10.
UTILITIES ELEMENT
**Introduction**

The Utilities Element includes goals, objectives and policies that apply to the University’s main campus as well as the University’s satellite properties. This element focuses on the University’s existing utilities and procedures for improving deficiencies, while providing guidance on future additions and improvements. Sub-elements included within this element are Chilled Water/Steam, Electric Power, and Telecommunications. The Physical Plant Division (PPD) is the entity primarily responsible for permitting, maintenance and expansion of all distributed utilities on the main campus (Duke Energy is currently responsible for electric power and steam generation in coordination with PPD). The utilities of the satellite properties TREEO Center, Lake Wauburg, East Campus, WRUF, WUFT, and Remote Libraries Services are handled individually by the Physical Plant Division, while the IFAS research properties of Austin Cary Forest, Beef Unit, Dairy Unit, Boston Farm/Santa Fe River Ranch, Millhopper Unit, and Wall Farm/Horse Teaching Unit are handled by IFAS. The Division of Information Technology is responsible for telecommunications infrastructure including wireless coverage as depicted in Figure 10-1.

**Steam and Chilled Water Sub-Element**

**GOAL 1: Provide Adequate, Reliable, and Sustainable Chilled Water and Steam Services to Existing and Future Facilities.**

**Objective 1.1: To correct existing chilled water and steam system deficiencies.**

**Policy 1.1.1:** The Physical Plant Division shall evaluate the performance of campus chilled water and steam production facilities with continuous data monitoring of key operational parameters to ensure functionality of systems. Corrective measures will be implemented consistent with Policies 1.1.1 and 1.3.1 of the Facilities Maintenance Element.

**Policy 1.1.2:** The University Design and Construction Standards shall continue to include campus-specific set of heating and cooling criteria for system maintenance and new installations based on the standards set forth by the American Society of Heating, Refrigerating and Air-Conditioning Engineers which identify:

- Indoor summer and winter design temperatures;
- Indoor humidity conditions;
- Preferred HVAC systems;
- Redundancy requirements;
- Testing procedures.
Objective 1.2: To provide for planned expansion of the steam and chilled water systems to meet the University’s needs at the end of the planning time frame.

Policy 1.2.1: The University shall maintain continuous accurate records of chilled water temperatures and flows and steam flows.

Policy 1.2.2: The University shall maintain updated documents that clearly illustrate the current status of the chilled water system including:

- Location of chiller plants;
- Existing chilled water generating capacity;
- Location of chilled water distribution piping;
- Capacity of existing distribution system, considering pumps and piping; and
- Existing building loads.

These documents shall be updated periodically or as major revisions to the chilled water system are implemented. New construction projects shall be reviewed for potential effects on the chilled water system.

Policy 1.2.3: The University shall develop documents that clearly illustrate the current status of the steam production system including:

- Location of steam plants;
- Existing steam generating capacity;
- Location of steam distribution piping;
- Capacity of existing distribution system, considering piping; and
- Existing building loads.

These documents shall be updated periodically or as major revisions to the steam system are implemented. New construction projects shall be reviewed for potential effects on the steam system.

Policy 1.2.4: The University shall implement steam and chilled water facility improvements as established in the Capital Improvements Element.

Policy 1.2.5: The University shall require all new buildings to evaluate methods to utilize energy recovery to reduce consumption of chilled water and steam.

Policy 1.2.6: The University has adopted a level of service standard for saturated steam, which provides and maintains a minimum of 300 degrees supply temperature to meet building heating demands.
Policy 1.2.7: The University has established a level of service standard for chilled water which provides and maintains a 45 degree chilled water supply temperature to meet building cooling demands.

Policy 1.2.8: The Physical Plant Division shall appropriately size new chillers to meet anticipated future demand (based on the 10-year capital improvement list) when doing routine upgrades, replacements or new installations.

Objective 1.3: To provide redundant capability for chilled water utility.

Policy 1.3.1: The University shall ensure all plants have “N+1” redundancy of major production equipment where feasible.

Policy 1.3.2: The University shall require new construction to ensure redundant chilled water service is maintained when feasible.

Objective 1.4: To provide sustainable steam and chilled water systems in new and existing facilities.

Policy 1.4.1: The University shall continue its policy for replacing ozone-depleting refrigerants with environmentally safe refrigerants as approved by the Environmental Protection Agency and the USGBC (United States Green Building Council) during all production equipment replacements.
**Electric Power and Other Fuels Sub-element**

**Goal 2:** Provide Adequate Facility Capacity to Meet Present and Future Needs of the University, While Identifying Opportunities to Reduce University Energy consumption in New and Existing Facilities.

**Objective 2.1:** To correct existing electric power and other fuel deficiencies.

- **Policy 2.1.1:** Age and type of transformers shall be investigated annually to ascertain present condition and useful life.

- **Policy 2.1.2:** The University Design and Construction Standards shall continue to include campus-specific criteria for providing electric power, including: distribution voltages, building secondary distribution voltages, master control criteria and lighting levels.

- **Policy 2.1.3:** The University shall correct deficiencies as necessary consistent with Policies 1.1.1 and 1.3.1 of the Facilities Maintenance Element. The timing, phasing requirements and priorities for these improvements shall be established in the Capital Improvements Element.

- **Policy 2.1.4:** Underground utilities and support structures are the preferred installation unless otherwise approved by the University.

- **Policy 2.1.5:** If it is determined that the utility or support structure must be placed above ground, appropriate decorative architectural walls or landscaping shall be provided to help screen the structures from view.

**Objective 2.2:** To provide additional electric power and other fuel capacity to satisfy projected load of master plan.

- **Policy 2.2.1:** New substations shall be provided to allow campus expansion. Loads connected to new double ended substations shall not exceed 50% of the total substation capacity. The timing and phasing requirements and priorities for these improvements are established in the Capital Improvements Element.

- **Policy 2.2.2:** The University shall maintain documents that clearly illustrate the current status of the electric power system including:
  
  - Location of substations;
  - Existing substation capacity;
  - Location of electric feeders; and
  - Capacity of existing distribution system, considering existing substation and feeder loads.

These documents shall be updated periodically or as major revisions to the electric power system are implemented. New construction projects shall be reviewed for potential effects on the electric
power system, and specific system revisions shall be recommended to accommodate those new projects. The adopted campus master plan shall be amended as needed to reflect these revisions.

**Policy 2.2.3:** New construction projects shall be reviewed for additional loads on non-university maintained substations. The utility company (ies) shall be requested to increase service capacity as required.

**Policy 2.2.4:** The University shall establish and adopt a level of service standard for electrical energy and other fuels that provides and maintains an appropriate supply to campus buildings. This level of service shall ensure redundancy by requiring double ended substations and loading transformers below 50% of their maximum capacity.

**Policy 2.2.5:** The University shall maintain an annual procedure and assign responsibility to the Physical Plant Division for regularly scheduled meetings with utilities that provide power to campus properties relative to the University’s need for electrical power. The University shall pursue interlocal agreements and memoranda of understanding necessary to ensure that electrical energy shall be available to meet the future needs of the University.

**Policy 2.2.6:** The University shall encourage the development of alternative fuel sources and energy recapture where appropriate. Examples of alternatives include biomass (biorefinery), solar and wind.

**Objective 2.3: Provide redundant capability for electrical utility.**

**Policy 2.3.1:** The University shall require each distribution system to have at least 100% backup capacity through switching.

**Policy 2.3.2:** The University shall require new construction to ensure redundant electrical service is maintained. If redundancy cannot be met, program corrective solutions as part of new construction shall be accomplished by adding new electrical transformers.

**Objective 2.4: To implement sustainable energy practices that focus on reducing consumption, retrofitting inefficient systems and provides energy efficient guidelines for new development.**

**Policy 2.4.1:** The University shall continue to evaluate lighting levels and maintain a standard for appropriate light levels and fixtures in the University Design and Construction Standards. These standards shall address energy efficient lighting fixtures, energy efficient electronic ballasts and lamps, and variable frequency drives as appropriate.

**Policy 2.4.2:** The University shall explore ways to make each building’s occupants on campus aware of their utility consumption by building, so that they may monitor their energy usage and shall establish an incentive program that rewards building occupants that reduce energy usage.
Telecommunications System Sub-Element


Objective 3.1: To correct existing telecommunications infrastructure deficiencies where identified.

Policy 3.1.1: The University Division of Information Technology shall evaluate the current state of campus telecommunications infrastructure and shall recommend methods to correct deficiencies. The adopted campus master plan shall be amended as needed to reflect these methods.

Policy 3.1.2: Telephone, data and video pathways shall be reinforced in capacity to serve present requirements and to replace old aerial and direct buried installations.

Policy 3.1.3: The Utility land use category shall be used to relocate existing radio and satellite antennas or locate new facilities, except as allowed within other land uses as identified in the Future Land Use Element.

Policy 3.1.4: The University shall continue to expand wireless telecommunication system capabilities to all populated areas of campus.

Objective 3.2: To provide additional telecommunications systems capacity to satisfy projected needs of master plan.

Policy 3.2.1: Telephone, data and video pathways shall be reinforced in capacity and expanded to serve requirements of the master plan. The University shall appropriately size telecommunication facilities to meet anticipated future demand (based on the 10-year capital improvement element) when doing routine upgrades, replacements or new installations.

Policy 3.2.2: The University shall maintain documents that clearly illustrate the current status of the telecommunications system including:

- Location of incoming services;
- Location of telecommunication distribution;
- Capacity of existing distribution system;
- Wall plate locations;
- Emergency Notification Device locations; and
- Wireless access point locations.

These documents shall be updated periodically or as major revisions to the telecommunications system are implemented. Approved new projects shall be reviewed for potential effects on the
telecommunications system, and specific system revisions shall be recommended to accommodate those new projects. The adopted campus master plan shall be amended as needed to reflect these revisions.

**Policy 3.2.3:** The University shall implement telecommunications facility improvements as necessary. The timing and phasing requirements and priorities for these improvements are established in the Capital Improvements Element.

**Policy 3.2.4:** The University shall establish a procedure and assign responsibility for regularly scheduled meetings with service providers relative to the University's need for telecommunications. The University shall pursue interlocal agreements and memoranda of understanding necessary to ensure that telecommunications shall be available to meet the future needs of the University.

**Policy 3.2.5:** The most recent version of the University of Florida Telecommunication Standards shall be utilized by all campus personnel when moving or replacing any part of the telecommunication infrastructure. These standards may be found online or by contacting Network Services - Telecommunications and Network Infrastructure (TNI). Additionally, all such activities shall be coordinated in advance with Network Services - TNI.