town of Davie, and the Florida Building Code.

Policy 2G-2

Fire flow must be acceptable to the State and Town Fire Marshall.

Policy 2G-3

Levels of service include:

- minimum static pressure of 65 psi in water service line
- minimum residual pressure at building plumbing fixtures of 35 psi
- a minimum fire flow residual pressure of 30 psi

Policy 2G-4

Water consumption should be estimated for an average demand of 8.0 gallons per day. This estimate is based on the historical demand at the FAU Boca Raton Campus of 16 gallons per day per Full Time Equivalent student (FTE), with a 2.0 reduction factor because the Davie campus is an exclusively commuter university. The water billing

history shall be used to determine a more accurate value. These values should be periodically updated by comparing them to recorded usage and new student populations; the adopted master plan is to be revised as necessary.

SANITARY SEWER SUB-ELEMENT

Goal 3

To provide adequate sanitary sewage facilities and services to support the expansion of the University.

Objective 3A

Correct deficiencies in the existing facilities. (See Figure 9.3)

Policy 3A-1

Where necessary, existing gravity sewer lines shall have a television inspection to determine the location and severity of any leaking, damaged, poorly aligned, or broken pipes.

Policy 3A-2

The existing lift stations and force mains on the East campus are to be analyzed to see if the system can meet future demands.

Policy 3A-3

Any leaking or broken pipes are to be repaired and any necessary lift station or force main upgrades are to be made.

Policy 3A-4

On the West campus, any existing septic systems are to be removed and remediated per Broward County Department of Environmental Protection Guidelines. Facilities which were served by said septic systems are to be incorporated into the gravity system or served by separate grinder pump stations.

Objective 3B

Provide or upgrade collection system to serve future construction.

Policy 3B-1

A gravity collection system shall be constructed on the West campus. This gravity system will flow into one or more proposed lift stations. Gravity sewer shall be constructed on the East campus to serve and relocate existing sewer conflicts around the

proposed buildings. This proposed gravity will tie into the existing system by gravity or by separate grinder pumping station(s). The proposed systems shall be designed for peak discharge.

Policy 3B-2

According to the Broward County Department of Natural Resources, the minimum allowable slopes shall be:

- 8 inch diameter 0.40%
- 10 inch diameter 0.28%
- 12 inch diameter 0.22%

Policy 3B-3

Sewer lines shall be located outside of proposed building footprints.

Policy 3B-4

Grease traps shall be provided on waste lines if deemed necessary.

Policy 3B-5

Sanitary lines shall comply with standards set by State Department of Environmental Protection, County and local agencies, and the State Health Department.

Policy 3B-6

Keep and maintain a portable, gasoline driven pump for emergency service to lift stations.

Policy 3B-7

The West campus shall construct a lift station to tie into the force main system along College Avenue. There is no evidence of an existing gravity sewer system on College Avenue or SW 30th Street.

Policy 3B-8

Proposed lift station(s) shall be located in a central location to limit the length of pipe and to minimize the depth of the lift station.

Policy 3B-9

The pumps shall be designed to handle peak flow discharge.

Policy 3B-10

The lift station will be equipped with duplex pumps, alternators, alarms, and flow recording devices.

Policy 3B-11

The sanitary system shall comply with standards set forth by the State, County, and local governing agencies.

Policy 3B-12

Provide a sanitary lateral with in-line grease trap at all food service facility dumpsters.

Objective 3C

Determine sewage generation per Full Time Equivalent Student (FTE)

Policy 3C-1

Monitor, on a regular schedule, sewage quantities and campus population to determine peak and average sewer usage per FTE.

Objective 3D

Initiate and maintain adequate records of the sewer collection facilities.

Policy 3D-1

A complete sewer map of all facilities shall be compiled and updated. As built information is to be compiled on the existing system to the maximum extent practical.

Objective 3E

Coordinate with the host local government for each campus on present and future sewer demands of the University.

Policy 3E-1

The University shall establish a procedure and assign responsibility for regularly scheduled coordination meetings with appropriate utility company officials relative to University sanitary needs.

Policy 3E-2

Future construction programs shall be reviewed to ensure available sanitary capacity for the University's growth.

Objective 3F

Establish minimum levels to be maintained for sewage collection facilities.

Policy 3F-1

Sewer facilities shall meet requirements set forth by the State Department of Environmental Protection, county and local environmental agencies, the State Health Department, and the Florida Building Code.

Policy 3F-2

Sanitary demand should be estimated for an average demand of 8.0 gallons per day. This estimate is based on the historical demand at the FAU Boca Raton Campus of 16 gallons per day per Full Time Equivalent student (FTE), with a 2.0 reduction factor because the Davie campus is an exclusively commuter university. The billing history shall be used to determine a more accurate value. These values should be periodically updated by comparing them to recorded usage and new student populations; the adopted master plan is to be revised as necessary.

Policy 3F-3

Levels of service include:

- Minimum velocity of 2 feet per second in force main lines
- Minimum diameter of 8 inches in all gravity sewer lines
- Minimum 6 inch diameter sanitary service laterals, with cleanouts spaced at 70 foot maximum intervals, to serve all proposed buildings
- Maximum distance of 400 feet between sanitary maintenance access structures
- 10-15 minute cycle time for lift station pumps

SOLID WASTE SUB-ELEMENT

Goal 4

To provide adequate solid waste disposal facilities and services to support the expansion of the University.

Objective 4A

Implement an efficient, cost effective waste disposal operation

Policy 4A-1

Dumpster load per pick-up shall be maximized.

Policy 4A-2

Dumpsters shall be located to provide optimum service while minimizing dumpster pick-up cost.

Policy 4A-3

Monitor and record quantity of solid waste and campus population to determine solid waste generated per FTE and to determine percentage full at pick-up.

Policy 4A-4

Instead of discarding, compost vegetation collected by campus landscaping and maintenance personnel to the maximum extent practical.

Policy 4A-5

Coordinate new or relocated dumpster locations with the appropriate sanitation contractor.

Policy 4A-6

Biohazardous materials are to be picked up and discarded by the FAU Environmental Health and Safety Department.

Policy 4A-7

Provide a sanitary lateral connection at all food service facility dumpsters. Dumpsters are to be modified to support this connection if necessary.

Objective 4A-8

All new and existing trash containers shall be modified to be rodent proof.

Objective 4B

Implement an efficient recycling program

Policy 4B-1

Coordinate expansion of the recycling program with BCC on the East campus to include aluminum, glass, plastics, paper, and steel in addition to the cardboard recycling already instituted. Have maintenance personnel recycle fluorescent bulbs.

Policy 4B-2

Provide sufficient recycling containers in size, type, and number at convenient locations, to minimize the effort and time to collect and dispose of recyclable materials.

Objective 4C

Increase safety and reduce potential dangers from handling and disposal of hazardous waste.

Policy 4C-1

Assign responsibility for all hazardous material used on campus.

Policy 4C-2

Provide storage for hazardous material that complies with regulatory requirements, including making Material Safety Data Sheets available to all personnel dealing with these materials.

Policy 4C-3

All hazardous material shall be tracked and monitored from its arrival on campus to its final disposal.

Policy 4C-4

A hazardous waste spill management plan is to be prepared and practiced by the responsible cleanup entity.

Objective 4D

Coordinate with the local government and sanitation contractor for each campus on present and future solid waste demands of the University.

Policy 4D-1

The University shall establish a procedure and assign responsibility for regularly scheduled coordination meetings with appropriate city and sanitation contractor officials and vendors relative to the University's solid waste needs.

Policy 4D-2

Future construction programs shall be reviewed to ensure available solid waste capacity and to coordinate pickup times and locations in relation to the University's growth.

Policy 4D-3

Locate solid waste storage to avoid an adverse impact on the aesthetics of the campus.