UPDATED MASTER PLAN
2010-2020
SUPPORTING DATA AND ANALYSIS

OCTOBER 2011
UNIVERSITY OF SOUTH FLORIDA POLYTECHNIC
UPDATED MASTER PLAN
SUPPORTING DATA AND ANALYSIS

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Introduction

(In previous reports, this section was Element 1, Academic Mission of the University. Academic Mission is no longer a required element per FL BOG Chapter 21 and has been deleted as a specific chapter in this 2011 USF Polytechnic Master Plan Update. See Chapter 2, Vision Statement of this report for the University’s Institutional Vision, Mission, Values, and Goals and Strategies.)

The University of South Florida was founded in 1956 as the first public university established specifically to address the needs of Florida’s rapidly emerging urban regions. Today, the University of South Florida System is comprised of three separately accredited institutions, USF, USF St. Petersburg and USF Sarasota-Manatee. USF consists of the main campus in Tampa, which includes USF Health, the College of Marine Science in St. Petersburg, and a regional campuses – USF Polytechnic located in Lakeland, which is currently seeking separate accreditation.

The USF System is committed to providing students at the undergraduate, graduate and professional level with high quality learning opportunities, building community and business partnerships, and research for discovery and innovation. Successes in these endeavors led to dual designations for the USF System by the Carnegie Foundation for the Advancement of Teaching as a Very High Research and a Community Engaged University. The USF System is focused these strategic priorities: Student Success, Research and Innovation, Community Engagement, Global Literacy and Impact, and Integrated, Interdisciplinary Inquiry.

The University of South Florida Polytechnic (USFP or USF Poly) is the newest of four campuses in the University of South Florida system. Located in Lakeland, Florida, USF Polytechnic is the state’s only public polytechnic and provides undergraduate and graduate students with an extraordinary opportunity to experience applied learning and research in a personalized setting: small class sizes, convenient locations, innovative programs and flexible formats.

USFP serves students from throughout Florida. Faculty members hold degrees from a variety of prestigious institutions, and many also have a wealth of professional experience outside of the classroom. Their commitment is to excellent teaching and practical research that will make a difference in the real world. The polytechnic model emerged as a result of intense community engagement and was formalized in USFP’s strategic plan, adopted in 2007. USFP students pursue degrees and certificates in over 20 degree programs and certificate programs and have learned to expect a multi-disciplinary focus, hands-on learning, real-world application, and a supportive campus community.

Since 1988, USFP has occupied a joint-use campus in Lakeland with Polk State College and is now engaged in the process of building a new campus at the eastern intersection of I-4 and the Polk Parkway. The campus is in Lakeland, in between Lakeland and Auburndale at the heart of Florida's High Tech Corridor.
New I-4 Campus

In November 2002, the USF Board of Trustees approved the issuing of a request for proposal for a new campus site, and in December 2002, a Land Acquisition Committee was appointed. This committee included both University and community members representing a broad constituent group. The consulting firm of Reynolds, Smith, and Hill was contracted to work with the committee to perform land evaluation and to prepare the Campus Master Plan.

Five proposals for campus sites were received in January, 2003 and were reviewed and evaluated over the next several months. In July, 2003, the Land Acquisition Committee identified the Williams Company proposal as the one to recommend to the University of South Florida Lakeland (USFL) Campus Board. In August, 2003, The USFL Campus Board accepted the Williams Company proposal which included a donation of a 530+ acre site at the intersection of Interstate 4 and the eastern terminus of the Polk Parkway. Subsequently, in November 2003, the USF Board of Trustees approved the development of a new USFL Campus on the Williams' property. A signing ceremony took place on the Lakeland Joint-Use Campus site on November 22, 2004. In addition to the value of the land, the Williams Company will also contribute $600,000 to establish the Williams Endowed Professorship in Information Technology. The gift will qualify for a $420,000 match from the State Trust Fund. The endowment will be paid in 5 annual pledges, the first pledge to be paid when ground is broken for the first building on the new campus site.

The development of the Campus Master Plan was guided by projections of enrollment increases and program development over the 10 year period 2005-2015. The academic programs consider USFP’s response to community and economic development needs and establish or enhance programs in a direction of applied research in a polytechnic approach.

The Purpose of this Document

This document, Master Plan Update: Supporting Data and Analysis (Volume II) is a revision of the preceding version completed in August of 2006 by Reynolds, Smith and Hills, Inc., and is intended to be a supporting document for the University of South Florida Polytechnic 2010-2020 Master Plan Update, prepared by Santiago Calatrava, LLC. and Alfonso Architects, LLC. The primary Master Plan Update provides a structure for the initial phase one construction and future growth of the USF Polytechnic Campus for a ten-year planning period (2010-2020). The supplementary Supporting Data and Analysis contains the existing quantifiable data, area statistics and regional studies that reinforce the content of the Master Plan Update.
Sources:
The following is a list of sources reviewed for information to support the Introduction

2010-2020 Tampa Campus Master Plan Update: Data Collection and Analysis.  

The University of South Florida Polytechnic website.  http://www.poly.usf.edu/x4085.xml
1. General Requirements

(In previous reports, this section was Element 2, Academic Program. Academic Program is no longer a required element per FL BOG Chapter 21 and has been deleted as a specific chapter in this 2011 USF Master Plan Update.)

University Campus Master Plans must be updated every five years. The minimum requirements of the Master Plans for Florida universities are contained in two documents: The Florida Statute (FS) 1013.30 and Chapter 21 of the Florida Board of Governors Regulations. In addition to these requirements, each university may add additional information and sections.

University Campus Master Plans are composed of three parts containing, at a minimum, the criteria described in FS 1013.30 and Chapter 21:

1. The Evaluation and Appraisal Report (EAR) is a self-assessment by the University of the previously adopted Goals, Objectives, and Policies and how the University succeeded in implementing them.

2. The Data Collection and Analysis Report is an update to the required and discretionary information upon which the Campus Master Plan Update is based. The minimum requirements are specified to be based on best existing available information and do not require the university to conduct original data collection.

3. The Campus Master Plan Update Goals, Objectives and Policies. This document describes, in narrative, table, and graphic form, the intended development criteria and parameters for the next 10 years and beyond. In addition, the 2011 Campus Master Plan Update includes an Optional Element containing the following subsections: Architectural Design and Landscape Architectural Design Guidelines.

These documents are presented to the Campus Development Committee (CDC) and Academic Campus and Environment Advisory Committee (ACEAC) for review and recommendation to the Academic and Campus Environment (ACE) Workgroup. The ACE Workgroup reviews and recommends adoption to the University Board of Trustees.

Sources:

The following is a list of sources reviewed for information to support the General Requirements Element

2010-2020 Tampa Campus Master Plan Update: Data Collection and Analysis.

The 2010 Florida Statutes. FS 1013.30:
http://www.flSenate.gov/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=Ch1013/SEC30.HTM&Title=-&Ch1013->Ch1013-->Section%2030#1013.30
2. Vision Statement

(In previous reports, this section was Element 3, Urban Design. Urban Design is no longer a required element per FL BOG Chapter 21 and has been deleted as a specific chapter in this 2011 USFP Master Plan Update.)

The Vision, Mission, Values, and primary guiding goals and strategies outlined in this section are primarily realized through USF Polytechnic’s articulation of an effective “Polytechnic Model” through its Academic Program.

Polytechnic Model
The word "polytechnic" comes from the Greek word polytechnos, which means "skilled in many arts."

Just as there have been many institutions that have claimed to be "polytechnics," there have been many conceptions of "a polytechnic university." Chancellor Charles W. Sorenson, of the University of Wisconsin-Stout (recently designated as "Wisconsin's Polytechnic University"), has offered the following definition of a 21st century polytechnic university:

*Polytechnics are comprehensive universities offering professional, career-focused programs in the arts, social and related behavioral sciences, engineering, education, and natural sciences and technology that engage students in active, applied learning, theory and research essential to the future of society, business and industry.*

Sorenson’s understanding is consistent with the "polytech vision" that has been articulated by USF President Judy Genshaft and USF Polytechnic Regional Chancellor Marshall Goodman as they have described plans for USF’s new polytechnic campus. Among the important elements of the concept are the following: what a polytech does; how it does it; and why it does it.

**What:** While a "typical" college or university will tend to offer about 60 percent of its coursework in the liberal arts and 40 percent in math/science/technical disciplines, a polytech can be expected to flip that ratio: 60 percent applied and technical disciplines and 40 percent liberal arts. USF Polytechnic's strategic plan (unanimously approved by the USF Board of Trustees) calls for this ratio to be closer to 80 percent applied and technical disciplines and 20 percent liberal arts. Their strategic plan also calls for particular curricular strengths in areas such as business, education, engineering, information technology and allied health disciplines.

**How:** Polytechnics place a premium on "active, applied learning": faculty members emphasize innovative, hands-on pedagogies with practical implications. The faculty member traditionally seen as a "sage on the stage" is transformed as a "guide on the side." Students "learn by doing" and connect their collaborative learning to in-demand career paths. Not surprisingly, faculty research agendas are also shaped by the polytechnic focus and reflect collaborative, cross-disciplinary approaches, yielding applied solutions to real-world problems.
**Why:** "Traditional" colleges and universities reasonably and appropriately point to centuries of history: in many ways they are extensions of the academic traditions that emerged from Europe and have flourished around the globe. Polytechnics, on the other hand, point not to the past but the future as a rationale for their focus and methods. Polytechnics do things not because "that's the way we've always done it" but rather because "these are the demands of the world around us and the world we hope to create." As Florida continues its entry into the information economy, a public polytech provides an ideal environment in which to produce valuable knowledge and to prepare a new generation of talent who will make an impact on the state, national and global economy.

Because of USF Polytechnic's geographical location at the epicenter of Florida's High Tech Corridor, the polytechnic model is an ideal means of delivering the state's vision of access, excellence and impact to the region. The kinds of students a polytech will produce fit perfectly with the economic development priorities of the region. The kinds of research a polytech will foster fit perfectly with the socio-economic realities of the region. And the way that a polytech does what it does fits perfectly with the future of central Florida and the global economy in which it competes.

**USF Polytechnic's Academic Structure**

USF Poly's academic structure features 3 unique colleges, each consisting of 3 divisions (3^2) to create a multidisciplinary culture throughout the university. These colleges, Technology & Innovation, Human & Social Sciences and Applied Arts & New Media, combine programs that traditionally do not interact with one another. Instead of faculty only working within their disciplines, they teach and research alongside faculty among various disciplines to bring that
broad knowledge into the classroom. Our graduates must be well-rounded and prepared to work in diverse environments.

At USF Poly, faculty serve as mentors and embrace a "guide on the side" learning approach versus the typical "sage on the stage", lecture-style classes. Focusing on talent management, USF Poly is shifting away from the traditional career centers found in colleges and universities. We focus on putting students to work from day one by threading a variety of experiences such as concentrated and purposeful internships and co-ops throughout the curriculum. Graduates will walk into the job they want because they started preparing for it the day they came to USF Polytechnic.

By building the 21st century polytechnic, we're revolutionizing the new American university.

**University Strategic Plan (2007-2012)**

The strategic plan identifies the University’s Vision, Mission, Values, and primary guiding goals and strategies.

**VISION**

The University of South Florida Polytechnic will be a premier destination campus for applied learning, research, and innovative technology. Our students and graduates will inspire and lead change, locally and internationally.

**MISSION**

The University of South Florida Polytechnic is committed to excellence in interdisciplinary and applied learning; to the application of cutting-edge research and technology to real world needs; and to collaborative partnerships that support economic, social, and community development.

**CORE VALUES**

**Excellence**

USF Polytechnic holds themselves to high standards of excellence. USF Polytechnic engages in innovation and continuous improvement; USF Polytechnic will challenge conventional practices; and USF Polytechnic will set and achieve meaningful performance benchmarks.

**Learner-centered Campus Environment**

USF Polytechnic values a learner-centered campus environment where students and faculty have world-class opportunities for interactive, problem- and solution-based
learning and for application of innovative research and technology. USF Polytechnic promotes the development of dynamic learning communities, collaborative learning labs and professional internships that foster academic, personal, and professional achievement. USF Polytechnic schedules classes and provides flexible program delivery options to meet the needs of our students and communities and to enable timely degree completion.

**Diversity**

USF Polytechnic embraces diversity, creating an open campus environment that respects and values individual uniqueness, differences in ideas and experiences, academic freedom and discourse, civility, caring, and compassion.

**Interdisciplinary Approaches to Teaching, Learning, and Research**

USF Polytechnic values interdisciplinary thinking, blending two or more academic, scientific or artistic disciplines in teaching and research. USF Polytechnic will provide learning and research experiences that develop learners' abilities to identify and make connections among disciplines.

**Community Engagement**

USF Polytechnic serves as a key resource for communities and seeks collaborative partnerships to enhance civic, social, educational, and economic development. USF Polytechnic provides students with service learning opportunities that build value for community service.

**Impact**

USF Polytechnic places high priority on meaningful and measurable impact. USF Polytechnic is committed to research and the advancement of knowledge to promote educational, social, and economic factors that enhance quality of life. USF Polytechnic expect our graduates to make meaningful contributions to our communities and the world.

**Ethical, Socially Responsible Action**

USF Polytechnic believes educated people value integrity and take responsibility for their actions. USF Polytechnic believes that learning should contribute to the development of ethical, socially responsible action, and USF Polytechnic provides learning opportunities that promote ethical behavior, social responsibility, and civic engagement.
GOALS 2012
To attain its Vision and Mission, USF Polytechnic will direct campus talents, efforts, and resources toward the achievement of the following goals:

1. Recruit, develop, and retain world-class practitioner scholars with capacity to deliver the polytechnic vision in teaching, research, and community engagement and impact.
   1.1 Develop and implement a comprehensive faculty recruitment, development, and incentive plan that aligns with the polytechnic vision.
   1.2 Develop a faculty culture that values applied learning, applied research, interdisciplinary thinking, and integration of innovative technology.
   1.3 Develop clear, articulated criteria for promotion and tenure that reflect the nature of faculty work on a polytechnic, undergraduate and graduate level campus.
   1.4 Provide faculty resources and professional development sufficient for successful tenure and promotion, including a faculty mentoring program.
   1.5 Secure resources to recognize and reward faculty achievement in research and creative activity, outstanding teaching, and community engagement and impact.
   1.6 Increase the number of faculty receiving regional, national, and international awards.
   1.7 Secure funding for endowed chairs in the five areas of distinction: applied health sciences; mathematics and science education; business and entrepreneurship; manufacturing engineering and technology; and information technology.
   1.8 Develop a comprehensive research support infrastructure to enable faculty to conduct world-class research with administrative support for grant development, management, and compliance.

2. Recruit students locally, nationally, and internationally who are prepared for a polytechnic learning environment, and provide programs and opportunities that enhance student retention and academic, personal, and professional success.
   2.1 Collaborate with feeder institutions (community colleges and pre K-12 schools) to develop a common understanding of a polytechnic campus and program admissions requirements. Develop a recruitment and marketing plan for middle schools and high schools.
   2.2 Develop a comprehensive enrollment management plan for marketing, recruitment, admissions, advising, retention, and graduation of diverse and high quality students.
   2.3 Recruit, retain, and graduate higher numbers of underrepresented students in both undergraduate and graduate programs.
   2.4 Provide exceptional customer service to students in all administrative areas.
   2.5 Increase student participation in programs that serve as models for academic, social, and cultural integration of underrepresented students, e.g., McNair Scholars, ENLACE
(Engaging Latino Communities for Education), Project Thrust Corporate Mentoring Program.

2.6 Develop early admissions/access programs, and enhance advising to increase retention and ensure timely completion of degree programs.

2.7 Increase scholarships available for students.

2.8 Develop student leadership, mentoring, and learning community programs to contribute to student success and create a sense of belonging to USF Lakeland.

2.9 Increase comprehensive student life activities to include academic and technology extra- and co-curricular activities; social and community engagement opportunities; and personal, academic, and career support services.

2.10 Create opportunity for student participation in honor societies and academic award programs.

2.11 Develop a system for tracking graduates and establish a strong alumni base.

3. Expand and create academic programs that focus on applied learning, applied research, applied technology, and interdisciplinary approaches in a polytechnic model. Develop and implement new degree programs in the following areas of distinction: applied health sciences; mathematics and science education; business and entrepreneurship; manufacturing engineering and technology; information technology; and New Arts and New Media.

3.1 Increase campus autonomy in program development.

3.2 Carefully assess potential long-term regional workforce development needs. Expand program offerings at the baccalaureate, post-baccalaureate, graduate and graduate certificate levels; cooperative programs and internships; collaborative degree and professional development programs with businesses and other agencies.

3.3 Develop new degree programs in the following areas of distinction: applied health sciences; mathematics and science education; business and entrepreneurship; manufacturing engineering and technology information technology; and New Arts and New Media. Focus on a polytechnic model of applied learning, applied research, and applied, innovative technology in all programs.

3.4 Integrate globalization issues in program curricula.

3.5 Increase general education course offerings to match FTIC enrollment growth, and develop first-year experience programs for all entering freshmen and transfer students.

3.6 Develop competency- and skills-based student outcomes and assessments in all programs.

3.7 Develop comprehensive program information publications, both print and online.

3.8 Achieve separate institutional and program accreditation
4. Implement the Campus Master Plan and develop a campus infrastructure to support a polytechnic learning and research environment, and develop a stable economic base for continued campus and program development as a polytechnic campus.

4.1 Build the new primary campus location.
4.2 Recruit, develop, and retain well-qualified staff to meet the needs of a polytechnic campus, and provide sufficient resources for support functions.
4.3 Create a service-oriented and professional culture through administrative, faculty, and staff collaboration.
4.4 Develop a comprehensive, multi-year resource plan for infrastructure (e.g., library, enhanced academic and administrative technology infrastructure for a polytechnic model, space allocation and utilization, student life activities).
4.5 Develop training and learning communities to enhance faculty and staff capacity to build and develop a polytechnic campus.
4.6 Support the development of a new business incubator and applied research park.
4.7 Develop a stable economic base for campus and program development by refining and enhancing a comprehensive budget planning process; promoting effective and efficient use of human, facility, and fiscal resources; developing mission-appropriate programs to enhance revenue; and expanding private contributions.
4.8 Increase fiscal self-sufficiency in all campus units.

5. Develop collaborative public and private partnerships that enhance funding opportunities, including leveraging state and federal funding.

5.1 Achieve increased visibility by developing and implementing an annual image and marketing plan that communicates our vision and mission and highlights our achievements and contributions to the region.
5.2 Establish mutually beneficial partnerships with pre K-12 school systems and human services organizations; identify mutually beneficial research and grant development opportunities.
5.3 Establish an Office of Community Education and Outreach and provide community education opportunities to support lifelong learning for all generations.
5.4 Develop an infrastructure for campus advancement and development, and achieve ambitious fund-raising goals through collective efforts and creative vision of the campus community.
5.5 Encourage and support faculty and staff involvement in civic, professional, and local service organizations.
5.6 Strengthen the Alumni Organization in the central Florida region and promote alumni affinity with USF Polytechnic
Sources:
The following is a list of sources reviewed for information to support the Vision Statement Element

The University of South Florida Polytechnic. About Us. http://www.poly.usf.edu/x2279.xml

USF Polytechnic Strategic Plan 2007-2012: http://www.poly.usf.edu/AboutUs/StrategicPlan.html
3. Future Land Use

This element designates existing and future development as reflected in the goals, objectives and policies of the campus master plan, and describes how future development will be coordinated with land uses planned by the host and/or affected local governments in the planning study area.

A. Existing and Projected Space and Building Needs Assessment

This section provides an assessment of existing and projected space and building needs based on student Fundable and Gross full-time equivalencies (FTE) and headcount enrollment projections.

Student population data were provided by USF Polytechnic for the projected future enrollment at USF Polytechnic over the 10-year Master Plan Horizon (2010). Faculty and staff employment is assumed to grow in parallel with the student population growth over the planning horizon. A summary of the existing and projected student enrollment at USF Polytechnic, by FTE and headcount (HC), for the 10-year planning period is shown in Table 4-1.

Table 3-1 Existing and Projected USF Polytechnic Enrollment (Headcount)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE</td>
<td>943</td>
<td>2,649</td>
<td>5,381</td>
<td>10.58 %</td>
</tr>
<tr>
<td>Headcount</td>
<td>4,460</td>
<td>4,871</td>
<td>16,244</td>
<td>10.34 %</td>
</tr>
</tbody>
</table>

Source: USF IREP, October 2011

Based on Fall 2010 data provided by USF Polytechnic (IREP 08.30.10), undergraduates comprised 91.9% of enrolled students and graduate students comprised 8.1%.

Existing Land Uses

This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

Future Needs

Figure 3.1, Campus Master Plan, shows the following land uses:

- Academic Facilities
- Housing Facilities
- Support Facilities
- Parking
- Open Space
- Water

In addition to the land uses shown on the Campus Master Plan, Figure 3.3, Future Land Use Map shows where “future buildings” can be located.

Table 3-2 shows the development that was authorized by the Campus Master Plan, 2005-2015. This table was included in the “Campus Development Agreement”, 2007, which is still in effect.

**Table 3-2  USF Development Authorized by Campus Master Plan, 2005-2015**

**Academic Plant Buildings:**

- Phase I 150,000 gross square feet (gsf)
- Phase II 300,000 gsf
- Phase III 150,000 gsf
  Total 600,000 gsf

Support Facility 25,000 gsf (All Phases)

Total: 625,000 gsf

**Housing:** 500 Beds / 180,000 gsf

**Parking Structure** 1,500 spaces


**Assumptions:**
The Phase I building is a multi-functional facility that includes classrooms, offices and student services. Academic buildings were reported in the 2009 Campus Master Plan update to require 1,071,500 net square feet.

In addition to Parcel 1A, USF owns two additional small parcels south and west of Parcel 1A. These two additional parcels have significant wetlands. There are no uses planned at the present time for these additional parcels.
Support facilities, at build-out will include the following:

- Student Wellness Center
- Library
- Administration / Faculty Offices
- Auditorium
- Convocation Hall
- Central Energy Plant

Support facilities were reported in the 2009 Campus Master Plan update to require 1,071,500 net square feet.

A Research Incubator will be constructed on campus near the main multi-functional facility.

The campus master plan assumes housing on campus will consist of 1,200 beds with the initial phase consisting of 500 beds.

Parking will be constructed at a ratio of one parking space to three beds.

It was stated in the 2009 Campus Master Plan update that the University acquisition of 171.54 acres will meet the needs of the University projected enrollment of students within the 10-year period. The Master Plan included in this update can accommodate the required land use elements in the 171.54 acres.

Updated projections for building space at the USF Polytechnic Campus are shown in the table below:

**Table 3.3 USF Polytechnic Updated Gross Building Square Footage Projections**

<table>
<thead>
<tr>
<th>Category of Space</th>
<th>2015-2016 (FTE=1,512)</th>
<th>2020-2021 (FTE=5,381) (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td>28,750</td>
<td>101,681</td>
</tr>
<tr>
<td>Teaching Labs</td>
<td>48,577</td>
<td>173,001</td>
</tr>
<tr>
<td>Library</td>
<td>42,021</td>
<td>149,548</td>
</tr>
<tr>
<td>Research Labs</td>
<td>81,841</td>
<td>291,264</td>
</tr>
<tr>
<td>Office/Support (A)</td>
<td>97,781</td>
<td>347,989</td>
</tr>
<tr>
<td>Residential Dormitory</td>
<td>81,000 / 310 Beds</td>
<td>322,560 / 1,270 Beds</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>379,970 GSF</strong></td>
<td><strong>1,386,043 GSF</strong></td>
</tr>
</tbody>
</table>

Notes: (A) Square footage calculated by multiplying FTE x 64.67, which is based on “Interpolated Tampa Space Factors”.

Source: IRPE, October 2011; ECON October 2011

**B. Existing and Projected Vacant, Open or Underdeveloped University-Controlled Lands**

Because this Master Plan is for a new campus, the entire site (171.54 acres) is vacant.
C. Inventory and Future Needs Assessment of Properties within the Study Area

All University property is owned in fee-simple by the University of South Florida Board of Trustees. No lands within the 171.54 acres have been subleased to other entities.

D. Assessment of Properties to Serve Existing or Future Needs

The USF Polytechnic Campus is a new undeveloped site; therefore there are no existing uses on the site. The Campus Master Plan prepared by Santiago Calatrava demonstrates the ability of this site to serve the future needs of USF Polytechnic.

E. Inventory and Assessment of Natural, Archeological or Historic Resources within the Study Area

Natural Resources

The vegetative and land use cover types on the USF Polytechnic campus site (Parcel 1A) have been classified and mapped using the Florida Department of Transportation Florida Land Use, Cover and Forms Classification System (FLUCFCS), as shown in the ACOE Individual Permit Application; April 2, 2008; MSCW. The total acres shown in the MSCW ACOE Permit Application are 170.55 acres. The official size of Parcel 1A reported by USF Polytechnic is 171.54 acres. The difference between the two numbers is due to different mapping techniques and acreage calculations used by MSCW. The difference is insignificant for master planning purposes. The jurisdictional wetlands totaling 17.57 acres found onsite have been delineated (flagged) in the field by MSCW, Inc. scientists and surveyed by Ganung-Belton Associates, Inc. The delineation of this site is consistent with the delineation of wetlands within the Williams DRI parcel. This site is comprised of seven (7) FLUCFCS classifications. The wetlands on Parcel 1A have been permitted for impact by the ACOE and approved for filling by the SFWMD Mass Grading Permit. The wetlands that were permitted for impact, 17.57 acres, have been filled. Descriptions of each classification are given below.

FLUCFCS 1651 – Reclaimed Land, Pasture (24.77 acres)
These previously mined areas were not used for clay settling and have been regraded to form pastures. These areas contain predominately slash pine (*Pinus elliottii*), longleaf pine (*Pinus palustris*), Brazilian pepper (*Schinus terebinthifolius*) bahia grass (*Paspallum notatum*), broomgrass (*Andropogon virginicus*) and smut grass (*Sporobolus indicus*).

FLUCFCS 1652 – Reclaimed Land, Lakes (0.34 acre) These irregularly formed man-made lakes were former mine pits excavated as part of the mining activities. These areas contain scattered clusters of emergent and submergent species including soft rush (*Juncus effusus*), maidencane (*Panicum hemitomon*), cattail (*Typha sp.*), water lilies
(Nymphaea sp.), primrose willow (Ludwigia peruviana), water hyacinth (Eichornia
cassipes), pickerelweed (Pontedaria cordata), duck potato (Sagittaria latifololia), mermaid
weed (Proserpinaca palustris) and bladderwort (Utricularia sp.). Bald cypress (Taxodium
distichum) is present in many areas around the fringe of these reclaimed lakes.

FLUCFCS 211 – Improved Pasture (67.87 acres)
This FLUCFCS community describes routinely maintained pasture. Canopy and subcanopy
vegetation consists of mainly scattered clumps of live oak (Quercus virginiana), sand live
oak (Quercus geminata), and longleaf pine. Groundcover mainly consists of bahia grass
with lesser occurrences of saw palmetto (Serenoa repens), tropical soda apple (Solanum
viarum), American beautyberry (Callicarpa americana), grapevine (Vitis rotundifolia),
pokeweed (Phytolacca americana), 4 Brazilian pepper, live oak and sand live oak saplings,
paw paw (Asimina triloba), prickly pear cactus (Opuntia stricta), and blackberry (Rubus
betulifolius).

FLUCFCS 411 – Pine Flatwoods (55.09 acres)
This FLUCFCS community surrounds the FLUCFCS 630 wetland community. The canopy is
dominated by slash pine, longleaf pine, water oak (Quercus nigra), live oak, and laurel oak
(Quercus laurifolia). Subcanopy species include slash pine, longleaf pine, water oak, live
oak, laurel oak, gallberry (Ilex glabra), fetterbush (Lyonia lucida), wax myrtle (Myrica
cerifera), and winged sumac (Rhus copallinum). Groundcover is dominated by saw
palmetto with lesser associations of wax myrtle, gallberry, water oak, longleaf pine, slash
pine, grapevine and green briar (Smilax sp.).

FLUCFCS 414 – Pine – Mesic Oak (3.72 acres)
This FLUCFCS community includes a mixture of species found in both the Pine Flatwoods
(FLUCFCS 411) and Wetland Forested Mixed (FLUCFCS 630) communities. However, the
hydrology in this area does not exhibit characteristics of a jurisdictional wetland.

FLUCFCS 513 – Ditch (1.19 acres)
This man-made water conveyance feature includes groundcover that is mainly comprised
of bahia grass with lesser associations of soft rush and marsh pennywort (Hydrocotyle
umbellata).

FLUCFCS 630 – Wetland Forested Mixed (17.57 acres)
This wetland community has a canopy of slash pine, water oak, loblolly bay (Gordonia
lasianthus), laurel oak, and red bay (Persea borbonia). Subcanopy vegetation consists of
slash pine, loblolly bay, water oak, red bay, wax myrtle, fetterbush and laurel oak.
Groundcover vegetation includes highbush blueberry (Vaccinium corymbosum), scattered
saw palmetto, Asian coinwort (Centella asiatica), slender spikerush (Eleocharis baldwinii),
maidencane (Panicum hemitomon), sphagnum moss (Sphagnum andersonianum), Virginia
chain fern (Woodwardia virginica), cinnamon fern (Osmunda cinnamomea), royal fern
(Osmunda regalis), fetterbush, netted chain fern (Woodwardia areolata), blackberry and
grapevine.
Two species of protected wildlife were observed on the project site: the Sherman’s fox squirrel and gopher tortoise. Both are considered species of special concern by FWC but neither is protected by the USFWS.

Two species of protected plants were observed on the USF project site: Royal fern and Cinnamon fern. However, there are no restrictions to the landowner regarding the presence of any protected plant species unless sale of the plants is involved.

**Historic / Archaeological Resources**

A study developed by MSCW, Inc. provides a more detailed account of any known historic or archaeological resources found at the new USF Polytechnic Campus. This report is on file at USF Polytechnic Campus office of the Associate Vice President for Campus Planning and Development.

**F. Inventory and Future Needs Assessment of Facilities on University-Controlled Lands (not under jurisdiction or operation of the State University System)**

All of the 171.54 acres that comprise the USF Polytechnic Campus are under the jurisdiction of the State University System.

**G. Inventory and Assessment of Existing and Projected Land Uses, Goals Objectives, policies and Zoning within the Study Area (as defined in the local government’s comprehensive plan to determine their impact on meeting the needs of the University).**

At this time the only off-campus uses that might be pursued is off-campus private housing and use of City and/or County recreational facilities. The Comprehensive Plans for the City of Lakeland and Polk County accommodate both of these uses.

**H. Inventory of Potential Induced Development in Neighboring Community**

See response to G. above.
4. Transportation

This element assesses and makes transportation recommendations for integrating all modes of travel (bicycle, bus/transit, and motor vehicle) both on campus and in the off-campus planning study area. These recommendations shall coordinate policies, programs and projects with the host and/or affected local governments, as well as with other state and regional agencies.

A. Inventory and assess parking located in campus and off-campus if owned or controlled by the University.

This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

No parking facilities are located off-campus that are owned or controlled by USFP.

The new master plan for the campus shows an oval ring road on the outside of the campus. Surface parking lots are planned along the inside of the ring road. The parking lot for Phase I is located in the northern portion of the campus conveniently located to serve the first buildings to be constructed. Phase I is planned for 438 parking spaces. At build out a total of 1,500 to 1,800 parking spaces is planned to be constructed on campus.

B. Inventory and assess transit facilities and services on campus and in the planning study area.

 Currently no transit facilities service the site. However, by 2015 the Polk Transit Authority will be serving the USF Polytechnic Campus.

The Polk Transportation Planning Organization 2035 Mobility Vision Plan (2010) foresees a single Transit service provider that combines: Lakeland Area Mass Transit District (LAMTD), Winter Haven Area Transit (WHAT) and Polk County Transit Services (PCTS), to be known as Polk Transit Authority (PTA). The Polk Transportation Planning Organization 2035 has identified 6 routes that are proposed to service the USF Polytechnic Campus.

Table 4.1 Polk County 2035 Proposed Bus Service

Routes to the USF Polytechnic campus at I-4 will be put in service by 2015 include Route T-101, T-122 and T-150. New routes and extensions to existing routes that are considered needed but not able to be funded by 2035 include and T-105, T-106 and T-111 are currently unfunded routes.
The Polk County Bus System consists of full sized transit buses in addition to ADA service utilizing smaller para-transit vehicles.

C. **Inventory and assess facilities and services for bicycling and walking including existing and planned facilities on campus and in the planning study area.**

This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

The new campus is designed with an external oval shaped ring road, which will be the primary vehicular campus access road. The majority of buildings on campus will be constructed inside the ring road. An extensive network of pedestrian and bicycle pathways are designed to provide efficient non-vehicular connectivity throughout the campus. The pathways will be landscaped to provide a pleasant experience for pedestrians and bicyclists. Pedestrian and vehicular conflicts are minimized by the campus design.

There will be convenient, safe and direct on-campus pedestrian and bicycle way connections to off-campus pedestrian and bicycle ways where the campus interfaces with off-campus development.

Maps and documents published by the Polk Transportation Planning Organization (TPO) were reviewed to determine if roadways in the context area are suitable for bicyclists. A review of the Bicycle Suitability Map published by the Polk TPO revealed that the Bicycle Suitability Map has not been updated since the USF Lakeland Campus Master Plan, Final Supporting Inventory and Analysis was published in 2006. The Bicycle Suitability Map, Polk TPO, 2/25/2004, shows two categories of roadways that are considered suitable for non-vehicular circulation by bicycle. The categories are described below with the roads identified in the context area in each category.

1. **Roadways with light traffic that are considered suitable for non-vehicular circulation by bicyclists.**
   - Lakeland Hills Boulevard (SR 33) – SR 33 runs north-south to the west of Lake Parker connecting with Combee Blvd. before an interchange with I-4. SR 33 has a paved shoulder that is at least 4 feet wide.
   - Old Polk City Road – This road runs parallel to Interstate 4 to the north and connects with SR 33. Old Polk City Road does not have a paved shoulder.
   - Mount Olive Road – Connects with SR 33 just northeast of Old Polk City Road and continues south of Interstate 4 to Berkley Road. Mount Olive Road does not have a paved shoulder.
2. Roadways with medium or heavy traffic with paved shoulders at least 4 feet wide, which are considered suitable for non-vehicular travel by bicycle.
   - Combee Road (SR 659)
   - Saddle Creek Road (SR 546)

The Auburndale-TECO Multi-Use Trail is located approximately one mile east of the USF Polytechnic campus and will be accessible to bicyclists via the newly completed Pace Road. The Auburndale-TECO Trail extends from Auburndale to the south and connects with the Van Fleet National Recreational Trail north of Interstate 4.

Table 4-1: Inventory of Bicycling and Walking Facilities

<table>
<thead>
<tr>
<th>Route</th>
<th>Project ID</th>
<th>Route Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Shuttle</td>
<td>T-101</td>
<td>PSC/USF Polytechnic Shuttle</td>
</tr>
<tr>
<td>LAMTD A</td>
<td>T-105</td>
<td>USF Polytechnic/Lakeland Square Mall</td>
</tr>
<tr>
<td>LAMTD B</td>
<td>T-106</td>
<td>USF to Winter Haven via SR 540</td>
</tr>
<tr>
<td>LAMTD G</td>
<td>T-111</td>
<td>Lakeside Village to USF Polytechnic Campus</td>
</tr>
<tr>
<td>LAMTD I</td>
<td>T-150</td>
<td>USF Polytechnic to Polk State College</td>
</tr>
<tr>
<td>PCTS K</td>
<td>T-122</td>
<td>Auburndale to USF Polytechnic</td>
</tr>
</tbody>
</table>

D. Inventory and assess opportunities to implement transportation demand management strategies.

The USFP Administration is open to opportunities to implement Transportation Demand Management (TDM) techniques to minimize potential off-site impacts. Examples of TDM strategies and techniques are listed below:

- Operational modifications – These include coordination traffic access improvements at the entrances/exits of the campus and along context area roadways with the City of Lakeland and Polk County; traffic signalization coordination, turn restrictions and access management; and transit lane dedication.
- Improvement of pedestrian and non-vehicular facilities – The campus will be designed for safe and efficient pedestrian and bicycle movement around the campus. There will be safe and convenient linkages to proposed off-site development.
- Academic scheduling modifications, including scheduling more classes during non-peak hours.
• Parking pricing strategies designed to make other modes of travel, such as transit and car pooling, more economical and to provide revenue for improved TDM services and facilities.
• Traffic system management approaches.
• Location of student-oriented housing in close proximity to the campus. As the area surrounding the campus matures, a variety of housing options will become available. This is not only an important option for students, but is important when recruiting faculty as well.
• Provide convenient and safe pedestrian oriented linkages between transit stops and campus origins / destinations to encourage transit ridership when transit line(s) are extended to USFP.

E. Inventory and assess safety of the on-campus transportation system users.

This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document. Safety is a primary concern that was addressed in the new master plan for the campus. There is a hierarchy of primary and secondary vehicular roads within the campus that have been designed to minimize conflicts. In addition, the vehicular and pedestrian / non-vehicular conflicts have been minimized.

F. Inventory planned new roads, road modifications, and other planned transportation system modifications.

The following new roadways and road improvements are under construction and are scheduled to be completed within the next year.

The construction of the interchange at Polk Parkway and Pace Road will provide a major access way to the USFP campus. Pace Road, from Polk Parkway to Berkley Road, will provide access to Berkley Road, a major north-south road, which is located approximately one mile east of the Polk Parkway.

The Polk Parkway was initially 2-laned from its beginning point at Interstate 4 to the first toll booth, which is just south of Pace Road. This segment of the Polk Parkway is currently being 4-laned.

Two significant roads were shown in the Williams DRI, the east/west road (University Blvd), which extends from SR 33 to the west to the Polk Parkway interchange at Pace
Road. This improvement is currently under construction and is being funded by the Williams Company.

The USF Loop Road (Research Way) is a short loop road that will provide direct access to the USFP campus. This road is currently under construction and is being funded by the Williams Company.

### Table 4.2 Summary of Planned Off-campus Transportation Improvements

<table>
<thead>
<tr>
<th>Location / Project</th>
<th>Cost Estimates</th>
<th>Completion Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polk County (Funded by State of FL Turnpike Authority)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polk Parkway Interchange at Pace Road and Polk Parkway – 4-Lane from I-4 to Pace Road Interchange</td>
<td>$34,000,000</td>
<td>Fall 2011, Fall 2011</td>
</tr>
<tr>
<td>Pace Rd. from Polk Parkway to Berkley Road</td>
<td>NA</td>
<td>Completed</td>
</tr>
<tr>
<td>Williams DRI (Funded by ARRA Grant as a joint FDOT City of Lakeland Project)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Blvd (East / West Road from 33 to Polk Parkway)</td>
<td>$14,900,000</td>
<td>Spring 2012</td>
</tr>
<tr>
<td>Research Way (USFP Loop Road)</td>
<td>NA</td>
<td>Spring 2012</td>
</tr>
</tbody>
</table>

Source: Polk TPO

### G. Inventory and assess roadways on campus and in the planning study area.

**On Campus**: This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

**Context Area**: The information contained in Table 4.3 summarizes the characteristics of the roadways surrounding the campus and the Williams DRI site. The source of the information is the 2010 Polk County Roadway Network Database published by the Polk TPO. The Link number shown in Table 4.3 correlates to the Link number in the database. Where two lines of data are provided, they correspond to the Links listed above in the table and appear in corresponding order.

Primary Access facilities shown in Table 4.3 are those facilities that provide direct access to the University / Williams DRI development area. Secondary Access roadways are
those that intersect the Primary Access facilities. Secondary Access roadways distribute the University traffic to the surrounding area.

**Table 4.3 Summary of Existing Roadway Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Primary Roadways</th>
<th>Secondary Roadways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway Characteristics</td>
<td>Polk Pkwy (SR 570)</td>
<td>Combee Rd. (SR 659)</td>
</tr>
<tr>
<td>No. of Lanes</td>
<td>Link 7402</td>
<td>Link 7301</td>
</tr>
<tr>
<td></td>
<td>Link 7401</td>
<td>Link 7302</td>
</tr>
<tr>
<td></td>
<td>2 Und</td>
<td>2 Und</td>
</tr>
<tr>
<td></td>
<td>4 Frwy</td>
<td>2 Und</td>
</tr>
<tr>
<td>Functional Classification</td>
<td>PA</td>
<td>MA</td>
</tr>
<tr>
<td>Access Mgmt Classification</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Traffic Volume (AADT)</td>
<td>6,500</td>
<td>14,600</td>
</tr>
<tr>
<td></td>
<td>12,400</td>
<td>12,000</td>
</tr>
<tr>
<td>Peak Hour/Peak Season LOS</td>
<td>B A</td>
<td>C C</td>
</tr>
</tbody>
</table>

1 Explanation of Abbreviations
Frwy – Freeway
Und – Undivided
Div – Divided
LOS – Level of Service

2 Functional Classifications
PA – Principal Arterial
MA – Minor Arterial

3- Limited Access, no direct access to adjacent property

3- Access to adjacent property is restrictive, tightly controlled, with driveway spacing at no less than 660 feet
5- Access to adjacent property is limited, driveway spacing at no less than 440 feet and signals and signals each ½ mile

N/A- Not Applicable, road does not abut immediately adjacent property

Source: 2010 Polk County Roadway Network Database; Polk TPO Polk County Transportation Planning Organization, January 6, 2010

A comparison of the Current to the Adopted LOS shown in the 2010 Polk County Roadway Network Database published by the Polk TPO is shown in Table 4.4. As shown in Table 4.4, all roadways are currently operating below the LOS adopted by the City of Lakeland.

Table 4.4 Level of Service Comparison

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Link</th>
<th>Current LOS</th>
<th>Adopted LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polk Pkwy (SR 570)</td>
<td>7402</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>7401</td>
<td>A</td>
<td>D</td>
</tr>
<tr>
<td>Combee Rd (SR 659)</td>
<td>7301</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>7302</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>I-4 (SR 400)</td>
<td>5506</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Memorial Blvd (US 92/SR 600)</td>
<td>5306</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td>SR 33 (Commonwealth Ave)</td>
<td>5602</td>
<td>D</td>
<td>E</td>
</tr>
</tbody>
</table>

Source: 2010 Polk County Roadway Network Database; Polk County Transportation Planning Organization, January 6, 2010.

City of Lakeland Comprehensive Plan

An assessment of pavement condition is requested; however, published data is not available.

H. Assess roadway capacity on campus and in the planning study area for the campus master plan base year and projected year.

1. Future Conditions

A projection of student population data was provided by the University for the Master Plan horizon year 2020. Based on enrollment projections, faculty and staff
employment is assumed to grow in parallel with enrollment growth. Table 4.5 summarizes the existing and projected enrollment at USFP.

Table 4.5 Existing and Projected USF Polytechnic Enrollment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE</td>
<td>943</td>
<td>2,649</td>
<td>5,381</td>
<td>10.58 %</td>
</tr>
<tr>
<td>Headcount</td>
<td>4,460</td>
<td>4,871</td>
<td>16,244</td>
<td>10.34 %</td>
</tr>
</tbody>
</table>

Source: USF IREP, October 2011

Because this Master Plan is for a new campus, an analysis of parking demand and supply is not provided. The campus plans to open with 438 parking spaces adjacent to Phase I buildings, including 120 dormitory rooms. The Master Plan for the USFP campus shows a potential of 1,500 to 1,800 parking spaces.

2. Mode Split

This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no mode split is considered for the inventory section of this document.

3. Transportation Demand Management Strategies

Transportation Demand Management Strategies are discussed in Section D. of this Chapter.

4. Trip Generation

Table 4.6 below provides updated traffic generation for the base year (2010/2011) and the planning horizon year (2019/2020).

Table 4.6 USF Polytechnic Trip Generation

<table>
<thead>
<tr>
<th></th>
<th>2010-11</th>
<th>2020-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headcounts-Students</td>
<td>4,460</td>
<td>16,244</td>
</tr>
<tr>
<td>Daily Trip Generation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily Trip Generation Rate</td>
<td>x 2.38</td>
<td>x 2.38</td>
</tr>
</tbody>
</table>
### SECTION 4: TRANSPORTATION

<table>
<thead>
<tr>
<th>Total Daily Trips Generated</th>
<th>10,615</th>
<th>38,661</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credited Daily Trips*</td>
<td>-2,818</td>
<td>-4,861</td>
</tr>
<tr>
<td><strong>Total Daily Impact Trips</strong></td>
<td>7,797</td>
<td>33,800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Peak Hour Trip Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Hour Trip Generation Rate</td>
</tr>
<tr>
<td><strong>Total Peak Hour Trips Generated</strong></td>
</tr>
<tr>
<td>Credited Peak Hour Rates</td>
</tr>
<tr>
<td><strong>Total Peak Hour Trips</strong></td>
</tr>
</tbody>
</table>

Sources: City of Lakeland Concurrency Determination Application, 05/2002.


“Agreement for Donation of Land between Williams Acquisition Holding Company, Inc. and USF Board of Trustees, January 23, 2006.


Headcounts are used in trip generation calculations rather than FTE’s. FTE’s are more suitable for estimating building square footages while headcounts more accurately reflect trips on the road.

A transfer of trips was made to USF Board of Trustees as part of the transfer of title from Williams Acquisition Holding Company, Inc. These are referred to as “Credited Trips” in Table 5.4. Credited trips are trips that had been accounted for in the identification of transportation improvements to be provided by William under the terms of their Development Order from the City of Lakeland. Because the impacts of credited trips have already been accounted for, they are not considered “new” trips to the surrounding roadway network.

The trip generation rates adopted by the City of Lakeland are those provided in the latest Institute of Transportation Engineers *Trip Generation*, which is the 8th Edition.
5. Housing

This element ensures the provision of public and private housing facilities on the University campus and within the host and/or affected communities that is adequate to meet the needs of the projected University enrollment.

A. On-campus University Controlled Undergraduate, Graduate, and Family Housing

Number of Students Housed in On-Campus Student Housing (Fall 2010)
As of Fall 2010 there are 4,212 undergraduate students and 372 graduate students enrolled at USF Polytechnic. There is no on-campus housing; therefore, all students live in off-campus private housing.

Table 5-1 shows the FY 2011 rental rates for the Lakeland-Winter Haven, Florida MSA.

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>One-Bedroom</th>
<th>Two-Bedroom</th>
<th>Three-Bedroom</th>
<th>Four-Bedroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>$674</td>
<td>$744</td>
<td>$857</td>
<td>$1,087</td>
<td>$1,275</td>
</tr>
</tbody>
</table>

Planned Increase in Number of Students Housed in On-Campus Student Housing
The Campus Master Plan for USF Polytechnic envisions dormitories containing 500 beds will be constructed initially when the new campus is constructed. The University plans up to an additional 500 beds for a total of 1,000 beds on-campus.

B. Number of Students Housed in University Controlled Facilities Off-Campus
There is no university controlled housing off-campus.

C. Number of Students Housed in Non-University Controlled facilities On-Campus
USF Polytechnic does not plan any on-campus non-University controlled housing.

D. Number of Students Housed in Non-University Controlled facilities Off-Campus
With an estimated enrollment of 5,431 by 2013 and 500 bed spaces to be provided within the 10-year planning period, 4,931 students will be housed in off-campus facilities.

E. Historically Significant On-Campus Housing
There are no historically significant housing facilities on the new campus site.

F. Potential On-campus Housing Sites
This is a new Campus. Housing sites are shown on the Campus Master Plan. A total of 500 beds will be provided initially with a potential for up to 1,000 beds at buildout.
6. General Infrastructure

This element ensures the provision of adequate capacity for stormwater management, potable water, sanitary sewer, and solid waste facilities required to meet the future needs of the university.

6.1 Stormwater Management

A. Inventory and assess all public and private facilities and natural features which provide stormwater management for the campus.

This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document. Presently there are no stormwater management facilities on the site.

The USFP site is located in the Peace River Basin of the Southwest Florida Water Management District (SWFWMD). The property slopes from the southeast corner to the west and northwest corner of the site onto the adjacent property owned by Williams Acquisition Holdings Company. The site ultimately discharges to the Tenoroc Fish Management Area (FMA), headwaters of the Peace River.

There is a cross site drainage flow that originates on the east side of the Polk Parkway, which passes through a culvert under the roadway and then flows across the northern portion of the site.

Under the agreement between USF and Williams Acquisition Holdings Company, the 100 year flood plain identified on the FEMA FIRM map, will be corrected by a Letter of Map Revision by establishing the 100 year flood elevation and reconfiguring the flood zone to a shallow 0.7 acre pond area on the west side of the site.

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

The stormwater management system for the USFP campus will be designed to meet or exceed the drainage criteria of the SWFWMD and the City of Lakeland as defined in the City’s Comprehensive Plan Infrastructure Element. The Level of Service to be provided will be retention and attenuation to not exceed the pre-development flow quality and
SECTION 6: GENERAL INFRASTRUCTURE
rate for the 25 year/24 hour storm event, and provide quality treatment of the first 1 inch of storm runoff over the entire site.

The agreement between USF and Williams Acquisition Holdings Company, Inc. spells out the details of the surface water management system for the USFP campus as listed below:

- USF shall be responsible for providing full water quality treatment (pollution abatement) for Parcel 1A in accordance with SWFWMD and City of Lakeland criteria prior to discharge off site.
- USF shall provide reasonable/similar points of discharge onto Williams’ property to the west based on existing drainage patterns associated with Parcel 1A.
- USF shall be responsible for maintaining conveyance of any existing offsite drainage through Parcel 1A, by whatever permittable means necessary, so as not to cause adverse impacts to the surrounding adjacent properties. The flow from a cross-property conveyance system shall be included in the master drainage plan for the Williams property beyond the USFP site.
- This cross site drainage will be designed to either (1) bypass the stormwater ponds on the Williams property and be conveyed to the ultimate outfall location, or (2) be taken into the stormwater ponds on the Williams property. It is not anticipated to provide any treatment on Parcel 1A for cross site drainage. It is only intended to convey the drainage through the site to the Williams property. If the drainage is taken into the stormwater ponds on the Williams property, water quality treatment and stormwater attenuation will be provided within their ponds.
- Stormwater attenuation for the treated discharge from Parcel 1A shall be designed in accordance with SWFWMD and City criteria to not exceed the pre-development flow rate for the 25 year/24 hour design storm event. Location and sizing of required attenuation ponds, to be constructed on the Williams property for this purpose, will be identified and encumbered by a drainage easement in favor of USF.
- Williams will be responsible for all costs associated with the construction of these attenuation ponds and for the conveyance to these ponds from the discharge points along the USFP site. If for some reason stormwater attenuation cannot be provided with the Williams Property, attenuation will be provided with USF Parcel 3. Williams will be responsible for all costs associated with the conveyance of the treated runoff from Parcel 1A, as well as any construction costs associated with stormwater attenuation within Parcel 3.
- Williams will provide non-exclusive drainage easements to USF, and any additional operation and maintenance entity, for access and maintenance of the USF outfall system from the westerly boundary of Parcel 1A to and through the stormwater attenuation areas to be located on the Williams Property. The location and size of such easements will be provided in accordance with future approved construction
plans for these systems and City of Lakeland development regulations/subdivision standards.

C. **Inventory and assess existing regulations and programs which govern land use and development of natural drainage features.**

There are various federal, state and local regulations that govern land use and development of drainage features.

A National Pollution Discharge Elimination System (NPDES) permit must be obtained from the Florida Department of Environmental Protection prior to beginning construction on any land area over 1.0 acre in size.

A Letter of Modification from FEMA must be obtained to remove areas of the site from 100 year flood plain identified on FEMA FIRM Maps.

A permit has been issued by the Army Corps of Engineers (ACOE) to permit dredge and fill activities on the site. ACOE Permit SAJ-2008-01424 was issued on May 11, 2010, and expires on May 11, 2015.

A Conceptual ERP was issued by the SWFWMD on April 3, 2010 (Permit no. 49034389.000). Concurrently the SWFWMD issued a mass grading permit April 13, 2010 (Permit no. 49034389.001).

6.2 **Potable Water**

Minimizing potable water consumption is critical for long-term sustainable growth on campus. State and federal regulations continue to grow more restrictive regarding the use of extraction wells for open space irrigation. Likewise, obtaining permits to increase the amount of groundwater extraction will become more restrictive.

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

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

   This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.
2. **General performance of existing potable water facilities, evaluating current level of service, conditions, and impact of facility upon adjacent natural resources.**

This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

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

The Phase I through Build Out water system demand calculations are presented below. The Full Time Equivalent Student, Staff and Faculty population are identified and listed as FTE. The students that will be residing in dormitories on campus are identified and listed as Residents.

The water system demands for planning purposes are calculated based on the gallon per day (GPD) demands for Residents and FTE’s. The demand for each Resident is 50 GPD and the demand for each FTE is 17 GPD. The peak flow rates in gallons per minute (GPM) forResidents and FTE’s were calculated based on a peak factor of 5. The results have been rounded.

The fire flow demand for the campus is 2,400 gallons per minute (GPM) for 4 hours at a minimum pressure of 40 psi. The 2,400 GPM fire flow is based on the fire department connecting to two fire hydrants to engage a fire. The assumption is that the fire department would respond with at least two fire trucks and that each fire truck would connect to a hydrant that would provide a flow of 1,200 GPM for fire suppression.

Table 6.1 presents the projected potable water demand for Phase I of the campus development (2013 / 2014) based on FTE, the Planning Horizon (2019 / 2020) and the Build Out Scenario.
Table 6.1 USF Polytechnic Projected Potable Water Demand Measured in FTE

Phase I (2013 / 2014)

<table>
<thead>
<tr>
<th>Phase I 2015/16</th>
<th>Demand GPD</th>
<th>Peak Flow GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>310</td>
<td>15,500</td>
</tr>
<tr>
<td>FTE</td>
<td>1,512</td>
<td>25,710</td>
</tr>
<tr>
<td>Fire Flow</td>
<td></td>
<td>41,210</td>
</tr>
</tbody>
</table>

Planning Horizon 2020/21 Demand GPD

<table>
<thead>
<tr>
<th></th>
<th>Demand GPD</th>
<th>Peak Flow GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>1,270</td>
<td>63,500</td>
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<tr>
<td>FTE</td>
<td>5,381</td>
<td>91,500</td>
</tr>
<tr>
<td>Fire Flow</td>
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<td>116,500</td>
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</table>

Build Out Scenario

<table>
<thead>
<tr>
<th></th>
<th>Demand GPD</th>
<th>Peak Flow GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>1,270</td>
<td>63,500</td>
</tr>
<tr>
<td>FTE</td>
<td>14,750</td>
<td>250,750</td>
</tr>
<tr>
<td>Fire Flow</td>
<td></td>
<td>314,250</td>
</tr>
</tbody>
</table>

Source: ECON; 2011.

The City of Lakeland has confirmed through the “Campus Development Agreement Between the City of Lakeland and the University of South Florida Board of Trustees” with USF that there is adequate capacity in their system to provide the required demand and flow rate for initial phases but not for the complete build out of the campus. The Campus Development Agreement states the following: “Based upon USF’s estimated build out demand of 250,000 gallons per day (or ‘gpd’)…it has been determined that adequate potable water is available for the proposed campus development.” The estimated potable water demand for the USFP campus at build out is 314,250 GPD as shown in Table 6.2.1 above.

4. Underground hydrology of the campus, including its potential as a potable water source.
The potable water service to the site, both for domestic use and fire protection will be provided by the City of Lakeland. Underground hydrology will not be utilized as a source for potable water.

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

As discussed in Section A.3. above, The City of Lakeland has stated in the Campus Development Agreement that the City can provide 250,000 GPD. As shown in Table 6.2.1, the campus estimated demand for potable water at build out is 305,875 GPD.

The Campus Development Agreement contains provisions for amending the current Agreement.

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.

Federal Regulations: The Federal Safe Drinking Water Act (Public Law 93-523) establishes operating standards and quality controls for the protection of public water supplies. As directed by the Act, the Environmental Protection Agency (EPA) has established minimum drinking water standards, to which every public water supply system must conform. Included are “primary” standards required for public health, and “secondary” standards, which are recommended to attain a higher aesthetic quality of water.

State Regulations: In accordance with federal guidelines, the Florida Safe Drinking Water Act has been adopted, which designates the Florida Department of Environmental Protection (FDEP) as the state agency responsible for the regulations of drinking water. The FDEP has promulgated rules classifying and regulating public water systems, including mandatory water treatment criteria.

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.

Reclaimed water is not available to the site. Opportunities for creating a reuse supply on campus may be explored. These include rooftop collection and chiller plant cooling
tower blow-down water collection. Currently, the University has rooftop collection for the Patel Center, and designs are underway for the installation of underground cisterns for each of the chiller plants on campus.

6.3 Sanitary Sewer

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.

   This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document. The campus site will be serviced by the City of Lakeland force main that proceeds north along SR 33 to the intersection of Old Polk City Road, under Interstate 4 and easterly in the FDOT right of way to the northwest corner of the site.

   The sanitary system on site will consist of a gravity collection system, servicing all buildings, and will flow to the northwest where it will flow into a City of Lakeland owned lift station. The lift station will be constructed to City of Lakeland standards and connect to the City of Lakeland supplied force main.

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

   This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

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

   - The Phase I through Build Out wastewater system flow calculations are presented below. The Full Time Equivalent Student, Staff and Faculty population are identified and listed as FTE. The students that will be residing in dormitories on campus are identified and listed as Residents.
The wastewater system flows for planning purposes are calculated based on the gallon per day (GPD) generated by Residents and FTE’s. The wastewater flow generation is based on the premise that 85 percent of the water demand will be returned to the wastewater system. Based on this premise the wastewater flow generated for each Resident is 43 GPD and the wastewater flow generated for each FTE is 14 GPD. The peak flows for the wastewater system in gallons per minute (GPM) for Residents and FTE’s were calculated based on a peak factor of 5. The results have been rounded.

<table>
<thead>
<tr>
<th>Phase I 2015/16</th>
<th>Flow GPD</th>
<th>Peak Flow GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>310</td>
<td>13,330</td>
</tr>
<tr>
<td>FTE</td>
<td>1,512</td>
<td>21,170</td>
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<tr>
<td></td>
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<td>34,500</td>
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</table>

<table>
<thead>
<tr>
<th>Planning Horizon 2020/21</th>
<th>Flow GPD</th>
<th>Peak Flow GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>1,270</td>
<td>54,610</td>
</tr>
<tr>
<td>FTE</td>
<td>5,381</td>
<td>75,340</td>
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<tr>
<td></td>
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<td>129,950</td>
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</table>

<table>
<thead>
<tr>
<th>Build Out Scenario</th>
<th>Flow GPD</th>
<th>Peak Flow GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>1,270</td>
<td>54,610</td>
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<tr>
<td>FTE</td>
<td>14,750</td>
<td>206,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>261,110</td>
</tr>
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</table>

The City of Lakeland has previously confirmed through the “Campus Development Agreement Between the City of Lakeland and the University of South Florida Board of Trustees” with USF that there is adequate capacity in their system to provide the required demand and flow rate for initial phases but not for the complete build out of the campus.

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

As discussed in Section A.3. above, The City of Lakeland has stated in the Campus Development Agreement that the City can provide service for the initial phases but not
for full build out. As shown in Table 6.2.1, the campus estimated wastewater generated at build out is 261,110 GPD.

The Campus Development Agreement contains provisions for amending the current Agreement.

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.

**Federal Regulations:** The Federal Pollution Control Act (PL 92-500) is the controlling national legislation relating to the provision of sanitary sewer service. The goal of this act is the restoration and/or maintenance of the chemical, physical and biological integrity of the nation’s waters. The act established the national policy aimed at implementing area-wide waste treatment and management programs to ensure adequate control of pollutant sources.

**State Regulations:** The Florida Department of Environmental Regulation (FDEP) is responsible for compliance with federal and state regulations within Florida.

6.4 Solid Waste

Solid Waste on the USF-Polytechnic campus will be collected and processed by the City of Lakeland and Polk County. The USF Polytechnic Campus works with the USF Office of Sustainability with its efforts to minimize waste and increase recycling.

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 Campus Development Agreement (CDA) between the City of Lakeland and the University of Florida Board of Trustees (2007) provides that solid waste shall be collected and transported to the Polk County landfill or other appropriated designated solid waste collection site by the City. The County has determined that
sufficient landfill space is available in the North Central Landfill to meet projected demand through 2020, with Phase II of this landfill facility having already been built and having capacity through 2050.

The Level of Service for Solid Waste generated will be based on the City of Lakeland Concurrency levels of 5.4 pounds/capita/day as found in the City of Lakeland Comprehensive Plan (2011)

Student Population data were provided by USF Polytechnic for the projected future enrollment at USF Polytechnic over the 10-year Master Plan Horizon (2010). Faculty and staff enrollment is assumed to grow in parallel with the student population growth over the planning horizon. Based upon table 4-1 Existing and Projected USF Polytechnic Enrollment (Headcount), the headcount for the facility will be 9,539 in 2019/2020. Given a solid waste level of service of 5.4 pounds per capita per day, the facility will generate 51,510.6 pounds of solid waste per day.

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

Polk County provides solid waste disposal for the entire county, including the municipalities. The City’s primary method is to haul wastes that are not recycled to the North Central Landfill which is owned and operated by the Polk County Environmental Services Division. Burnable refuse, such as wood and tires are sent to the Wheelabrator facility located adjacent to the county’s North Central Landfill for waste-to-energy conversion. These facilities have been no problems in terms of leechate contamination associated with some County landfills. As is true with all landfills, scavenging birds and odors are common; however, there is no residential development in the immediate proximity of any Polk County landfill facility. The siting of a new landfill is not necessary at this time as the existing facilities are adequate to accommodate projected demand through 2050.

To the extent that the USF Polytechnic establishes solid waste facilities on the USF Polytechnic Campus, that the University has agreed in the Campus Development Agreement that those facilities would meet and be compliant with the City’s minimum standards.

3. Proportional capacity of shared facilities between the University and local governments that are required to meet existing University needs, including capacity allocation.
The 2007 Campus Development Agreement states that the City of Lakeland will be responsible for solid waste disposal at a level of service of 5.4 pounds/capita/day.

B. **Inventory and assess the 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 Campus Development Agreement between the USF Board of Trustees and the City states both parties are in agreement that no off-campus solid waste improvements are needed to maintain the City’s adopted level of service standards for solid waste. It is the policy of Polk County to develop and implement mechanisms to cooperate with FDEP and Central Florida Regional Planning Council in executing programs to monitor handling and disposal of hazardous and bio-hazardous waste.

C. **Inventory and assess 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.**

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

In 1980, the Florida legislation adopted Hazardous Waste Guidelines in conjunction with EPA regulations. Florida Administrative Code, Chapter 62-701 addresses the regulations for Solid Waste Management Facilities. In January of 2010, 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, Florida Department of Environmental Protection mandates that recyclable waste be removed from waste stream prior to deposit in the landfill. At this point in time USF Polytechnic cannot determine what, if any, hazardous wastes will be generated. The USF has agreed in the Campus Development Agreement that it shall meet all state and federal regulations in the collection and transportation of its hazardous wastes and materials in the Campus Development Agreement with the City of Lakeland (2007) Private collection companies may be contracted for the collection and removal of hazardous waste.

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

The City of Lakeland is not bound by State mandate to recycle a minimum of 30% of solid waste; that mandate applies to Polk County. However, the City has historically recycled approximately 25% to 30% of the solid waste it collects. Most of the City’s recyclable tonnage is comprised of yard wastes, which are renewable as a fuel. In addition, the City recycles or sells tires, scrap metal and cardboard.

The USF shall establish procedures to reduce the volume of solid waste generated on the USF Polytechnic Campus and encourage recycling and reuse programs to extend the usability of the County landfill over time. Various recycling services may be available and provided by the City to the University under a service agreement, depending upon the type, nature and demand of the collection services as outlined in the Campus Development Agreement.

E. **Inventory and assess any 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.**

The Campus Development Agreement between the City of Lakeland and the University of Florida Board of Trustees (2007) provides that solid waste shall be collected and transported to the Polk County landfill or other appropriated designated solid waste collection site by the City. This agreement remains in effect until December 31, 2015. The Campus Development Agreement may be extended by the mutual consent of the parties. The County has determined that sufficient landfill space is available and has capacity through 2050.
Sources:

The following is a list of sources reviewed for information to support the General Infrastructure and Utilities Element – Solid Waste data collection and analysis.

Polk County Comprehensive Plan (2010)
City of Lakeland Comprehensive Plan (2011)
Campus Development Agreement with the City of Lakeland (2007)
University of South Florida Polytechnic Facilities Program (2008)
USF Lakeland campus Master Plan Supporting Inventory and Analysis (2006)

6.5 Steam/ Hot Water

This chapter is not a required element. This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

6.6 Chilled Water

This chapter is not a required element. This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.

6.7 Electrical Power and Other Fuels

This sub-element is not a required element of the Master Plan Update; however it has been included to facilitate 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.

Future Uses/Opportunities for Increased Efficiency
As part of USF Polytechnic’s efforts to make the campus more energy efficient, the University will work toward accommodating the elements of the American College & University Presidents’ Climate Commitment. USFP should establish a methodology and timeline for definition of the following:

- Target Design elements of Phase I construction aimed at achieving climate neutrality as soon as possible.
- Interim targets for goals and actions that will lead to climate neutrality.
- Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students.
- Actions to expand research or other efforts necessary to achieve climate neutrality.
- Mechanisms for tracking progress on goals and actions.

Furthermore the Text of the College and University Presidents Climate Commitment encourages the University to initiate two or more of the following tangible actions to reduce greenhouse gases while the more comprehensive plan is being developed.

a. Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council’s LEED Silver standard or equivalent.

b. Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.

c. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.

d. Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.

e. Within one year of signing this document, begin purchasing or producing at least 15% of our institution’s electricity consumption from renewable sources.

f. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution’s endowment is invested.

g. Participate in the Waste Minimization component of the national Recycle Mania competition, and adopt 3 or more associated measures to reduce waste.

Specific Energy Efficiency Measures for campus facilities and student housing
1.0 Envelope

1.1 Reduce Heat Losses-Ceiling/roof
   1.11 Additional Ceiling/Roof Insulation
   1.12 Exhaust Attics
   1.13 Use Light-Colored Roof Surfaces
   1.14 Roof Sprinkling/Spray System

1.2 Reduce Heat Losses-Walls/floors
   1.21 Additional Wall Insulation
   1.22 Additional Floor/Slab Insulation
   1.23 Use Light Colored Exterior Surfaces
   1.24 Thermal Mass/Passive Solar Heating

1.3 Reduce Heat Losses-Windows/Doors
   1.31 Install Additional Glazing Layer
   1.32 Install Movable Insulation
   1.33 Use Special Coatings or Gases

1.4 Reduce Heat Gain—Windows/Doors
   1.41 Install Exterior Shading
   1.42 Install Interior Shading
   1.43 Use Tinted or Reflective Coatings or Films
   1.44 Optimize Window Sizing and Orientation

1.5 Reduce Infiltration
   1.51 Caulk and Weatherstrip Doors and Windows
   1.52 Install Air-Lock Vestibule System or Revolving Doors
2.0 Lighting

2.1 Reduce Lighting Required

2.11 Utilize Task Lighting

2.12 Lighting Controls

- Selective switching
- Programmable timing control
- Occupancy sensors
- Energy management system

2.13 Use Light-Colored Interior Wall Finishes

2.2 Install More Energy-Efficient Lighting System

2.21 Use High-Efficiency Fixtures

- HID fixtures in selected locations
- Efficient exit signs
- Self-ballasted compact fluorescents

2.22 Use Efficient Exterior Fixtures

- High-pressure sodium HID fixtures
- Metal halide fixtures

2.23 Use High-Efficiency Ballast

- Electromagnetic/hybrid.
- Electronic

2.3 Use Daylighting

2.31 Install Dimming Controls

2.32 Architectural Modifications

3.0 HVAC Systems

3.1 Air Distribution Systems
3.11 Reduce Energy Losses
- Increase duct insulation
- Install air-to-air heat recovery
- Runaround loop heat recovery

3.12 Reduce System Flow Rates
- Airflow and fan speed reduction
- VAV system to reduce fan energy use
- Variable speed drive motor for VAV

3.13 Reduce System Resistance
High-efficiency filters
- Improve design and balance of duct system

3.14 Reduce Ventilation Loads
- Reduce ventilation rate to minimum
- Install local ventilation and makeup air hoods

3.15 Air Destratification
- Enclosed high-velocity fan
- Open propeller fans
- Ductwork system with centrifugal or vane axial fans

3.2 Water/Steam Distribution
3.21 Reduce Energy Losses
- Increase pipe insulation
- Steam-trap monitoring system

3.22 Reduce System Flow Rates
- Primary/secondary pumping with variable speed motors
- Isolate off-line equipment in parallel piping circuits
- Time control or interlocks on circulating pumps

3.23 Reduce System Resistance

3.3 Heating Plant
3.31 Improve Boiler or Furnace Efficiency
   • Match boiler size to load
   • Install multiple boilers
   • Condensing hydronic boiler
   • Increase heat transfer area
   • Preheat combustion air or fuel supply
   • Boiler water treatment

3.32 Install High-Efficiency Heat Pump
   • Air-to-air heat pump
   • Dual-fuel heat pump
   • Water-source heat pump
   • Ground-source heat pump
   • 3.33 Install Radiant Heating System

3.4 Cooling Plant
3.41 Select More Efficient Cooling System
   • Use evaporative cooling
   • Use cooling tower instead of air-cooled system
   • Use heat recovery chiller
   • Direct cooling: well, pond, lake, or river

3.42 Improve Cooling Efficiency
   • Optimize chiller efficiency with temperature controls
   • Use multiple chillers and optimization controls
   • Increase chilled water design temperature
   • Optimize cooling tower flow controls

3.43 Increase Condensing Efficiency
   • Lower condenser water design temperature
   • Reset controls on water temperature
   • Tube-brush cleaning system
   • Chemical washing system

3.44 Improve Part-Load Performance
   • Select chillers based on Integrated Part Load Value (IPLV)

3.5 Control Systems
3.51 Demand Limiting EMCS/DDC
3.52 Optimize Start/Stop
3.53 Duty Cycling Control System (Reduce unoccupied ventilation)
3.54 Supply Temperature Setup/Setback Control System
   - Install programmable thermostats
   - Install controls and hardware to optimize hot-and-cold deck reset
3.55 Install Economizer Control System
3.56 Boiler Control Strategies
   - Draft control modifications
   - Barometric or flue shutoff dampers
   - Outside air temperature reset or heating lockout
   - Boiler optimization controls
   - Hi/low, modulating, or reduced excess air burner
   - Install flue gas analyzer-trim control

3.6 Thermal Storage Systems
3.61 Water Storage Tanks
3.62 Ice Storage Systems
3.63 Rock Bins

4.0 Water Heating
4.1 Reduce Water Heating Loads
   4.11 Use Low Water Use Devices
   4.12 Use Local Booster or Point-of-Use Heaters
   4.13 Preheat Feedwater with Reclaimed Waste Heat
   4.14 Timeclock Controls to Reduce Unoccupied Loads

4.2 Reduce System Losses
   4.21 Increase Insulation on Hot Water Pipes
   4.22 Increase Insulation on Water Storage Tanks
   4.3 Install More Energy Efficient Water Heating System
   4.31 Use Heat-Pump Water Heaters
   4.32 Solar-Assisted Water Heater

5.0 Power Systems
5.1 Reduce Power System Losses
5.11 Correct Power Factors
5.12 Install Energy-Efficient Transformers

5.2 Install Energy-Efficient Motors
5.21 High-Efficiency Motors
5.22 Multispeed. Motors
5.23 Variable-Speed Motors
5.24 Optimize Motor Sizing

5.3 Reduce Peak Power Demand
5.31 Demand Limit Controls (See 3.5 1)

6.0 Refrigeration

6.1 Improve Controls
6.11 Optimize Defrost Cycle Control
6.12 Optimize Condensing Unit Capacity Control
6.13 Install Floating-Head Pressure Control

6.2 Reduce Refrigeration System Losses
6.21 Install Refrigerated Space Doors or Curtains
6.22 Increase Insulation of Refrigerated Area

6.3 Improve Refrigeration System Efficiency
6.31 Multiple Compressors and Controls
6.32 Increase Condensing Unit Efficiency
6.33 Select High-Efficiency Compressor
   - Reciprocating compressor
   - Screw compressor
   - Rotary compressor
   - Parallel unequal reciprocating compressor

7.0 Miscellaneous

7.1 Heat Recovery
7.11 Install Double-Bundle Chillers
7.12 Reclaim Heat from Combustion System Flue
7.13 Reclaim Heat from Steam Condensate
7.14 Reclaim Heat from Waste Water
7.15 Laundry Process Heat Recovery

Sources:

The following is a list of sources reviewed for information to support the General Infrastructure and Utilities Element – Solid Waste data collection and analysis.

Text of the American College & University Presidents’ Climate Commitment.  
http://www.presidentsclimatecommitment.org/about/commitment

WSUCEEP2003_050

6.8 Communications

This chapter is not a required element. This Master Plan is for the development of a new campus for USF Polytechnic; therefore, no existing campus is considered for the inventory section of this document.
7. Conservation

Purpose
The purpose of this element is to ensure the conservation, protection and wise use of all natural ecosystems and natural resources on the University campus and in the context area.

Current Conditions

A. An inventory of the following existing and environmental resources, where present on the University campus and within the context area:

The USF Polytechnic campus is comprised of three separate parcels. The eastern parcel is referred to as Parcel 1A and is approximately 171 acres in size. The western parcels are divided into two parts of roughly equal size referred to as Parcels 2 and 3. Parcel 2 is approximately 176 acres and is situated in the western half of the aforementioned tract. Parcel 3 occupies the eastern half of the tract and is about 184 acres in size.

Wetlands, lakes, rivers and other surface waters and bottom lands

The general area is comprised of rolling sand hills interspersed with pine flatwoods, forested swamps, marshes and solution depression lakes. The un-mined portion of Parcel 1A is characterized by improved pasture, pine flatwoods, temperate hardwood hammock, live oak hammock and disturbed, forested wetlands. The extreme western portion (i.e., the reclaimed mine) is currently pasture and linear open water ponds with a shrubby fringe. Parcel 2 is reclaimed mine lands consisting of linear, slightly elevated spoil piles alternating with shrubby wetlands. Parcel 3 is unreclaimed mined land characterized by large linear spoil piles alternating with open water areas.

Surface drainage is generally either to the southwest through to Saddle Creek, a tributary of the Peace River or northward to the Green Swamp. The Peace River flows south and west ultimately discharging into the Gulf of Mexico. The Green Swamp is the headwaters of the Withlacoochee River, which flows northwestward discharging to the Gulf of Mexico. The Agreement for Donation of Land between Williams Acquisition Holding Company Inc. and the USF Board of Trustees provides that Williams Acquisition
Holding Company Inc, provides for stormwater attenuation from Parcel 1A as well as mitigation of jurisdictional wetlands within Parcel 1A.

**Floodplains;**

Federal Emergency Management Agency (FEMA) mapping indicates Zone A flood hazard areas within revised Parcel 1A of the proposed USF Lakeland property and more significant flood hazard areas on Parcels 2 and 3. In each case, the areas are delineated as having no 100-year flood elevations determined. Should development be proposed within any areas identified as flood hazard areas, special design considerations, with respect to floodplain compensation due to filled areas and floor levels constructed above the 100-year flood elevation would need to be considered. To determine the 100-year Base Flood Elevation (BFE) in Zone A, where the 100-year flood elevation is undetermined, an hydraulic analysis would need to be carried out and approval obtained from FEMA for a Flood Insurance Rate Map (FIRM) amendment.

**Known unique geological features (springs, sinkholes, etc.)**

Parcel 1A lies in an area where sinkhole development poses a moderate-intermediate risk of sinkhole development. A site-specific investigation is recommended prior to development. Parcels 2 and 3 are wholly contained within previously mined areas. Both areas are located in the Bartow Embayment geomorphic province very close to its boundary with the adjacent Winter Haven Karst geomorphic province. Both of these geomorphic provinces have been very active areas of sinkhole occurrence within historic time. In this vicinity, only two sinkhole occurrences are listed in the database over a period of 35 years in an area of 25 square miles within the Bartow Embayment geomorphic province; an occurrence rate of 0.0023 sinkholes per square mile per year.

*This number could be under-reported because a majority of the land is reclaimed phosphate mines, which might mask the karstic erosion process.*

**Existing mitigation sites**

No mitigation sites currently exist at the proposed USF Polytechnic property. The prior mining operation had restrictions upon development of reclaimed lands, which were effective until September 17, 2000. The obligations were fulfilled and the development restrictions subsequently removed.
Existing vegetative communities and nesting or feeding habitat types

The vegetative and land-use cover types on the USF Project site have been classified and mapped using the Florida Department of Transportation Florida Land Use, Cover and Forms Classification System, January 1999. The jurisdictional wetlands found on-site have been delineated (flagged) in the field by MSCW, Inc. scientists and surveyed by Ganung-Belton Associates Inc. The delineation of this site is consistent with the delineation of wetlands within the Williams DRI parcel. The site is comprised of seven (7) FLUCFCS classifications. A full description is found in Element 4 Future Land Use (E).
### Table 7.1  Wildlife Species or signs of their presence observed at the USF Lakeland Property during April/May 2003 Site Inspection

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invertebrates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mosquito</td>
<td>Family Culicidae</td>
<td>Ubiquitous</td>
</tr>
<tr>
<td>Bull ant</td>
<td>Myrmecia gulosa.</td>
<td>Pasture</td>
</tr>
<tr>
<td>Fire ant</td>
<td>Solenopsis sp.</td>
<td>Pasture</td>
</tr>
<tr>
<td>Dragonfly</td>
<td>Order odonata</td>
<td>Ubiquitous</td>
</tr>
<tr>
<td>Grasshopper</td>
<td>Order orthoptera</td>
<td>Ubiquitous</td>
</tr>
<tr>
<td>Love bug</td>
<td>Plecia nearctica</td>
<td>Pasture</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Phoebis sp.</td>
<td>Pasture, wetland edge</td>
</tr>
<tr>
<td>Gulf Fritillary</td>
<td>Dione Vanillae nigror</td>
<td>Pasture; wetland edge</td>
</tr>
<tr>
<td>Spicebush swallowtail</td>
<td>Papilo Troilus ilioneus</td>
<td>Bay swamp fringe; Pine flatwoods</td>
</tr>
<tr>
<td>Zebra swallowtail</td>
<td>Eurytides marcellus</td>
<td>Oak hammock; Pasture</td>
</tr>
<tr>
<td>Eastern Tiger swallowtail</td>
<td>Papilio glaucus australis</td>
<td>Wetland edge</td>
</tr>
<tr>
<td>Crablike spiny orb weaver</td>
<td>Gasteracantha elipsoides</td>
<td>Oak hammock; Pine flat woods; wetland edge</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern mosquito fish</td>
<td>Gambusia affinis holbrooki</td>
<td>Pond</td>
</tr>
<tr>
<td><strong>Reptiles and amphibians</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alligator</td>
<td>Alligator Mississipiensis</td>
<td>Ponds; marsh</td>
</tr>
<tr>
<td>Gopher tortoise</td>
<td>Gopher polyphemus</td>
<td>Abandoned orange grove; Oak and</td>
</tr>
<tr>
<td>Green tree frog</td>
<td>Hyla cinerea</td>
<td>bay swap</td>
</tr>
<tr>
<td>Southern leopard frog</td>
<td>Rana spaenocephala</td>
<td>Marsh; ditch; pond</td>
</tr>
<tr>
<td>Pig frog</td>
<td>Rana gryloi</td>
<td>Marsh; ditch; pond</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cattle egret</td>
<td>Bubulcus</td>
<td>Marsh; shrub swamp; forested swamp; lakes; ditches</td>
</tr>
<tr>
<td>Great egret</td>
<td>Ardea alba</td>
<td>Marsh; shrub swamp; forested swamp; lakes; ditches; pasture</td>
</tr>
<tr>
<td>Great blue Heron</td>
<td>Ardea Herodias</td>
<td>Marsh; shrub swamp; forested swamp; lakes; ditches; pasture</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Little blue Heron</td>
<td>Egretta carula</td>
<td>Marsh; shrub swamp; forested swamp; lakes; ditches</td>
</tr>
<tr>
<td>White Ibis</td>
<td>Eudocimus albus</td>
<td>Marsh; shrub swamp; forested swamp; lakes; ditches</td>
</tr>
<tr>
<td>Glossy Ibis</td>
<td>Plegadis falcinellus</td>
<td>Marsh; shrub swamp; forested swamp; lakes; ditches</td>
</tr>
<tr>
<td>Common Moorhen</td>
<td>Gallinula chloropus</td>
<td>Marsh; lake</td>
</tr>
<tr>
<td>Black necked stilt</td>
<td>Himatopus mexicanus</td>
<td>Marsh</td>
</tr>
<tr>
<td>Water Turkey</td>
<td>Anhinga anhinga</td>
<td>Marsh; shrub swamp; pond</td>
</tr>
<tr>
<td>Double crested cormorant</td>
<td>Phalacrocorax auritus</td>
<td>Shrub; swamp; forested; swamp; lakes</td>
</tr>
<tr>
<td>Black vulture</td>
<td>Coragyps atratus</td>
<td>Pasture</td>
</tr>
<tr>
<td>Turkey vulture</td>
<td>Cathartes aura</td>
<td>Pasture; Oak hammock</td>
</tr>
<tr>
<td>Osprey</td>
<td>Pandion haliaetus</td>
<td>Marsh; pond</td>
</tr>
<tr>
<td>Northern bobwhite</td>
<td>Colinus Virginianus</td>
<td>Pasture</td>
</tr>
<tr>
<td>Mourning Dove</td>
<td>Zenaida macroura</td>
<td>Pasture</td>
</tr>
<tr>
<td>Redheaded woodpecker</td>
<td>Melanerpes erthrocephalus</td>
<td>Pine flatwoods</td>
</tr>
<tr>
<td>Red bellied woodpecker</td>
<td>Melanerpes carolinus</td>
<td>Oak hammock pasture; pine flatwoods</td>
</tr>
<tr>
<td>Great crested flycatcher</td>
<td>Myiarchus crinitus</td>
<td>Oak hammock; pasture</td>
</tr>
<tr>
<td>Blue Jay</td>
<td>Cyanocitta cristata</td>
<td>Oak hammock; wetland edge; pasture</td>
</tr>
<tr>
<td>American crow</td>
<td>Corvus brachyrhynchos</td>
<td>Pasture; marsh</td>
</tr>
<tr>
<td>Northern Mockingbird</td>
<td>Mimus polyglottos</td>
<td>Pasture; wetland edge; Oak hammock</td>
</tr>
<tr>
<td>Gray catbird</td>
<td>Dumetella carolinensis</td>
<td>Wetland edge</td>
</tr>
<tr>
<td>Brown Thrasher</td>
<td>Toxostoma rufum</td>
<td>Shrubby wetland edge</td>
</tr>
<tr>
<td>Loggerhead shrike</td>
<td>Lanius ludovicianus</td>
<td>Pasture</td>
</tr>
<tr>
<td>European starling</td>
<td>Sturnus vulgaris</td>
<td>Pasture</td>
</tr>
<tr>
<td>Common yellow throat</td>
<td>Geothlypis trichas</td>
<td>Bayhead</td>
</tr>
<tr>
<td>Eastern Meadowlark</td>
<td>Sturnella magna</td>
<td>Pasture</td>
</tr>
<tr>
<td>Species</td>
<td>Scientific Name</td>
<td>Habitat</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Boat tailed grackle</td>
<td>Quiscalaus major</td>
<td>Marsh</td>
</tr>
<tr>
<td>Redwinged blackbird</td>
<td>Agelaius phoeniceus</td>
<td>Marsh; pond</td>
</tr>
<tr>
<td>Northern Cardinal</td>
<td>Cardinalis cardinalis</td>
<td>Oak hammock</td>
</tr>
<tr>
<td>Eastern towhee</td>
<td>Pipilo erythrophthalmus</td>
<td>Shrubby wetland edge; Pasture</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine banded armadillo</td>
<td>Dasypus novemcinctus</td>
<td>Pasture; pine flatwoods</td>
</tr>
<tr>
<td>Marsh rabbit</td>
<td>Sylvilagus palustris</td>
<td>Shrubby wetland edge</td>
</tr>
<tr>
<td>Shermans Fox squirrel</td>
<td>Sciurus niger shermani</td>
<td>Pine pasture</td>
</tr>
<tr>
<td>Eastern Gray squirrel</td>
<td>Sciurus carolinensis</td>
<td>Oak hammock; pasture; wetland</td>
</tr>
<tr>
<td>Raccoon</td>
<td>Procyon lotor</td>
<td>Ditch; marsh</td>
</tr>
<tr>
<td>Feral hog</td>
<td>Sus scrofa</td>
<td>Pasture; wetland edge</td>
</tr>
</tbody>
</table>

**Well field cones of influence**

No well-field cones of influence are proximal to the site.

**Aquifers, Aquifer Recharge Areas**

Three water bearing aquifers are recognized in the area of the subject property in Polk County, Florida [SWFWMD, 1988]. These are the surficial aquifer system, the intermediate aquifer system, and the Floridian aquifer system. These aquifers are separated by confining layers which restrict the vertical movement of water between the aquifers.

**Air quality**

Air Quality reports for Polk County Florida are generally good, and data specific to the USF Polytechnic site will be unavailable until after construction.

**Greenhouse Gasses**

In 2010, The University’s office of Sustainability prepares Climate Action Plans which will inventory conditions such as greenhouse gasses, once the USF Polytechnic is constructed.

**Energy**
Due to the costs and associated greenhouse gas emissions, reducing the university’s dependence on fossil fuels is critical to this conservation element.

**Materials**

University use of materials (e.g. paper and office supplies,) often constitutes an indirect use of natural resources and should be minimized. The construction materials waste stream is planned to be dealt with in the manner prescribed in the Leadership in Energy and Environmental Design (LEED) guidelines for construction as part of the LEED certification process. Information regarding University management of Solid Waste, including recycling, is addressed in Element 6: *General Infrastructure, Solid Waste* Sub-Element 6.7

**Analysis of Future Needs**

**A. Existing commercial, recreational, or conservation uses of resources**

There are no changes in the use of resources identified above

**B. Opportunities and methods for protection or restoration of on campus resources**

See table 7.2
### Table 7.2  
**Assessment of Natural and Environmental Resources on Campus and within the Study Area**

<table>
<thead>
<tr>
<th>Environmental Resources</th>
<th>Existing or potential commercial/recreation/conservation uses</th>
<th>Protection/restoration opportunities and methods</th>
<th>Known University-generated pollution sources or impacts</th>
<th>Pollution Minimization strategies/techniques</th>
<th>Ecological functions and values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surface Water:</strong> Rivers, lakes, wetlands, and bottom lands;</td>
<td>See Element 4 Future Land Use</td>
<td>Protected through South West Florida Water Management District</td>
<td>N/A</td>
<td>Limit fertilizer use</td>
<td>Local biofiltration &amp; water filtration</td>
</tr>
<tr>
<td><strong>Floodplains;</strong></td>
<td>See Element 4 Future Land Use</td>
<td>Policy not to develop in Floodplain</td>
<td>N/A</td>
<td>Limit fertilizer use</td>
<td>Local biofiltration &amp; water filtration</td>
</tr>
<tr>
<td><strong>Known unique geological features (springs, sinkholes, etc.)</strong></td>
<td>See Element 4 Future Land Use</td>
<td>Water Use reduction</td>
<td>N/A</td>
<td>Investigate use of reclaimed water for irrigation</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Existing mitigation sites,</strong></td>
<td>See Element 4 Future Land Use</td>
<td>Protected as a mitigation area</td>
<td>N/A</td>
<td>N/A</td>
<td>Water filtration</td>
</tr>
<tr>
<td><strong>Naturalized vegetative communities</strong></td>
<td>See Element 4 Future Land Use</td>
<td>Protected by Policy, Additional tree plantings</td>
<td>N/A</td>
<td>Limit Fertilizer, Use “Florida Friendly” development practices</td>
<td>Carbon sequestration, water filtration, local biodiversity</td>
</tr>
<tr>
<td><strong>Native plants</strong></td>
<td>See Element 4 Future Land Use</td>
<td>Investigating and testing different native plant varieties</td>
<td>N/A</td>
<td>Limit fertilizer, use “Florida Friendly” development</td>
<td>Water conservation, green house gas emissions,</td>
</tr>
<tr>
<td>Aquifers, Aquifer Recharge Areas, and Well-Field Cones of Influence</td>
<td>See Element 4 Future Land Use</td>
<td>Water use conservation, protection of aquifer recharge</td>
<td>N/A</td>
<td>Designed environment campus initiatives, reforestation, waterscape improvement, water conservation.</td>
<td>N/A</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Air quality</td>
<td>N/A</td>
<td>See Element 5 Transportation</td>
<td>EPA Scope 2 Electricity use EPA Scope 3 Commuting and air travel on-campus stationary sources</td>
<td>See Element 5 Transportation campus initiatives i.e. commuter options</td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td>See Element 7, General Infrastructure, Electrical Power and other Fuels Sub-Element</td>
<td>Office of Sustainability programs, Energy Star rating systems, green energy systems</td>
<td>Electricity, heating and cooling, Commuting and air travel</td>
<td>Energy Campus Initiative, Monitoring, Commissioning, Conservation, renewables</td>
<td>Green house gas emissions</td>
</tr>
<tr>
<td>Materials</td>
<td>See Element 7, General Infrastructure, Solid Waste Sub-Element</td>
<td>Leadership in Energy and Environmental Design standards, life cycle Assessment</td>
<td>N/A</td>
<td>Green Building Campus initiatives such as, renewable building materials,</td>
<td>Green house gas emissions</td>
</tr>
</tbody>
</table>

N/A Not Applicable
C. Rates of discharge or generation of pollution

See Chapter 6, Infrastructure

D. Technologies for reducing pollution or its impact generated by the university

As identified in the USF Climate Action Plan, the University can continue to improve air, water and open space quality by reducing traffic volume, reduce vehicle idle time, increasing water storage and re-use, preserving open space for conservation.

E. Current and projected water needs and sources

Based upon USF Polytechnic’s estimated build out demand of 305,385 gallons per day of water, the City of Lakeland has committed to supply potable water to the USF Polytechnic campus. (Campus Development Plan, section 7.2). This agreement also includes water supplies for fire protection. USF has agreed to prohibit the use of potable water for irrigation purposes. USF Polytechnic will irrigate with reuse stormwater, and reuse effluent wastewater if available. The USF Polytechnic Campus resides within Polk County Utilities Reclaimed Water service northeast region.

F. Methods and methodologies to reduce University Energy consumption

Opportunities and practical technologies to reduce university energy consumptions are discussed in depth in the USF Climate Action Plan Chapter 8. Specifically, the USF Climate Action Plan recommends energy monitoring (life cycle cost analysis), commissioning (continuous commissioning and retro-commissioning options), Conservation (energy star rating), Recovery (capital renewal and infrastructure improvements) and Renewables (on-campus production)

Sources:

The following is a list of sources reviewed for information to support the Conservation Statement Element.

USF Office of Sustainability http://usfweb2.usf.rdu/sustainability/
USF Polytechnic 2010-2020 Master Plan Update October 2009
USF Lakeland Campus 2005 -2015 Master Plan August 2006
USF Polytechnic Facilities Program July 2008
SWFWMD Documents

USF Climate Action Plan – Final, Office of Sustainability May, 2010

Campus Development Agreement between the City of Lakeland and USF Board of Trustees Dec 2007

Agreement for Donation of Land between Williams Acquisition Holding Company Inc and USF Board of Trustees, January 2006
8. Recreation and Open Space

Purpose
The purpose of this element ensures the provision of adequate and accessible recreation facilities and open space to meet future needs of the University of Southern Florida Polytechnic.

(1) RECREATION AND OPEN SPACE DATA AND ANALYSIS REQUIREMENTS

a) Inventory and assess existing university-owned or managed recreational sites against the projected needs for recreation and open space facilities required to meet the needs of the projected university population based on university standards and calculations or established level of service standards.

1. Existing Conditions

Campus recreation and open spaces are composed of dedicated recreation and athletic facilities and varied informal open spaces. Currently, no university recreation and athletic facilities are planned for construction in 2010.

At this point in time (2011), USF Polytechnic students make use of the Student Health and Wellness Center located in the Lakeland Technology Building on the Polk State College/USF Polytechnic campus on Bartow Highway.

In the near future, the proposed Tenoroc Recreation Trail adjacent to the UFSP site will connect with the existing Van Fleet Recreational Trail to the east of the USFP site.

Ecological Research Area

The USF Parcels 2 and 3 (figure 3.1) have been identified for development for recreation and as an ecological research facility, in future development.
2. Projected Recreation and Open Space Needs

The National Intramural Recreational Sports Association (NIRSA) Space Planning Guidelines for Campus Recreational Sport Facilities identifies a level of service (LOS) recommended for university recreation facilities. By applying this space planning guideline to USF Polytechnic space planning for recreation and open space, there are a number of considerations in defining the potential student population serviced by recreational facilities.

Table 8.1 identifies the recommended NIRSA standard and presents varied student categories to arrive at a range of potential “needs” based on these national standards. As the University student population grows, with the potential of an increased number of students living on campus in the distant future and works to develop the campus into a 24-hour vibrant area, identifying recreational needs for a changing campus population is critical to planning for the campus as a whole. Identifying recreation facility needs will involve weighing a number of “sustainability” factors, including large area land use and the physical and social health of students/faculty and staff.

Table 8.1  Projected 10 Year Recreation Facility Needs according to NIRSA Levels of Service

<table>
<thead>
<tr>
<th>Recreation Facility (number of fields/courts per 1,000 students)</th>
<th>Planning Guide Level of Service</th>
<th>2010-2011 Total 943 FTE Field Needs</th>
<th>2018-2020 projected 2,649 FTE Field Needs</th>
<th>Projected 2020 Field Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Outdoor Fields (number of acres)</td>
<td>0.94</td>
<td>0.89</td>
<td>2.49</td>
<td>2.49</td>
</tr>
<tr>
<td>Football Fields (360 ft x 159 ft)</td>
<td>0.23</td>
<td>0.22</td>
<td>0.61</td>
<td>0.61</td>
</tr>
<tr>
<td>Soccer Fields (300 x 390 feet)</td>
<td>0.20</td>
<td>0.19</td>
<td>0.53</td>
<td>0.53</td>
</tr>
<tr>
<td>Softball Fields 130,680 sq ft</td>
<td>0.15</td>
<td>0.14</td>
<td>0.40</td>
<td>0.40</td>
</tr>
<tr>
<td>Tennis Courts</td>
<td>0.41</td>
<td>0.39</td>
<td>1.09</td>
<td>1.09</td>
</tr>
</tbody>
</table>
### Outdoor Basketball Courts
- Dimensions: 78 ft x 36 ft
- Level of Service: 0.11, 0.10, 0.29, 0.29

### Outdoor Volleyball Courts
- Dimensions: 50 ft x 94 ft
- Level of Service: 0.12, 0.11, 0.32, 0.32

### Leisure Pool
- Number per 25,000: 1
- Level of Service: 0, 0, 0, 0

---

The projected 10 year recreational facilities needs for the USF Polytechnic campus, according to NIRSA Level of Service standards could be met through construction or agreements with government and non-government stakeholders.

**The Wellness Center**, as presented in the University of South Florida Polytechnic 2010-2020 Master Plan update, will include Student Health Services, Wellness Education and Promotion, among other student services.

b) **Inventory and assess existing privately owned, state owned, or local government owned recreation facilities and open spaces within the planning study area against the projected needs for recreation and open space facilities required to meet the needs of the projected university population** based on university standards and calculations or established level of service standards

The City of Lakeland Comprehensive Master Plan, (updated July 18, 2011) has a strong sustainability focus that places great value on the role city parks, open space, trails, and recreation facilities can play in creating a healthy urban environment. The City of Lakeland Parks, Recreation and Trails Master plan, 2005 (Vols. 1 & 2) supports findings and goals of the Comprehensive Plan. Volume 1 of the Parks, Recreation and Trails Master plan, focuses on inventory of existing conditions, analysis of data, and the public involvement process, soliciting community involvement. Volume 2 of the Parks, Recreation and Trails Master Plan is devoted to addressing the Level of Service for park standards, the Parks, Recreation and Trails Master Plan and the Parks, Recreation and Trails Master Plan Implementation Plan and Capital Improvement Plan budgets. In considering park and recreational resources accessible to the host /campus community, it is useful to establish a service radius related to the campus area for various types of facilities. For the purposes of this master plan that radius would be three miles.
The City of Lakeland Parks, Recreation and Trails Master Plan has established a guide for facility types and service areas presented below:

City of Lakeland adopted Community Park Classifications

**Playlots**
- Population served: Generally, serves ages toddlers to age nine.
- Service area and accessibility: The service area is confined to a sub-neighborhood level of 500 to 2,500 residents within a 1/4 mile.
- Acres/1,000 people: No ratio established; suggested .1 to .3 acres
- Size range: 1,000 square feet to one acre.

**Neighborhood Playground**
- Population served: General focus is for ages 5 to 14, with informal recreation for all ages. One per 1,000 to 5,000 populations: possibly one for every element school
- Acres/1,000 persons: 2.0 for cities of 10,000 to 25,000 1.5 for cities of 25,000 to 100,000
- Size range acres: 5-10 for cities of 1,000 to 25,000, 4-8 for cities of 25,000 to 100,000

**Neighborhood Park**
- Population served: For all ages. From 1,000 to 10,000 maximum.
- Service area and accessibility: Entire neighborhood. If park is unique, it may attract others from additional neighborhoods. Walking distance within 1/2- mile radius.
- Acres/1,000 persons: 2.0 for cities of 1,000 to 25,000 1.5 for cities of 25,000 to 100,000
- Size range acres: 6-8 for cities of 1,000 to 25,000, 5-8 for cities of 25,000 to 100,000

**Community Playfield**
- Population served: All ages. Entire population of community, 10,000 minimum to 30,000 maximum. Service area and accessibility: Within biking distance.
- Acres/1,000 persons: Minimum one acre per 1,000 persons. Cities up to 50,000 it is recommended there be 2 acres per 1,000 persons
- Size range acres: 15 to 25 for Cities of 1,000 to 250,000
Major Community Park

- Population served: All ages, toddler to retiree. Serves between 40,000 to 100,000 people.
- Service area and accessibility: Entire population of cities with population up to 25,000. 1-4 miles for cities of 1,000 to 25,000 persons; within 30 minutes for cities of 25,000 to 250,000.
- Acres/1,000 persons: From minimum of 1 acre to maximum of 5 acres. Recommended: 5.0 acres for cities of 1,000 to 100,000
- Size range acres: 20 - 35 for cities of 1,000 to 25,000 and 50 - 100 for cities of 25,000 to 100,000

Urban Greenspace or Open Space

- Population served: Entire population. May also be used as privacy buffer against high traffic corridors.
- Service area and accessibility: Not established. Usually part of a larger park system and viewed as part of urban design and urban beautification program. Primary accessibility is visual, may have hiking paths along traffic corridors.
- Acres/1,000 persons: No ratio established. Suggested to be .75 to 1.0 acres per 1,000. Cities of up to 100,000 would be 1.0 acre per 1,000 persons.

Table 8.2  Recreational Facilities within the USF Polytechnic Service Area Existing Park Inventory in Host Community

LAKELAND COMMUNITY PARKS

<table>
<thead>
<tr>
<th>Parks and facilities</th>
<th>type</th>
<th>Size in acres</th>
<th>Active or passive</th>
<th>Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curtis Peterson Park</td>
<td>Community Park</td>
<td>38.3</td>
<td>active</td>
<td>Rental pavilions, baseball, boardwalk, fishing, nature trail</td>
</tr>
<tr>
<td>Edgewood Park</td>
<td>Community Park</td>
<td>17.7</td>
<td>active</td>
<td>Playground, multipurpose field</td>
</tr>
<tr>
<td>Parks and facilities</td>
<td>Type</td>
<td>Size in acres</td>
<td>Active or passive</td>
<td>Amenities</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------</td>
<td>---------------</td>
<td>-------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Edgewood Park – Beerman Family Tennis Center</td>
<td>Community Park</td>
<td>5</td>
<td>active</td>
<td>Tennis courts, pro shop, rest room</td>
</tr>
<tr>
<td>Kelly Recreation Complex/Gandy Pool</td>
<td>Community Park</td>
<td>7.2</td>
<td>active</td>
<td>Full service recreation complex</td>
</tr>
<tr>
<td>Lake Bonny Park</td>
<td>Community Park</td>
<td>113.3</td>
<td>active</td>
<td>Baseball, picnic, picnic pavilions, softball, soccer, walking path</td>
</tr>
<tr>
<td>Lake Mirror Center</td>
<td>Community Park</td>
<td>3</td>
<td>passive</td>
<td>Theater, rental space</td>
</tr>
<tr>
<td>Lake Parker Park</td>
<td>Community Park</td>
<td>100.5</td>
<td>active</td>
<td>Boat launches, jogging path, soccer, roller hockey, shuffle board, lawn bowling</td>
</tr>
<tr>
<td>Simpson Park/Pool</td>
<td>Community Park</td>
<td>13.3</td>
<td>active</td>
<td>Full service recreation complex, tennis, baseball</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>298.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: City of Lakeland Parks, Recreation and Trails Master Plan, 2005
<table>
<thead>
<tr>
<th>Park Name</th>
<th>Neighborhood Park</th>
<th>Size (acres)</th>
<th>Status</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dobbins Park</td>
<td>Neighborhood Park</td>
<td>10.1</td>
<td>active</td>
<td>Playground, picnic, walking path, basketball</td>
</tr>
<tr>
<td>Glendale Park</td>
<td>Neighborhood Park</td>
<td>1.3</td>
<td>active</td>
<td>Basketball</td>
</tr>
<tr>
<td>Handley Park</td>
<td>Neighborhood Park</td>
<td>1.4</td>
<td>active</td>
<td>Playground</td>
</tr>
<tr>
<td>Horney Park</td>
<td>Neighborhood Park</td>
<td>1.4</td>
<td>active</td>
<td>Playground, open play area</td>
</tr>
<tr>
<td>Interlachen Park/Lake Bonny/Elks</td>
<td>Neighborhood Park</td>
<td>6.2</td>
<td>active</td>
<td>Playground, open space</td>
</tr>
<tr>
<td>Jackson Park</td>
<td>Neighborhood Park</td>
<td>2.5</td>
<td>active</td>
<td>Playground, historic markers, open play</td>
</tr>
<tr>
<td>Miami Park</td>
<td>Neighborhood Park</td>
<td>0.6</td>
<td>active</td>
<td>Playground</td>
</tr>
<tr>
<td>North Lake Wire Park</td>
<td>Neighborhood Park</td>
<td>0.9</td>
<td>active</td>
<td>Playground</td>
</tr>
<tr>
<td>Parkers Street Park</td>
<td>Neighborhood park</td>
<td>0.4</td>
<td>active</td>
<td>Playground, basketball</td>
</tr>
<tr>
<td>7th Street Park</td>
<td>Neighborhood Park</td>
<td>3.8</td>
<td>active</td>
<td>Playground, open play area, basketball</td>
</tr>
<tr>
<td>Washington Park</td>
<td>Neighborhood Park</td>
<td>1.3</td>
<td>active</td>
<td>Playground, basketball, civilians</td>
</tr>
<tr>
<td>Webster Park</td>
<td>Neighborhood Park</td>
<td>2.2</td>
<td>active</td>
<td>Playground, lighted basketball, Pavilions</td>
</tr>
<tr>
<td>Parks and facilities</td>
<td>type</td>
<td>Size in acres</td>
<td>Active or passive</td>
<td>Amenities</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------</td>
<td>---------------</td>
<td>-------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Westside Park Neighborhood Park</td>
<td>8</td>
<td>active</td>
<td>Playground, pass the ball, walking path, picnic facilities</td>
<td></td>
</tr>
<tr>
<td>Woodlake Park Neighborhood Park</td>
<td>4.1</td>
<td>active</td>
<td>Tennis, playground, picnic pavilion, restrooms</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>56.6</td>
<td></td>
<td></td>
</tr>
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Source: City of Lakeland Parks, Recreation and Trails Master Plan, 2005

**LAKELAND SCENIC PARKS**

<table>
<thead>
<tr>
<th>Parks and facilities</th>
<th>type</th>
<th>Size in acres</th>
<th>Active or passive</th>
<th>Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drane Park</td>
<td>Scenic Park</td>
<td>3.9</td>
<td>passive</td>
<td>Open space</td>
</tr>
<tr>
<td>Lake Beulah</td>
<td>Scenic Park</td>
<td>2.9</td>
<td>passive</td>
<td>Walking path</td>
</tr>
<tr>
<td>Lake Bonnett Shore</td>
<td>Scenic Park</td>
<td>0.2</td>
<td>passive</td>
<td>Landscaped Lake edge</td>
</tr>
<tr>
<td>Lake Bonny Shore</td>
<td>Scenic Park</td>
<td>1.8</td>
<td>passive</td>
<td>Boat rent, fishing</td>
</tr>
<tr>
<td>Lake Hollingsworth Shore</td>
<td>Scenic Park</td>
<td>18.4</td>
<td>passive</td>
<td>Boat ramp, biking, jogging path</td>
</tr>
<tr>
<td>Lake Horney Shore</td>
<td>Scenic Park</td>
<td>0.4</td>
<td>passive</td>
<td>Open space</td>
</tr>
<tr>
<td>Lake Hunter Shore</td>
<td>Scenic Park</td>
<td>14.7</td>
<td>passive</td>
<td>Boat ramp and jogging</td>
</tr>
<tr>
<td>Lake Morton Shore</td>
<td>Scenic Park</td>
<td>7.2</td>
<td>passive</td>
<td>Jogging path, fishing</td>
</tr>
<tr>
<td>Lake Somerset Shore</td>
<td>Scenic Park</td>
<td>3.2</td>
<td>passive</td>
<td>Boat ramp and fishing</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Size in acres</td>
<td>Active or passive</td>
<td>Amenities</td>
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<tr>
<td>---------------------------</td>
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<td>------------------------------------------------</td>
</tr>
<tr>
<td>Lake Wire Shore</td>
<td>Scenic Park</td>
<td>3.8</td>
<td>passive</td>
<td>Jogging path, interpretive markers</td>
</tr>
<tr>
<td>Mississippi Park</td>
<td>Scenic Park</td>
<td>0.8</td>
<td>passive</td>
<td>Lake</td>
</tr>
<tr>
<td>Naylor Park</td>
<td>Scenic Park</td>
<td>0.7</td>
<td>passive</td>
<td>Open space</td>
</tr>
<tr>
<td>North Lake Parker site</td>
<td>Conservation/preservation</td>
<td>113.8</td>
<td></td>
<td>Undeveloped</td>
</tr>
<tr>
<td>Rollingwoods Park</td>
<td>Scenic Park</td>
<td>1.6</td>
<td>passive</td>
<td>Walking path</td>
</tr>
<tr>
<td>Seminole Park</td>
<td>Scenic Park</td>
<td>0.5</td>
<td>passive</td>
<td>Open space</td>
</tr>
<tr>
<td>Sertoma Park</td>
<td>Scenic Park</td>
<td>1.8</td>
<td>passive</td>
<td>Boat launch, picnic pavilions</td>
</tr>
<tr>
<td>S. R. 33 N (underdeveloped)</td>
<td>Conservation/preservation</td>
<td>38.3</td>
<td></td>
<td>Undeveloped</td>
</tr>
<tr>
<td>subtotal</td>
<td></td>
<td>214.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservation Lands</td>
<td></td>
<td>5130.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5352.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: City of Lakeland Parks, Recreation and Trails Master Plan, 2005

### LAKELAND SPECIAL USE FACILITY

<table>
<thead>
<tr>
<th>Parks and facilities</th>
<th>Type</th>
<th>Size in acres</th>
<th>Active or passive</th>
<th>Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coleman – Bush building</td>
<td>Special use facility</td>
<td>1.5</td>
<td>passive</td>
<td>Community Center</td>
</tr>
<tr>
<td>Lakeland Center</td>
<td>Special use facility</td>
<td>28.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lakeland public library</td>
<td>Special use facility</td>
<td>2.5</td>
<td>passive</td>
<td>Meeting facilities, special collection</td>
</tr>
<tr>
<td>Facility Name</td>
<td>Type</td>
<td>Area</td>
<td>Use</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------------------</td>
<td>-------</td>
<td>----------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Larry R. Jackson branch library</td>
<td>Special use facility</td>
<td>2</td>
<td>passive</td>
<td>Meeting facilities</td>
</tr>
<tr>
<td>Magnolia building</td>
<td>Special use facility</td>
<td>0.5</td>
<td>passive</td>
<td>Meeting area, restaurant</td>
</tr>
<tr>
<td>Northwest Park</td>
<td>Special use facility</td>
<td>20</td>
<td>passive</td>
<td>Parking, open space</td>
</tr>
<tr>
<td>Peggy Brown Center</td>
<td>Special use facility</td>
<td>0.6</td>
<td>passive</td>
<td>Meeting facilities, rental space, picnic</td>
</tr>
<tr>
<td>Polk Museum of Art</td>
<td>Special use facility</td>
<td>2.4</td>
<td>passive</td>
<td>Art Galleries, theater, classrooms</td>
</tr>
<tr>
<td>Roselawn Cemetery</td>
<td>Special use facility</td>
<td>13.71</td>
<td>passive</td>
<td>Cemetery lots</td>
</tr>
<tr>
<td>Tiger Flower and Lake View Cemeteries</td>
<td>Special use facility</td>
<td>14.09</td>
<td>passive</td>
<td>Cemetery lots</td>
</tr>
<tr>
<td>Oak Hill, Laurel Hill and Temple Emanuel Cemeteries</td>
<td>Special use facility</td>
<td>200</td>
<td>passive</td>
<td>Cemetery lots</td>
</tr>
<tr>
<td>Lakeland City Nursery</td>
<td>Special use facility</td>
<td>10</td>
<td>passive</td>
<td>Plant nursery</td>
</tr>
<tr>
<td>Rose Street Maintenance Facility</td>
<td>Special use facility</td>
<td>0.25</td>
<td>passive</td>
<td>Offices, break rooms, restrooms, storage</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>296.37</td>
<td></td>
<td>Source: City of Lakeland Parks, Recreation and Trails Master Plan, 2005</td>
</tr>
</tbody>
</table>
## LAKELAND URBAN PARKS

<table>
<thead>
<tr>
<th>Parks and facilities</th>
<th>Type</th>
<th>Size in acres</th>
<th>Active or passive</th>
<th>Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elva Rath Park</td>
<td>Urban Park</td>
<td>0.4</td>
<td>passive</td>
<td>Urban pocket art, public art</td>
</tr>
<tr>
<td>Golconda Park</td>
<td>Urban Park</td>
<td>0.3</td>
<td>passive</td>
<td>Pocket park</td>
</tr>
<tr>
<td>Veterans memorial park</td>
<td>Urban Park</td>
<td>5.3</td>
<td>passive</td>
<td>Memorials, Bicentennial Rose Garden</td>
</tr>
<tr>
<td>Lake Mirror Promenade</td>
<td>Urban Park</td>
<td>6.9</td>
<td>passive</td>
<td>Historic promenade, amphitheater</td>
</tr>
<tr>
<td>Heritage Park</td>
<td>Urban Park</td>
<td>0.4</td>
<td>Passive</td>
<td></td>
</tr>
<tr>
<td>Lemmon St., Promenade</td>
<td>Urban Park</td>
<td>1.2</td>
<td>passive</td>
<td>Public art, urban park</td>
</tr>
<tr>
<td>Hollis Garden</td>
<td>Urban Park</td>
<td>2</td>
<td>passive</td>
<td>Botanical garden</td>
</tr>
<tr>
<td>Barnett family Park</td>
<td>Urban Park</td>
<td>3</td>
<td>active</td>
<td>Playground, interactive, open playfield</td>
</tr>
<tr>
<td>Munn Park</td>
<td>Urban Park</td>
<td>2.1</td>
<td>passive</td>
<td>Monument, town Square</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>21.6</td>
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</tr>
</tbody>
</table>

Source: City of Lakeland Parks, Recreation and Trails Master Plan, 2005

## LAKELAND SPORT COMPLEX

<table>
<thead>
<tr>
<th>Parks and facilities</th>
<th>Type</th>
<th>Size in acres</th>
<th>Active or passive</th>
<th>Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryant Stadium</td>
<td>Sports Complex</td>
<td>7.2</td>
<td>active</td>
<td>Football and soccer stadium</td>
</tr>
<tr>
<td>Location</td>
<td>Type</td>
<td>Size in acres</td>
<td>Active or Passive</td>
<td>Amenities</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------</td>
<td>---------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Henley Field</td>
<td>Sports Complex</td>
<td>5.4</td>
<td>active</td>
<td>Historic baseball stadium</td>
</tr>
<tr>
<td>Southwest Softball Complex</td>
<td>Sports Complex</td>
<td>24.5</td>
<td>active</td>
<td>Softball, MP fields, playgrounds</td>
</tr>
<tr>
<td>Tiger Town Complex</td>
<td>Sports Complex</td>
<td>91</td>
<td>active</td>
<td>Soccer fields, rental picnic facilities</td>
</tr>
<tr>
<td>Marchant Stadium</td>
<td>Sports Complex</td>
<td>5.8</td>
<td>active</td>
<td>Baseball stadium</td>
</tr>
<tr>
<td>Cleveland Heights Golf Course</td>
<td>Sports Complex</td>
<td>204.4</td>
<td>active</td>
<td>27 holes, clubhouse, restaurant</td>
</tr>
<tr>
<td>Westside</td>
<td>Sports Complex</td>
<td>14</td>
<td>active</td>
<td>Softball, concessions, restrooms</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td></td>
<td><strong>338.3</strong></td>
<td></td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Parks and facilities</th>
<th>Type</th>
<th>Size in acres</th>
<th>Active or Passive</th>
<th>Amenities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kryer Overlook Park</td>
<td>Proposed park</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kells Park</td>
<td>Proposed park</td>
<td>36.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast Recreation Center</td>
<td>Proposed park (undeveloped)</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freedom Park</td>
<td>Proposed park</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: City of Lakeland Parks, Recreation and Trails Master Plan, 2005
The City of Lakeland Comprehensive Plan states as a goal in the Recreation and Open Space Element that the City intends to ensure adequate recreation and open space opportunities for all sectors of the community and enhance the quality of life. Their objective in this regard is to meet public need and respond to adopted level of service standards within the planning period. It is a policy of the City of Lakeland to adhere to minimum level of service standards for the provision of recreation sites and facilities including a minimum 5.98 acres per 1,000 residents, 50% of which shall be in active park space (e.g., scenic, neighborhood, or community), one recreation complex per 30,000 persons, one community park per 25,000 residents; and one neighborhood park per 6,500 residents. The Campus Development Agreement between the City of Lakeland and USF Board of Trustees (Dec. 2007) section 10.5 agrees that there is sufficient open space and recreation facility capacity to accommodate the impacts of campus development proposed in the Campus Master Plan to meet the future needs of USF for the duration of the agreement. The Agreement also states that no off-campus open space and recreation improvements need to be provided to maintain the City’s adopted level of service standard for open space and recreation.

Polk County Inventory

Polk County offers over 60 facilities for Parks and Recreation activities including, sports facilities, boat launches, sports facilities, camping, picnicking, and walking paths and trails. According to the Polk County Comprehensive Plan, Recreation and Open Space Element Policy 3.502-E2, Polk County shall maintain a minimum recreation level-of-service standard of 6.95 acres per thousand population. This figure is calculated using a static aggregate total of passive and active recreational land of 5,017 acres divided by the population projection for 2020. It is expected that passive and active recreational space will increase in relation to further development and population increase. A complete listing of Polk County facilities and amenities are found at:

http://www.polk-county.net/parks.aspx?menu_id=52
South West Florida Water Management District Inventory

Southwest Florida Water Management District (SWFWMD) manages a number of regional recreation facilities offering boating, hiking, and nature study. In general SWFWMD owns the land and cooperates with City, County, State and Federal Agencies to furnish and encourage recreational use.

SWFWMD sites within Polk County include: Circle B Bar Ranch (1,267 Acres) and Lake Marion Creek Horseshoe Scrub Tract (300 Acres)

Communities adjacent to the campus (Figure 3.1) and the host community of Lakeland include; Polk City and Auburndale which both have parks and recreation amenities.

The City of Auburndale Inventory

The City of Auburndale facilities inventory includes: the Auburndale Softball Complex (Sports fields), Downtown City Park (neighborhood park), Depot (Centennial) Park (neighborhood park), Rev. Earl Wright Neighborhood Park, Lake Ariana Park (Community Park), Central Blvd Neighborhood Park, Tropical Acres Neighborhood Park, Lake Dickie Park (neighborhood park), Auburndale/Teco Trail (specialty park), Bridgers Ave Park (neighborhood park), Auburndale Dog Park (specialty park), Lake Stella Gazebo and Park (specialty park), Spivey Little League Complex (specialty park), Miss Auburndale Softball Complex (specialty park), Bridgers Baseball fields and Basketball Courts (specialty park), Skateboard Park and Racquetball (specialty park)

Of particular note is the 250 acre Lake Myrtle Sports Complex in Auburndale, due to it’s proximity to the USF Polytechnic Campus. Lake Myrtle Sports Complex contains a 3,500 seat soccer stadium and 11 multipurpose/Soccer fields, a 2,500 seat Baseball stadium, five collegiate and four youth baseball fields, a playground, a fishing pier and meeting facilities. This facility is linked to the USF Polytechnic site through both road and trail systems.

The City of Polk City

Polk City has several small parks and boat launches including Margret Lake Park, Polk City Park, Freedom Park and Mud Lake Boat launch.

Private Facilities

Fantasy of Flight is an aviation based recreation facility. Williams DRI Phasing Plan, adopted in 2007 calls for 2-18 hole golf courses, 72.6 acres of conservation lands and 234 acres of
parks/open space. The Williams DRI is borders the USF Polytechnic site to the west and south.

c) Inventory and assess planned future recreation and open space facilities, both on-campus and off-campus within the planning study area, against projected needs of the university and the host and/or affected local governments. This analysis should consider levels of service standards established by both the university and the host and/or affected local governments for each type of recreation facility. The university assessment must consider opportunities for alternative future facility siting in order to conserve the supply and character of campus open space.

The University of Southern Florida Polytechnic 2010-2020 Master plan update describes future recreation and open space facilities on the campus. Proposed open spaces for campus recreation include the central lake, open lawns, and semi and fully wooded parks. The Wellness Center, located north of residential housing provides enclosed recreation and athletic facilities. Plazas, courtyards, loggias and other forms of interior/exterior gathering areas will be incorporated into the overall campus layout in order to promote a healthy and safe environment while preserving sensitive lands (see Fig. 8.1: Proposed Recreation and Open Space Facilities) Future open space and recreation fields shall be located nearby off campus areas.

Data and analysis show that the wellness center which houses recreation and athletic facilities will meet on-campus and physical education within the 10 year planning time frame. The timing and phasing requirements for those proposed improvements are established in the Capital Improvement Elements.

USF Polytechnic will work with the City of Lakeland Parks and Recreation department and other stakeholder entities relative to the provision of recreational facilities. USF Polytechnic may pursue interlocal agreements, memoranda of understanding or other agreements with governmental or non-governmental stakeholders to ensure that parks and recreation faculties will be available to meet the future needs of the university thus providing opportunities for alternative future facilities siting in order to conserve the supply and character of the campus open space as envisioned by Santiago Calatrava in the University of Southern Florida Polytechnic 201 – 2020 Master Plan Update.
Sources:

The following is a list of sources reviewed for information to support the Conservation Statement Element.

USF Polytechnic 2010-2020 Master Plan Update October 2009
USF Lakeland Campus 2005 -2015 Master Plan August 2006
USF Polytechnic Facilities Program July 2008
Campus Development Agreement between the City of Lakeland and USF Board of Trustees Dec 2007
City of Lakeland Florida Parks, Recreation and Trails Master Plan, 2005
City of Lakeland Comprehensive Plan, Recreation and Open Space Element, July 2011
City of Polk City Comprehensive Plan, Recreation and Open Space Element, 2009
Polk County Comprehensive Plan, Recreation and Open Space Element, October 2010
Auburndale Comprehensive Plan, Recreation and Open Space Element, 2005
9. Intergovernmental Coordination

This element identifies and resolves goals, objectives, and policies for development proposed in campus master plans that may be incompatible with adjacent local governments, and regional and state agency plans.

A. Inventory and assessment of host and affected local governments and regional or state agencies with authority to regulate or provide services to the University.

The following list identifies the host and affected local governments, as well as regional and state agencies with authority to regulate the way the University will develop. Coordination and cooperation with the University is critical to ensure compatibility with adjacent and affected agencies and government goals, objectives and policies.

See also Element 4, Transportation, Element 6, General Infrastructure, and Element 7, Conservation for additional coordination entities.

1. Regional and State

Florida Department of Community Affairs (DCA): Until the passage of HB 7203 in 2011, DCA was the state's land planning and community development agency. The Department ensures that new growth complies with the state's vital growth management laws, while also helping established communities revitalize their older or traditional neighborhoods. In 2011 HB 7203 changed the structure of growth management in Florida. DCA was incorporated into the Department of Economic Opportunity (DEO). The Division of Community Development under DEO is now the designated State Land Planning Agency. HB 7203 shifted control of local growth management from state control to local governments.

Florida Department of Transportation (FDOT) – District 1: FDOT is responsible for preparing plans to construct and maintain state and federal roadways within the State of Florida. The University is located within District 1 with its District office in Bartow. The University is required to maintain transportation concurrency at the State and local levels and some of the roads influenced by the traffic generated by the USF Polytechnic campus external to the University are governed by the FDOT.
Florida Department of Environmental Protection (FDEP): FDEP is the lead agency in the state government for environmental management and stewardship, responsible for protecting Florida’s air, water, and land. The Department is divided into three primary areas: Regulatory Programs, Land and Recreation, and Planning and Management. Florida's environmental priorities include restoring America's Everglades, improving air quality, restoring and protecting the water quality of Florida springs, lakes, rivers and coastal waters, conserving environmentally-sensitive lands, and providing citizens and visitors with recreational opportunities, now and in the future.

Central Florida Regional Planning Council (CFRPC): CFRPC is an association of local governments and gubernatorial representatives, created to coordinate planning and provide an opportunity for sharing solutions among the various jurisdictions in the Central Florida region. The region’s counties and numerous incorporated areas are required by law to exercise regional cooperation through membership on the Council. CFRPC is responsible for maintaining the Strategic Regional Policy Plan for the Central Florida Region, as well as for functions related to environmental management, water quality, emergency preparedness planning, housing and infrastructure analysis and review, local government comprehensive plan review, cross-acceptance, dispute, and review of transportation plans.

Southwest Florida Water Management District (SWFWMD): SWFWMD manages water and related natural resources to ensure their continued availability while maximizing environmental, economic and recreational benefits. Areas of responsibility include: water supply; natural systems; water quality and flood protection. The District encompasses all or part of 16 counties and contains 98 local governments spread over approximately 10,000 square miles. A 13-member board appointed by the Governor and confirmed by the Senate governs the District.

State Fire Marshall: The plans for the campus are reviewed by the State Fire Marshall (SFM). The Orlando/Central Florida Office is the SFM’s office responsible for the USF Polytechnic Campus.
2. Local

**Polk County:**

- **Polk Transportation Planning Organization:** The Polk Transportation Planning Organization (TPO) is the lead transportation planning agency for Polk County. It develops transportation plans and programs for Polk County as mandated by federal and state legislation, which are designed to meet the community’s short and long term travel needs. The TPO also provides a forum for cooperative decision-making regarding countywide transportation issues.

- **Polk County Emergency Management Operations (EMO):** USF Polytechnic coordinates with the Polk County EMO, the American Red Cross and the host community in preparing the Emergency Operations Plan for the campus. The campus Wellness Facility has been identified as a potential staging area for emergency operations.

**City of Lakeland:**

- A reciprocal review of development plans is necessary in order to maintain land use compatibility between the university and the host community. This is occurring as the Campus Master Plan is developed and the development plans within the context area move forward, in particular the Williams DRI, which is adjacent to the USF Polytechnic campus. Quarterly review meetings with the City are occurring. Review meetings will be held annually with Polk County and the CFRPC. Meetings with other agencies will occur as appropriate. USF Polytechnic is committed to ongoing coordination between USF Polytechnic and public agencies to create a better community and environment.

- The campus is in the City service area for fire, rescue and emergency medical services. The adjacent developer is working with USF Polytechnic to improve coverage by providing space for new facilities for safety as required by the Williams DRI Amended and Restated Development Order.

- The City of Lakeland is the provider of potable water and wastewater collection and treatment for the campus. The City’s current committed capacity is 250,000 gpd of potable water as specified in the Campus Development Agreement (CDA). Any demand above this amount will need to be evaluated and considered by the City. No wastewater demand was listed in the CDA.
• FDEP permitting for both water and wastewater is required for expansions to the water, fire and sanitary systems on the campus. The City, as providers of water and wastewater treatment services, is required to sign FDEP applications. As part of the agreement to sign the applications, a plan review is required, as well as inspection/testing monitoring of certain aspects of water and wastewater utility construction.

• A Campus Development Agreement (CDA) is in place that addresses the following public facilities and services: roads, sanitary sewer, solid waste, drainage. Potable water, solid waste, drainage, parks and recreation and transportation. The CDA identifies the level-of-service standards established by the host community, the entity that will provide the service to the campus and describes financial arrangements between the Florida Board of Governors and the other entities relating to the provision of the facility or service. The CDA identifies impacts of the campus development and improvements necessary to eliminate deficiencies. The CDA also identifies the Florida Board of Governors’ “fair share” cost associated with remediation of impacts.

B. Functional Classification of Intergovernmental Coordination

1. Existing coordination mechanisms

   Coordination mechanisms are discussed in A. above.

2. Identified problems and anticipated solutions with mechanisms and existing coordination

   Because this is a new campus, no problems have been identified. USF Polytechnic will continue to coordinate with the City of Lakeland and other agencies as the campus is developed. The existing mechanisms that are in place provide a framework for fostering participatory planning, coordination and cooperation. Also, the mechanism in place have provisions for resolving problems that may occur in the future.

C. Inventory all previous Fair Share Payments made by the University as a result of existing Campus Development Agreement(s).
A total amount of $5,096,906.00 was identified in the CDA as USF Polytechnic’s fair share for the costs of improvements identified in the CDA. This amount was paid from the State University System Concurrency Trust Fund.

D. Identify any existing University programs that focus on outreach efforts to neighboring communities.

The polytechnic model for USF Polytechnic Campus emerged as a result of intense community engagement efforts in 2007. A cornerstone of the polytechnic model is applied learning and research. This creates numerous opportunities for faculty and students to become engaged in entrepreneurial partnerships in the community.

The leaders of USF Polytechnic are involved in numerous community boards, committees and task forces such as Polk Vision, VISTE, Vanguard School, Lakeland Chamber of Commerce, Bartow Hospital Board, Lakeland Downtown Kiwanis, Central Florida Economic Development Council and Lakeland EDC, to name a few.

An example of student participation is the partnership with the Salvation Army to conduct a reading clinic for homeless children, where children were diagnosed and identified for appropriate tutoring. This is an example of “service learning” that is made possible by the polytechnic model.

USF Polytechnic Blue Sky is a technology business incubation program that hosts academic and business outreach centers in Sebring and Wauchula. This program is where USF Polytechnic faculty and students can engage in experiential and applied learning by working with entrepreneurs to grow their companies by bringing innovative technology to market.
10. Capital Improvement

This element evaluates the need for public facilities as identified in other campus master plan elements; to estimate the cost of improvements for which the University has fiscal responsibility; to analyze the fiscal capability of the University to finance and construct improvements; to adopt financial policies to guide the funding of improvements; and to schedule the funding and construction of improvements in a manner necessary to ensure that capital improvements are provided when required based on needs identified in the other campus master plan elements. All development is contingent upon the availability of funding.

A. Summary of Facility Needs and Requirements

The University develops its facilities needs within the Florida State University System guidelines for space use and as funding allows. The University submits an updated Five Year Capital Improvements Plan (CIP) to the Board of Governors on an annual basis. The CIP details the University’s facilities funding request for five years at a time. The CIP request is for Public Education Capital Outlay and Debt Service Trust Fund (PECO), and for Facilities Enhancement Matching Grant funds. Following its review and modifications to meet projected PECO revenue, the Board of Governors develops a 3-year list which is submitted for inclusion in the Governor’s request to the Legislature.

Table 10-1 presents the USF Polytechnic Ten-Year Capital Improvement Plan.

B. Inventory and Assessment of Revenue Sources Available for Capital Improvement Funding.

The following list provides a description of existing sources of funding available to the University:

1. Public Education Capital Outlay and Debt Service Trust Fund (PECO)

   PECO is Florida’s financing program for capital improvements at the state's public schools, community and state colleges and universities. PECO funds are used for construction, as well as the remodeling, renovation and repair of existing educational facilities.

2. Capital Improvement Trust Fund (CITF)
This source of funds is provided by student fees that each SUS University collects.

3. **Revenue bonds**

Revenue bonds can be used by Universities to fund capital improvement projects that are approved by the Board of Governors and, if required by Florida Statute, the State Legislature. The bonds are backed by revenue authorized for such purposes such as student fees, revenues from sales and services of auxiliary enterprises or component units of the University, royalties and licensing fees, assets of University foundations or other University direct support organizations, or any other revenues permitted by law. Revenue bonds are used to fund facilities functionally related to the University operation or direct-support organization financing the capital outlay project.

4. **Facilities Enhancement Challenge**

This is a program that encourages gifts from private sources to specific projects that the University can justify as instructional or research-related. The State provides matching funds from general revenue or lottery funds.

5. **Grants and Donations**

The University may receive grants or private donations from third-party sources.

6. **Auxiliary Enterprises**

Auxiliary enterprises include activities that directly or indirectly provide a product or a service, or both, to the campus community and for which a charge is made. These are self-supporting enterprises and include activities such as housing, bookstores, student health services, continuing education programs, food services, college stores, operation of vending machines, specialty shops, day care centers, golf courses, student activities programs, data center operations, and intercollegiate athletics programs.

7. **General Revenue and Lottery Funds**

These funds must be appropriated by the legislature for a specific project.

8. **Potential Future Funding Sources**

The University will pursue collaborative public and private partnerships that enhance funding opportunities, including leveraging state and federal funding through efforts to:
• Achieve increased visibility by developing and implementing an annual image and marketing plan that communicates our vision and mission and highlights our achievements and contributions to the region.
• Establish mutually beneficial partnerships with pre K-12 school systems and human services organizations; identify mutually beneficial research and grant development opportunities.
• Establish an Office of Community Education and Outreach and provide community education opportunities to support lifelong learning for all generations.
• Develop an infrastructure for campus advancement and development, and achieve ambitious fund-raising goals through collective efforts and creative vision of the campus community.
• Encourage and support faculty and staff involvement in civic, professional, and local service organizations.
• Strengthen the Alumni Organization in the central Florida region and promote alumni affinity with USF Polytechnic

Additionally USFP can incorporate sustainability into the capital project budgeting process, which starts with considering the entire cycle of all capital improvement projects in the budgeting process, from pre-planning through the facility’s operations and maintenance. By including budgeting as an integrated component of the project cycle, technologies or specific design and operational considerations that result in lower, ongoing operating and maintenance costs can be justified. It is important for the University to utilize funding sources that encourage investments to increase building efficiencies as well as projects that could result in long-term cost savings. The following list provides a description of potential sources of funding the University could utilize to fund projects to enhance the efficiency of buildings’ operations and maintenance as well as renewable energy projects:

9. Revolving Loan Fund (RLF)

An RLF establishes a fund that can be used to finance projects that have a cost-savings component, often tied to energy efficiency. The money saved as a result of the project is then paid back into the fund to be made available for future projects. A revolving loan fund is an effective “paid from savings” approach that would allow the University to implement repairs and upgrades necessary to reduce energy and water use and associated costs. This fund would represent a new source of funding for USF Polytechnic and requires obtaining appropriate approvals.
### Table 10-1 USF Polytechnic Ten-Year Capital Improvement Plan

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Source: USF Polytechnic 5 Year CIP 2011-12
11. Optional

At present, since the future University of South Florida Polytechnic Campus has yet to be constructed, the Architectural Guidelines and Landscape Plan remain in the conceptual stage. Accordingly, data and analysis supporting the conceptual guidelines in both cases are not available at this time.