

Florida Polytechnic University Campus Master Plan 2021-2031



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Introduction

Florida Polytechnic University (Florida Poly) is the newest of the state's 12 public universities and the only polytechnic institution in the State University System of Florida. The Florida Polytechnic campus in Lakeland opened for instruction in August of 2014. To date, campus construction has included the iconic Innovation, Science & Technology (IST) Building, the first two campus residence halls, and smaller buildings that currently serve as Admissions Office, Wellness Center and Campus Control Center. The Student Development Center was completed in 2018 and the Applied Research Center is currently under construction planned to be completed in Spring 2022. Future development will proceed in accordance with this plan, the Florida Polytechnic University Campus Master Plan 2021-2031, which updates the 2015-2025 Master Plan that provided a framework for first phases of construction on the campus.

Florida Poly was formally established as Florida's 12th public university on April 20, 2012. Prior to its establishment as an independent university, the institution was part of the University of South Florida and occupied a joint-use campus with Polk State College in Lakeland. This is the second Campus Master Plan prepared for Florida Polytechnic as an independent university.

Florida Statute (§ 1013.30 Fla. Stat.) requires Campus Master Plans to be updated every five years. The statute also requires that plans contain elements relating to future land use, transportation, housing, general infrastructure, conservation, recreation and open space, intergovernmental coordination, and capital improvements. Optional elements may also be addressed; the University's academic mission and program is included in this plan but is not subject to review under the state requirements.

The Campus Master Plan includes goals, objectives and policies for each plan element. Each goal is preceded by a brief introduction and is followed by a series of objectives and policies. Overall, these goals, objectives and policies are intended to guide campus development for the 10-year planning horizon. Goals, objectives, policies and specific plan recommendations are based on supporting data as well as an evaluation of the goals, objectives and policies that were adopted in the 2015-2025 Master Plan (see Appendix 2: Data Collection and Analysis Report and Appendix 3: Evaluation and Appraisal Report for additional details). Illustrative master plan maps and graphics are included in Appendix 1 (Figures), and an updated traffic, water and wastewater demand is included in Appendix 4.

This plan has been developed in accordance with the requirements of § 1013.30 Fla. Stat. and Chapter 21 of the Florida Board of Governors Regulations. It has also been designed to promote the five guiding principles of Florida Polytechnic—Continuous Innovation, Empowerment, Responsiveness, Collaboration and Courage. It is the hope of all involved with the preparation of this master plan that the Florida Polytechnic campus will promote the University's mission to prepare students for a future where knowledge, innovation, adaptability and high-tech skills are needed to compete in a rapidly changing economy.

Chapter 1: Academic Mission and Program

I. Academic Mission

Florida Poly is the state's newest and most innovative university, engineered from the ground up to push the boundaries of education in science, technology, engineering, and math (STEM). Located in Lakeland, the heart of Florida's High-Tech Corridor, Florida Poly provides cutting-edge degree programs that prepare graduates to take on today's fastest-growing fields.

Florida Poly was granted initial regional accreditation from the Southern Association of Colleges and Schools (SACS) to award bachelor's and master's degrees, a significant milestone the University has diligently worked toward since its founding.

Florida Poly's leadership is comprised of accomplished academics and expert businessmen and women committed to strategically developing Florida Poly as the world's best applied research and job-generating university. Titled Advancing to Excellence, the Florida Poly 2018-2023 strategic plan outlines the academic and economic goals the University will work to attain by the year 2023. One of the goals is to influence the economic development of the 4,000 acres which surround Florida Poly, to create a research park that will bring together industry, academia, and government. The strategic plan was approved by the Board of Trustees in September 2018.

In 2019 Four Florida Poly bachelor's degrees received ABET accreditation: computer engineering, computer science, electrical engineering, and mechanical engineering.

The student's learning experience will focus on practical and applied research, internships with industry partners, and hands-on leadership opportunities delivered by distinguished faculty who excel in their fields.

Goal 1A: Florida Polytechnic University's goal is to recruit, develop, and retain world-class practitioner scholars with capacity to deliver its vision in teaching, problem-driven research, and community engagement.

- Objective 1A.1: Develop a comprehensive research support infrastructure to enable faculty to conduct world-class research with administrative support for grant development, management, and compliance.
- Objective 1A.2: Secure resources to recognize and reward faculty achievement in research and creative activity, outstanding teaching and community engagement and impact.
- Objective 1A.3: Develop and implement a comprehensive faculty recruitment, development and incentive plan aligned with the Florida Polytechnic vision.
- Objective 1A.4: Develop a faculty culture that values applied learning, applied research, interdisciplinary thinking and integration of innovative technology.

Goal 1B: Florida Polytechnic University's goal is to 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.

- Objective 1B.1: Develop a comprehensive enrollment management plan for marketing, recruitment, admissions, advising, retention and graduation of diverse and high-quality students.
- Objective 1B.2: Enhance advising to increase retention and ensure timely completion of degree programs.
- Objective 1B.3: Increase availability of scholarships for students.
- Objective 1B.4: Develop student leadership, mentoring, and learning community programs to contribute to student success and create a sense of belonging to Florida Polytechnic.
- Objective 1B.5: 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.
- Objective 1B.6: Create opportunities for student participation in honor societies and academic award programs.

Objective 1B.7: Develop a system for tracking graduations and establish a strong alumni base.

II. Academic Program

The Florida Polytechnic University Strategic Plan has been approved as the guide for University growth. In addition to setting forth core values, goals, objectives and strategies for the University to implement, the Strategic Plan provides a strong framework of annual operational planning as well as long-term capital and Campus Master Planning.

Goals defining the future academic mission of Florida Polytechnic University are found in the institution's strategic plan. The planning process is coordinated by the Institutional Effectiveness Committee (IEC), a requirement of the Southern Association of Colleges and Schools (SACS).

Florida Polytechnic University was established as the 12th member of the State University System of Florida on April 20, 2012. An exclusive focus on science, technology, engineering, and math (STEM) disciplines with an explicitly hands-on approach to learning and research differentiates Florida Polytechnic from other Florida universities. Florida Poly strives to be an Engineering University of Distinction ranked in the top 15 of engineering schools nationwide that does not offer a doctorate degree program and a premier, core STEM public institution in the southeast region of the United States.

The Florida Poly academic approach focuses on increasing selectivity that supports the University's model of delivering small classes with strong student-faculty interaction engaged in project-enhanced, curricular experiences. Coupled with a carefully engineered curricular and co-curricular focus on professional and leadership skills, the University offers industry-aligned majors in fast-growing, high-paying sectors. Florida Poly's priority on strong relationships with local and regional industry serves to fulfill its directive to enhance economic development in the state. A key component of this is the University's focus on connecting students with small and medium-sized business through internships, industry-sponsored projects, and eventual employment. These efforts form key goals in Florida Poly's strategic plan that calls for stronger efforts to grow the University's program portfolio and student experience initiatives to meet its goals of delivering programs in high-paying industries and maximizing value for students by preparing them for a lifetime of success.

Goal 1C: Florida Polytechnic University's goal is to create and expand academic programs that focus on applied learning, applied research, applied technology, and interdisciplinary approaches in its polytechnic model.

- Objective 1C.1: Integrate applied research in program curricula.*
- Objective 1C.2: Provide general education course offerings to match enrollment growth and assist all entering freshmen and transfer students in their program experience.*
- Objective 1C.3: Develop competency and skills-based student outcomes and assessments in all programs.*
- Objective 1C.4: Maintain comprehensive program information publications, both print and online.*
- Objective 1C.5: Continue to maintain and enhance institutional and program accreditation.*

Chapter 2: Future Land Use

I. Future Land Use

The Master Plan establishes the land use pattern for the Florida Polytechnic campus. The first phase of development is complete, with the iconic Innovation, Science & Technology (IST) Building anchoring the north end of campus and the Wellness Center and Residence Halls 1 and 2 in the northeastern quadrant. The Student Development Center was added in the southeast quadrant, and the Applied Research Center is under construction in the northwestern quadrant. As student enrollment increases and funding becomes available, future phases of residential and academic facilities development will take place along the east and west banks of the Central Lakes, as well as administrative and support facilities development at the southern end of the lake. The general growth of the campus development will occur in accordance with the Future Land Use Map (Figure 1.3, Appendix 1), with phasing as identified in the Capital Improvement Plan.

Goal 2A: Florida Polytechnic University's goal is to maintain a clear campus land use pattern, define the relationships among land uses on campus and coordinate with off-campus entities to define land uses.

Objective 2A.1: Ensure the effective use of land and minimize walking distances in the academic/residential core through proper campus development, abiding by the limits for each land use as described and illustrated in this plan.

Policy 2A.1.1: Develop the campus in accordance with this Campus Master Plan to maintain compatibility of uses, achieve efficient use of land resources, and minimize walking distances.

Policy 2A.1.2: Abide by land management procedures that ensure sustainable use of campus land resources. Assess unforeseen land uses that may arise from grant awards or other unanticipated circumstances by comparing proposed uses with the provisions set forth in this plan. Following a determination of appropriate location and consistency, undertake pre- planning and site planning studies to confirm appropriateness.

Policy 2A.1.3: Limit the height of buildings to levels that are consistent with existing structures on campus and the policies contained in this plan.

Policy 2A.1.4: Coordinate land use and development decisions with the schedule of capital improvements in the capital improvements element.

Policy 2A.1.5: The land use categories identified on the Future Land Use Map (Figure 1.3, Appendix 1) are defined as follows. The Academic Facilities land use category includes a combination of classroom, teaching lab, research and supporting uses. The Housing Facilities land use category includes on- campus residences for students. The Support Facilities land use category includes student support, faculty and staff offices, and auxiliary services. The Open Space + Recreation and use category includes both passive and active greenspace, including recreation and support buildings. The Open Plaza land use category includes spaces designed for outdoor gathering and assembly uses. The Water land use category includes permanently inundated landscape areas that serve functions such as stormwater management and irrigation. The Conservation land use category includes undeveloped areas that may remain in conservation use (such as environmental preservation or stormwater conveyance) or that, in some circumstances, may be reserved for future facilities development. The Parking land use category includes both surface parking and parking structures.

Policy 2A.1.6: Density and intensity standards associated with the land use categories identified on the Future Land Use Map (Figure 1.3, Appendix 1) are defined for the long-term build out of the campus, extending beyond the planning horizon of this Campus Master Plan for an undetermined period of time (see Table 11 in Chapter 9, Capital Improvement, for specific proposed construction through 2031). Expressed in terms of Floor Area Ratio (FAR) and number of beds per acre (as defined in Appendix 2 -

Supporting Data and Analysis), density and intensity standards are applied as net maximum standards to each land use category, as follows. The Academic Facilities land use category has an FAR standard of 2 averaged over the approximately 13.3 acres of campus land designated as Academic Facilities category. The Housing Facilities land use category has a beds per acre standard of 250 averaged over the approximately 9.5 acres of campus land designated as Housing Facilities (equating to a maximum density of 14 beds per acre over the approximately 170.5 acres of the entire campus). The Support Facilities land use category has an FAR standard of 1 averaged over the approximately 9.3 acres of campus land designated as Support Facilities category. The Open Space + Recreation land use category has an FAR standard of 0.1 averaged over the approximately 24.3 acres of campus land designated as Open Space and Recreation Facilities category. The Open Plaza land use category does not have an intensity standard (not applicable). The Water land use category has an FAR standard of 0.2 averaged over the approximately 23 acres of campus land designated as Water. The Conservation land use category has an FAR standard of 0.05 over the approximately 50 acres of campus land designated as Conservation (on the main campus). The Parking land use category has an FAR standard of 2 averaged over the approximately 13 acres of campus land designated as Parking land use category.

Objective 2A.2: Preserve and protect existing natural resources on campus.

Policy 2A.2.1: Protect natural resources in accordance with provisions and policies in this plan regarding environmental management.

Objective 2A.3: Protect any historic and archaeological resources that may be discovered on Florida.

Policy 2A.3.1: Conduct appropriate surveys for any potential Florida Polytechnic- controlled property to identify, designate and protect historic or archeological resources.

Objective 2A.4: Ensure that future land uses are compatible with topographic and soil conditions on campus.

Policy 2A.4.1: Assess the suitability of development sites relative to topography, soils conditions (including the presence of sinkholes), drainage, utilities and infrastructure connections, and vehicular and service access.

Policy 2A.4.2: Require the integration of existing topography and natural features in project designs.

Policy 2A.4.3: Maintain an existing soils and topographic database and update as additional data are developed for future construction projects.

Policy 2A.4.4: Require that geotechnical testing be conducted early in the design process to determine relevant soil characteristics of the site and to ensure that the design(s) reflect consideration of these conditions.

Policy 2A.4.5: Ensure that appropriate methods of controlling soil erosion and sedimentation are used during site development.

Objective 2A.5: Ensure that campus development takes place in a manner that is coordinated with the provision of adequate support facilities and services.

Policy 2A.5.1: Coordinate future campus development with Florida Polytechnic Planning, Design, and Construction (PDC) within Facilities & Safety Services to ensure that adequate utilities and infrastructure are available at adequate levels of service, consistent with applicable concurrency provisions. The Planning, Design and Construction Department shall review and evaluate all future construction projects to ensure that adequate provisions for infrastructure and utilities have been incorporated into the design by documenting:

- The provision and maintenance of necessary utility easements, corridors, and points of connection.
- The provision of adequate supply lines to accommodate future development and facility expansion.

- The provision of safe and convenient access and parking at adequate levels of service.
- Policy 2A.5.2: Preserve adequate land on campus for circulation and major utility corridors.
- Objective 2A.6: Minimize or avoid off-campus constraints to campus development and minimize or avoid conflicts between campus development and other development within the surrounding area.*
- Policy 2A.6.1: Through inter-local agreements and memoranda of understanding, work with the City of Lakeland (and other local agencies as appropriate) to minimize potential for conflicts.
- Policy 2A.6.2: Follow the procedural model for review and monitoring of campus growth and changes in land use as described in the Intergovernmental Coordination element of this plan, and coordinate with the City of Lakeland.
- Policy 2A.6.3: In project and site suitability assessments, include an evaluation of the relationship of the project to on-campus and off-campus development constraints, conflicts, limits and opportunities for collaboration pertaining to traffic, infrastructure, parking, open space and drainage.
- Policy 2A.6.4: If the acquisition of additional lands is necessary for continued growth and expansion, coordinate with the host local government and any other appropriate local government to address any required amendment to local government comprehensive plans.
- Policy 2A.6.5: Proposed amendments to the adopted Campus Master Plan that change land use designations or classifications or impact off-campus facilities, services or resources, will be submitted to the City of Lakeland for review.
- Policy 2A.6.6: Participate with the City of Lakeland in the reciprocal review of plans and development proposals consistent with provisions established for Intergovernmental Coordination.
- Policy 2A.6.7: Ensure that uses at the edges of the campus are compatible with off-campus uses. Provide park-like open space at campus edges and landscape street edges on all sides of the campus.
- Policy 2A.6.8: Coordinate with the City of Lakeland, Polk County and FDOT to construct pedestrian and bicycle linkages between the campus and adjacent neighborhoods.
- Objective 2A.7: Identify and address incompatible land use issues.*
- Policy 2A.7.1: Undertake an annual review of the planned campus capital improvements to ensure consistency with the land use and development factors as described in this plan.

II. Campus Design

Central Florida's landscape and geography is the primary inspiration for the Florida Polytechnic University campus design. The Campus Master Plan frames structures around the central lakes, which are located on a northwest-southeast axis through the center of campus. The lakes serve as the campus core, with an existing anchor at the north end, the iconic IST Building, that is fully visible from Interstate 4, Polk Parkway, and the south end of campus along the central lakes axis. Other important design elements of the Campus Master Plan include: recognition and conservation of the natural landscape; open spaces and tree canopies within campus; the elliptical vehicular ring road (Polytechnic Circle) and surface parking at the periphery of the site that keeps vehicular traffic out of the campus core; conservation of the existing vegetative buffer at the campus edge; the campus entry located at the southeastern corner with views toward the IST building; and the placement of administrative, academic, residential, and other support facilities around the Central Lakes to accentuate the strong campus core. The network of pedestrian walkways and paths form a grid across the campus that puts all classrooms, offices, and residence halls within a 10-minute walk.

The Campus Master Plan framework will continue to guide building placement and orientation, open space, visual linkages, movement patterns, and the logical distribution of land uses. Architectural design guidelines that are maintained by the Planning, Design and Construction Department ensure that future development of the campus is consistent with the initial phase construction in scale, massing, surface treatment, materials, and detailing. The

Landscape Design Guidelines that coordinate planting, hardscape materials, site furnishings and graphics contribute to the overall visual quality of the campus and establish a unified theme.

Preservation of existing stands of vegetation and landscape enhancement with native plant material will enhance open spaces and buffer parking lots, service areas and roadways and will reinforce the architectural character of the University.

Goal 2B: Florida Polytechnic University's goal is to establish a safe, integrated and cohesive order of campus open spaces defined by a unified architectural framework, while promoting compact, efficient and environmentally sensitive land use planning.

Objective 2B.1: *Locate future buildings in such a manner as to define: (i) the campus core; (ii) the iconic symbol of the University; (iii) the campus entries and system of peripheral vehicular circulation and parking; (iv) a network of pedestrian circulation; and (v) a hierarchy of open spaces culminating with a consistent campus edge.*

Policy 2B.1.2: The timing, phasing, and priorities for the development of buildings, facilities, and open spaces shall be consistent with the principles established for capital improvement planning.

Policy 2B.1.3: In all architectural design, seek consistency in the massing and height of buildings to maintain the character and expression of the existing campus landscape.

Policy 2B.1.4: Use the Planning, Design and Construction to review and ensure that campus development complies with goals, objectives, and policies in accordance with the Campus Master Plan.

Policy 2B.1.5: Position future buildings so that they contribute to the definition of public space. Facades and entries shall facilitate public use. Mechanical or service areas shall be separated from the public entries and placed away from the public spaces.

Policy 2B.1.6: Establish a hierarchy of campus open spaces with a clear circulation system including paths that are appropriately articulated in terms of scale and detail.

Policy 2B.1.7: Future buildings shall be carefully sited to minimize impacts to existing trees. At the time of construction, trees shall be protected from damage using perimeter barricades placed at the tree drip lines or critical root zone limits (whichever is greater).

Policy 2B.1.8: Explore procedures for funding campus landscape improvements independent of individual building construction projects to achieve a campus landscape framework that is visibly composed as a whole rather than a collection of individuals, unrelated landscapes.

Policy 2B.1.9: Accommodate the initial demand for parking in surface lots at the perimeter of the campus. As student enrollment increases, develop alternative parking such as a parking structure.

Objective 2B.2: *Provide service and emergency access to campus buildings via service drives and maintain separation between service and pedestrian routes to the greatest extent possible.*

Policy 2B.2.1: Enforce a policy designating service and emergency access routes on campus. Service access routes shall be reviewed for adequacy during the new facility plan review process.

Objective 2B.3: *Enhance physical connections among campus facilities.*

Policy 2B.3.1: Establish physical connections among campus facilities by continuing to build-out pedestrian circulation and way-finding systems.

Policy 2B.3.2: Encourage tree planting, appropriately scaled pedestrian lighting, signage and amenities along pedestrian routes.

Objective 2B.4: *Achieve a low level of energy consumption on campus as measured per capita and per building.*

Policy 2B.4.1: Encourage compact campus development in order to increase efficiency of utilities, encourage pedestrian movement, and preserve land resources.

- Policy 2B.4.2: Require new building design to respond to the particular climatic conditions of Central Florida and address energy conservation through building orientation siting, massing, shading and shape.
- Policy 2B.4.3: Encourage walkways, breezeways, shaded courts, and solar screens.
- Policy 2B.4.4: Endeavor to support sustainability principles through state-of-the-art design and construction practices.
- Objective 2B.5: Establish standards for selection of architectural materials in accordance with the objectives and policies documented in this plan element.*
- Policy 2B.5.1: Place priority on quality construction and require materials to be cost effective over the life cycle of the building. Require decisions regarding exterior wall materials and building color to be guided by the Campus Design Standards and Design Services Guide.
- Policy 2B.5.2: Require adherence to guidelines the Campus Design Standards and Design Services Guide.
- Policy 2B.5.3: Identify future landmark buildings as such, and direct architects to specify the appropriate use of materials and detailing.
- Policy 2B.5.4: Require design of future parking structures to follow the Campus Design Standards and Design Services Guide.
- Policy 2B.5.5: Require material openings, lighting systems, and HVAC systems to be designed to meet contemporary standards. System energy conservation standards are mandated to be in compliance with Florida Energy Conservation in Building Act of 1974. An energy analysis is required at the advanced schematic design stage of projects. In 2008, the Florida Legislature passed the Florida Energy Conservation and Sustainable Buildings Act, directing state agencies to incorporate sustainable building practices into the design, construction, and renovation of state buildings.
- Objective 2B.6: Establish standards for buildings, siting and linkages in accordance with the measures documented in this plan element.*
- Policy 2B.6.1: Establish and follow a land use and design review process to maintain campus unity, order, and amenity.
- Policy 2B.6.2: Require architectural design sensitivity to the characteristics of the regional climate including recommendations for sunscreens and covered continuous arcades on southern exposures of future buildings.
- Policy 2B.6.3: Encourage that all future buildings over 50,000 gross square feet of space be designed at a minimum of three stories in height. Buildings less than 50,000 gross square feet are to be designed with adequate building height and mass to frame adjacent open space and to accommodate future expansions when appropriate.
- Policy 2B.6.4: Ensure accessibility to all buildings based on the priorities identified in the Americans with Disabilities Act (ADA) Accessibility Guidelines. Priorities that will be implemented as the campus expands will include:
- Ensuring accessible routes from designated parking spaces to facilities;
 - Ensuring accessible classrooms, offices, housing, and restrooms; and
 - Ensuring accessible campus routes between facilities.
- Policy 2B.6.5: Establish and enforce campus-wide design standards for bus shelters, pavilions, and trellises.
- Policy 2B.6.6: Restrict the use of one-story occupied modular trailer buildings except on a short-term basis with removal dates prescribed and monitored.
- Objective 2B.7: Establish and enforce guidelines for architectural and landscape treatments along the campus edges.*

- Policy 2B.7.1: Design service areas to efficiently support building functions and to be located away from public open spaces and thoroughfares to the greatest extent possible.
- Policy 2B.7.1: Establish and enforce guidelines for campus entry and edge improvements.
- Policy 2B.7.1: Establish and enforce standards for treatment of retention and stormwater management facilities that allow such facilities to function as public recreational open space that complements other campus land uses.

- Objective 2B.8: Establish and enforce an overall conceptual campus landscape framework.*
 - Policy 2B.8.1: Place the highest priority on the development of open space, primary pedestrian and bicycle ways and the Central Lakes. Related tree planting and lighting throughout the campus entries shall be developed in accordance with the Capital Improvement Plan.
 - Policy 2B.8.2: Establish a continuous campus wide pedestrian and bicycle circulation system through expansions to the existing system made concurrently with each future campus development project, as appropriate and in concert with a phased schedule for campus development.
 - Policy 2B.8.3: Establish a consistent landscape framework that emphasizes the formation of the larger campus landscape over the independent development of building-specific landscapes. The landscape enhancements shall be native landscape plantings associated with the central lake, open spaces and campus entrances.

- Objective 2B.9: Establish and enforce standards for plant materials and planting criteria.*
 - Policy 2B.9.1: Establish and enforce a coordinated set of Campus Landscape Architectural Guidelines for all campus landscapes, site furnishings and lighting.
 - Policy 2B.9.2: Maintain an inventory of existing trees to assess the health and sustainability of the existing campus woodlands. A long-term tree maintenance program should be initiated, and Campus Landscape Architectural Guidelines should address the preservation of existing tree stands and the introduction of substantial tree canopy.
 - Policy 2B.9.3: Remove all non-native invasive plants (whether trees, shrubs or grasses) which are identified on the Exotic Pest Plant Council's Florida's Most Invasive Species List from the campus grounds to the greatest extent practical.
 - Policy 2B.9.4: Make reasonable attempts to ensure existing plant materials (primarily trees) identified as valuable that are in conflict with campus improvements are relocated when practical.

- Objective 2B.10: Establish and enforce standards for selection of campus furnishings, lighting, and graphics.*
 - Policy 2B.10.1: Require graphic and signage design to be in accordance with an established set of campus signage or as approved by Planning, Design and Construction.
 - Policy 2B.10.2: Adhere to campus standards for lighting that have been established through initial campus development and the landscape design guidelines.

- Objective 2B.11: Identify major proposed public open spaces to receive priority for implementation of concentrated improvement efforts.*
 - Policy 2B.11.1: Encourage artist involvement on major site improvement projects in the effort to enhance and articulate key areas of the campus.
 - Policy 2B.11.2: Establish a priority program to verify design compliance with ADA standard of accessibility design and Title IX.

III. Constructed Facilities

The iconic Innovation, Science & Technology (IST) Building is the University's first academic building. As it serves multiple functions, space within the building includes all applicable classifications: classrooms, teaching labs, library space, research labs, office space, study space and campus support space.

The Applied Research Center (ARC) building currently under construction and located adjacent to the west of the IST building provides complementary architecture. Additional academic facilities will be sited in general accordance with the Figure 1.3 Future Land Use Map. Sites for future academic buildings are generally oriented on the west side of campus opposite existing and planned student housing, and easily accessible by foot or bicycle.

The Wellness Center (Student Business Services, Auxiliary Enterprises, dining hall, and student Nest) is a support facility located on the east side of campus in close proximity to the existing Residence Halls. Though substantial in size and function, the Wellness Center is not considered to be a permanent building.

The Student Development Center (SDC) is the most recent support facility construction in 2018. Located on the east side of campus, in close proximity to the Wellness Center, the SDC supports student life and recreation.

Future permanent support facilities will be located on both ends of campus, adjacent to the IST Building and on the south end of the Central Lakes. Based on enrollment growth projections and the projected level of student demand for admittance to the University, building needs will include a Student Achievement Center (SAC). Located adjacent to the IST building, the SAC will house an honors college, an industry job center, an international liaison office, a faculty and industry mentorship program, tutoring programs, and programs that provide support for the psychological and social well-being of students.

Table 1: Existing and Projected Florida Polytechnic University Enrollment (FL FTE* and Headcount)

CATEGORY	2020-2021 ACADEMIC YEAR	2025-2026 ACADEMIC YEAR	2030-2031 ACADEMIC YEAR	PROJECTED GROWTH (2020-2021 to 2030-2031)
FL FTE*	1,250	1,970	2,736	218.88%
Headcount	1,422	2,160	3,000	210.97%

* Florida Full Time Equivalent (FL FTE)

Source: Florida Polytechnic University Office of Institutional Research (OIR)

In total, for the 2030-2031 academic year the projected FTE is 2,736 the total net/assignable space need for the campus will be 243,504 square feet, not inclusive of on-campus residential buildings. The categories with greatest space requirement will be research labs and offices. Table 2 provides projections of facility space needs based on application of Florida Board of Governors standards to Florida Polytechnic enrollment projections.

Table 2: Florida Polytechnic University 2031 Facility Space Needs Projections*

CATEGORY OF SPACE	SPACE FACTOR (Required Net/ Assignable Square Feet/FTE)	2030-2031 NET/ASSIGNABLE SPACE PROJECTED NEED ^(B)	2030-2031 GROSS SPACE PROJECTED NEED ^(C)
Classroom (Lecture)	9.0 sq. ft. per FTE	24,624	39,398
Teaching Lab	11.25 sq. ft. per FTE	30,780	49,248
Research Lab	18.75 sq. ft. per FTE	51,300	82,080
Instructional Media	3.0 sq. ft. per FTE	8,208	13,133
Auditorium/Exhibit	2.25 sq. ft. per FTE	6,156	9,850
Office/Computer	22.5 sq. ft. per FTE	61,560	98,496
Gymnasium	4.5 sq. ft. per FTE	12,312	19,699
Study	13.5 sq. ft. per FTE	36,936	59,098
Campus Support	4.24 sq. ft. per FTE ^(A)	11,628	18,605
TOTAL^(D)		243,504	389,606

*Based on latest approved OIR projections

(A) 5% of total space per State Requirements for Educational Facilities' guidelines

(B) Based on projected 2,736 FL FTE for 2030-2031 Academic Year

(C) Based on 1.6 Net to Gross Conversion Rate

(D) Residence Hall space needs not included

Source: Florida Polytechnic University Office of Institutional Research

Table 3 presents a comparison of existing net/assignable square feet provided by the IST building with the projected space needs for 2030-2031. When existing academic space in the IST building is factored in, the resulting additional net/assignable space need over the 10-year planning horizon totals 103,853 square feet. The majority of needed additional space is for research, offices and study spaces. The 10-Year Capital Improvement Plan responds to space needs projections by prioritizing facilities that correspond to highest projected levels of facility space needs. In total, planned capital improvements equate to 161,986 net/assignable square feet (see Table 11), which is slightly more than the anticipated need.

Table 3: Florida Polytechnic University Required Additional Facility Space Needs

CATEGORY OF SPACE	EXISTING ON CAMPUS NET/ASSIGNABLE SPACE	PROJECTED (ARC) NET/ASSIGNABLE SPACE (A)	EXISTING & PROJECTED NET/ASSIGNABLE SPACE	2031 NET/ASSIGNABLE SPACE PROJECTED NEED	10-YEAR FORECAST OF REQUIRED ADDITIONAL NET/ASSIGNABLE SPACE
Classroom (Lecture)	19,142	8,256	27,398	24,624	-2,774
Teaching Lab	20,909	9,226	30,135	30,780	645
Research Lab	6,754	10,525	17,279	51,300	34,021
Instructional Media	0	0	0	8,208	8,208
Auditorium/ Exhibition	2,499	5,594	8,093	6,156	-1,937
Office/Computer	16,903	9,730	26,633	61,560	34,927
Gymnasium	4,487	0	4,487	12,312	7,825
Study	15,172	2,472	17,644	36,936	19,292
Campus Support	5,198	2,783	7,981	11,628	3,647
TOTAL	91,064	48,587	139,651	243,504	103,853

(A) Existing IST Building and Projected ARC Building Net/Assignable Square Feet
Source: Florida Polytechnic University Office of Institutional Research (OIR)

Goal 2C: Florida Polytechnic University's goal is to develop academic facilities required to meet the needs of the projected student enrollment and consolidate and link the zones of academic activity on the campus in an interdisciplinary fashion.

Objective 2C.1: Provide academic facilities necessary to meet projected student enrollment and projected growth in academic functions in a polytechnic environment.

Policy 2C.1.1: Provide academic space in accordance with projected needs as shown in Table 2 and Table 11, 10-Year Capital Improvement Plan.

Policy 2C.1.2: Amend the adopted Campus Master Plan as needed to incorporate unforeseen academic facilities that may arise from grant awards, accelerated funding or other circumstances.

Objective 2C.2: Provide high quality, state-of-the art facilities for research and instruction on campus, located in such a way as to reinforce academic programs, improve functional relationships and encourage interdisciplinary activity.

Policy 2C.2.1: Accommodate future academic facilities in a way that reinforces patterns of land use, circulation, parking, and open space while making efficient use of limited land resources.

Policy 2C.2.2: Reinforce the integrity of campus academic clusters for maximum interaction among disciplines.

Policy 2C.2.3: Establish appropriate locations for future academic facilities based on relationships with other academic uses and sequencing.

Policy 2C.2.4: Establish and follow a structured process for comparative evaluation of alternative sites when planning the location for an academic facility. Before considering a new or alternative location, the office of Planning, Design, and Construction will undertake a study of the alternatives.

Goal 2D: Florida Polytechnic University's goal is to provide a full, diverse complement of support functions near the academic core.

Objective 2D.1: Provide the necessary student services, administrative services, physical plant and general auxiliary functions to meet projected student enrollment.

Policy 2D.1.1: Provide support facilities in conjunction with the timing and phasing of campus development.

Policy 2D.1.2: Identify and secure funds for future support facilities as a component of capital improvements planning.

Objective 2D.2: Accommodate future support facilities in a way that reinforces the patterns of land use, circulation, parking, and open space.

Policy 2B.4.4: Endeavor to support sustainability principles through state-of-the-art design and construction practices.

Policy 2D.2.1: Phase development of support facilities in such a way that there will be adequate support for incremental campus development and student enrollment growth.

Policy 2D.2.2: Establish appropriate locations for future support facilities based on currently known factors such as program requirements, affinities and relationships with other uses, and sequencing.

Policy 2D.2.3: Establish and follow a structured process for comparative evaluation of alternative sites when planning the location for a support facility. Before considering a new or alternative location, the office of Planning, Design, and Construction will undertake a study of the alternatives.

Policy 2D.2.4: Develop and appropriately locate support facilities to reinforce Florida Polytechnic's capacity to conduct events, activities and functions that will serve the general public and foster interaction between the University and the community.

Chapter 3: Transportation

Within the past eight years, the framework of the Florida Polytechnic campus transportation network has been constructed. Polytechnic Circle, a 1.5-mile perimeter drive surrounding the campus core, is linked to Research Drive at two points. On-campus parking lots constructed along the inner ring of Polytechnic Circle include 1050 spaces. The campus interior remains pedestrian-oriented, only including service vehicle access on designated routes. Sidewalks provide connections to parking and existing structures, and bridge across the central lakes.

The Florida Polytechnic Campus Master Plan clearly defines vehicular and pedestrian circulation (Figures 1.4 thru 1.7). As the campus develops, vehicular circulation will continue to be limited to the perimeter, and the planned network of pedestrian paths will be completed. Additional roadway segments connecting future adjacent roads to Polytechnic Circle will be constructed, and new sidewalks and bike lanes will connect housing and academic buildings as they are added to the campus. On-site surface parking will be limited in order to conserve land for open space and academic use. Options to develop structured parking facilities will be explored, including evaluation of potential benefits of a multi-use parking structure. The University will continue to coordinate with local government agencies, promote available transit options, and evaluate opportunities to expand service in cooperation with service providers.

I. Transit, Circulation and Parking

Goal 3A: Florida Polytechnic University's goal is to encourage options for flexible transit and vehicular access to the campus and will distribute parking in accessible concentrations around the perimeter of the campus core.

Objective 3A.1: Reduce the impacts of future traffic generated by University growth and Campus development, especially at peak hour.

Policy 3A.1.1: Construct on-campus housing as the supporting market and financial opportunities are favorable. On-campus housing will reduce both internal and external traffic generation, especially at peak hour.

Policy 3A.1.2: Explore opportunities for "partnering" with the private sector to construct residential housing in the community adjacent to the campus.

Policy 3A.1.3: Continue to jointly plan with the Transportation Planning Organization (TPO), the City of Lakeland, and the Polk County Board of Commissioners to coordinate transportation system improvements (vehicular and non-motorized circulation facilities) on campus and in the campus vicinity, with future land use and transportation plans, and develop programs and incentives to enhance transit service on campus and in the campus vicinity.

Policy 3A.1.4: Mitigate impacts on the surrounding transportation network caused by on-campus development, consistent with State of Florida provisions (§1013.30 Fla. Stat.) and as established in the Campus Development Agreement.

Policy 3A.1.5: Establish and review the timing for development of future campus roadways, traffic circulation modifications, and transportation safety mitigation projects as part of the annual Capital Improvement Plan update.

Policy 3A.1.6: Encourage improved connectivity between the Florida Polytechnic campus and adjacent property to the west that is planned for business park development.

Objective 3A.2: Supply vehicle parking to meet future University needs while providing options to reduce the demand for vehicular parking.

Policy 3A.2.1: Provide access to campus parking lots from Polytechnic Circle and construct additional parking lots in locations consistent with the Future Land Use Element (Figure 1.3).

Policy 3A.2.2: Continue to evaluate opportunities for off-campus or remote parking lots ('Park and Ride' lots) with the cities of Lakeland and Auburndale and in coordination with the owners of adjacent properties to the east, south and west of the campus.

- Policy 3A.2.3: Expand options for the operation of the internal on-campus shuttle system.
- Policy 3A.2.4: Establish and review the timing for development of future campus parking facilities as part of the annual Capital Improvement Plan update.

Objective 3A.3: *Expand the use of alternative modes of transportation (including shuttle service, ride share, and bicycle and pedestrian ways) and reduce the extent to which the single-occupant vehicle is the primary mode of travel.*

- Policy 3A.3.1: The Polytechnic shuttle will provide evening and weekend opportunities for students to access stores and activities off campus.
- Policy 3A.3.2: Implement a rideshare program, which is one of the most effective ways to alleviate the problems associated with campus traffic and provide accessibility to all members of the educational community.
- Policy 3A.3.3: The University will provide transportation for students relating to health care visits by partnering with a ride-hailing company.
- Policy 3A.3.4: Encourage transportation demand management (TDM) strategies designed to reduce the use of single-occupant vehicles, such as improving pedestrian and non-vehicular facilities; locating student-oriented housing in close proximity to the campus; designating preferential parking locations for carpoolers/rideshare; and academic scheduling modifications.
- Policy 3A.3.5: Establish and review the timing for development of future transit facilities and services as part of the annual Capital Improvement Plan update.

II. Pedestrian and Non-Vehicular Circulation

Goal 3B: **Florida Polytechnic University's goal is to strengthen the functional and aesthetic nature of pedestrian and non-vehicular movement between and among the various areas of the campus, and in the campus vicinity.**

Objective 3B.1: *Provide convenient pedestrian and bicycle routes on the campus in coordination with the City of Lakeland.*

- Policy 3B.1.1: Prioritize implementation of new pedestrian and bicycle facilities (see figure 1.5).
- Policy 3B.1.2: Enhance campus pedestrian corridors with landscaping and consistent design standards.
- Policy 3B.1.3: Provide sidewalks to new facilities as campus development continues.
- Policy 3B.1.4: Install convenient bike racks at all occupied buildings and recreational facilities.
- Policy 3B.1.5: Complete a connected system of bike lanes on campus.
- Policy 3B.1.6: Establish and review the timing for development of future campus bicycle and pedestrian facilities as part of the annual Capital Improvement Plan update.
- Policy 3B.1.7: When new bicycle and pedestrian facilities are added to the campus, share information about the types and locations of new facilities with the City of Lakeland for public information purposes.
- Policy 3B.1.8: Encourage the development of trail corridors to connect the Florida Polytechnic campus to the planned and emerging trail network in the surrounding area, including the proposed Tenoroc and State Road 33 Trails, the Teco-Auburndale Trail, the University Boulevard/Research Way/Pace Road Trails, and the Van Fleet Trail.

Chapter 4: Housing

The 10-year residential housing program for the Florida Polytechnic Campus Master Plan provides for approximately 1,000 beds to be developed in three structures. Residence Hall 1 accommodates 218 beds in apartment style, Residence Hall 2 on the adjacent site to the southeast accommodate a total of 539 beds, with 490 in semi-suite style and 49 beds in apartment style. Future housing program construction for approximately 250 beds in a mixture of apartment style and semi-suite style is planned for the site along the eastern bank of the Central Lakes.

All existing housing construction is in the form of 5-story flats with contemporary architectural style. Buildings are designed for ADA compliance and use Type II construction per State of Florida requirements. All residence halls will have pedestrian linkages to academic buildings across the lakes, campus support facilities to the north and south, adjacent open space and recreational facilities, and parking adjacent to Polytechnic Circle.

Since Florida Polytechnic is a new campus and institution with an overwhelmingly undergraduate enrollment, all existing and planned on-campus housing is intended for undergraduate students, with no specifically designated graduate or married housing.

Goal 4A: **Florida Polytechnic University's goal is to provide diverse and safe housing options for students on campus and encourage the development of affordable housing in the vicinity of the campus.**

Objective 4A.1: Endeavor to provide up to 1,000 student beds in residence facilities on campus within 10 years to ensure the availability of an adequate supply of housing, as needed.

Policy 4A.1.1: Develop new campus housing in locations delineated in this master plan (Figures 1.3 and 1.8).

Policy 4A.1.2: Incorporate the timing, phasing requirements and priorities for future student housing in the Capital Improvement Plan. MPCIP non-PECO bonds or public-private partnerships (PPP) will be used to develop student housing.

Policy 4A.1.3: Provide support facilities required in conjunction with future campus housing (e.g. parking, student activities, recreation), as addressed under Chapter 2 – Future land Use.

Objective 4A.2: Encourage and support improved and expanded off-campus housing opportunities near the campus.

Policy 4A.2.1: Coordinate with the affected local governments regarding issues related to off-campus student housing, including safety and transit.

Chapter 5: General Infrastructure

Within the past eight years, infrastructure development has transformed the approximately 170 acres of Florida Polytechnic University property from undeveloped land into a functioning campus. The General Infrastructure Element reflects the infrastructure improvements that have been completed in association with Phase 1 campus development:

- Central Lakes (seven retention ponds) and stormwater drainage infrastructure to serve the entire campus
- A potable water distribution system and sanitary sewer service system that extends to all existing buildings
- Solid waste management infrastructure and services (outsourced to a solid waste management contractor)
- Systems for providing hot water and chilled water for heating and air conditioning of all existing buildings
- An electrical power distribution and telecommunications infrastructure backbone for the campus.
- Reclaimed water supply provided for future distribution system to extend to all future and existing building.

Continued build out of campus infrastructure systems will follow the direction of Figure 1.3 Future Land Use Map and will be phased in accordance with prioritized implementation of the Capital Improvement Plan. The level of service for the various aspects of campus infrastructure will be maintained in a manner consistent with the level of service standards established by the City of Lakeland. Student enrollment projections provide a baseline for the pace of campus development. Phase 2 of campus development, as directed by the Capital Improvement Plan, will include extension of potable water and sanitary sewer systems; expansion of solid waste management services; and provision for heating, cooling, electrical power and telecommunications to new campus buildings.

I. General Infrastructure

Goal 5A: Florida Polytechnic University's goal is to provide an adequate stormwater management system to accommodate present and future stormwater needs and meet the requirements of the applicable approval authorities.

Objective 5A.1: Implement and maintain a regular stormwater facility maintenance program to ensure adequate function of the facilities, to protect the natural stormwater management features and hydrological areas, and to meet all applicable regulatory requirements.

Policy 5A.1.1: Coordinate, as appropriate, with the Southwest Florida Water Management District, City of Lakeland and other applicable agencies regarding the National Pollutant Discharge Elimination System (NPDES) program.

Policy 5A.1.2: Mitigate University-generated stormwater and minimize stormwater-borne pollutants through the implementation of Best Management practices (BMPs), such as a Spill Prevention, Control & Countermeasure (SPCC) Plan, "green infrastructure" and environmentally sensitive pesticide management.

Objective 5A.2: Provide increased stormwater management capacity when needed to meet future needs of the University.

Policy 5A.2.1: Ensure that stormwater management facilities comply with the established design criteria and are in place and operational, at established levels of service (consistent with standards of the Southwest Florida Water Management District and City of Lakeland), prior to occupancy of any new University building.

Policy 5A.2.2: Planning, Design and Construction will review all proposed construction on campus to ensure that any proposed increase in impervious surfaces can be addressed by existing stormwater capacity, or that additional capacity will be funded and on-line at the time of need. Impose SPCC Plan Guidelines for Construction.

Policy 5A.2.3: Establish the timing and phasing requirements for any stormwater system improvements to coordinate with new buildings planned in the Capital Improvement Plan.

Goal 5B: Florida Polytechnic University's goal is to provide an adequate potable water system to accommodate the present and future potable water needs and meet the requirements of the applicable approval authorities.

Objective 5B.1: *Provide sufficient potable and non-potable water systems using consistent engineering standards in a manner that supports the plan for campus build out over the ten-year planning period.*

Policy 5B.1.2: Approve proposed increases in consumptive uses, whether residential or nonresidential, after determination that existing potable water treatment and distribution capacity is able to accommodate the increased need or determine that additional capacity will be funded and on-line when needed.

Policy 5B.1.2: Maintain an adequate level of service, consistent with the City of Lakeland's adopted level of service standard, for the potable water system as campus development proceeds.

Policy 5B.1.3: Identify the campus potable water distribution corridors as "no build" zones.

Policy 5B.1.4: Continue to coordinate with the City of Lakeland to address campus potable water needs.

Policy 5B.1.5: Establish the timing and phasing requirements for any system improvements in the Capital Improvement Plan.

Objective 5B.2: *Provide adequate fire protection.*

Policy 5B.2.1: Conduct annual on-site fire flow tests to verify adequacy of fire protection or identify deficiencies. The tests shall be conducted in accordance with the methodology described in the American Water Works Association Manual Number 31, entitled "Distribution System Requirements for Fire Protection" and NFPA 24 & 25. The results of such tests shall be provided to the City of Lakeland Fire Department as requested, and any required improvements will be coordinated with the City of Lakeland.

Objective 5B.3: *Implement a campus water conservation program and evaluate opportunities to expand water conservation.*

Policy 5B.3.1: Incorporate the following techniques and activities as shown in figure 1.10: Potable and Reuse water Distribution Map to promote water conservation by: xeriscaping; installation of sub-metering on new facilities; computerized, rain-sensitive irrigation systems; use of collected stormwater or other "gray" water sources for irrigation purposes; and water audits and other leak detection programs.

Goal 5C: **Florida Polytechnic University's goal is to provide an adequate sanitary sewer system to accommodate the present and future sanitary sewer needs and meet the requirements of the applicable approval authorities.**

Objective 5C.1: *Provide for reliable and efficient collection and transmission of all campus wastewater in an environmentally safe manner.*

Policy 5C.1.1: Coordinate with the City of Lakeland to ensure that off-campus sanitary sewer facilities are managed and improved in accordance with Intergovernmental Coordination procedures and the Campus Development Agreement.

Policy 5C.1.2: Ensure that proposed increases in sewage discharges, whether residential or nonresidential, are approved after determination that existing sanitary sewer treatment and collection system capacity is sufficient to accommodate the increased need, or determination that additional capacity will be funded and on-line when needed.

Policy 5C.1.3: Maintain an adequate level of service, consistent with the City of Lakeland's adopted level of service standard, for the sanitary sewer system as the campus develops.

Policy 5C.1.4: Establish the timing and phasing requirements for any sewer system improvements to coordinate with new buildings planned in the Capital Improvement Plan.

Goal 5D: Florida Polytechnic University's goal is to meet present and future solid waste collection and disposal requirements in a safe, cost-effective, environmentally sound and aesthetically satisfactory manner.

Objective 5D.1: Coordinate the provision of increased solid waste collection and disposal capacity to meet future campus needs.

Policy 5D.1.1: Evaluate the need to update the solid waste services contract (private vendor) to maintain an adequate level of service, consistent with the City of Lakeland's adopted level of service standard, as the campus grows.

Objective 5D.2: Expand recycling and reuse programs.

Policy 5D.2.1: Install drop-off recycling containers in individual buildings, in residential areas or in other convenient locations. Awareness programs directed toward students, faculty and staff should also be included in the recycling program.

Policy 5D.2.2: Utilize standardized solid waste collection containers and place them for convenient service while avoiding potential pedestrian conflicts and visual impacts (screen from pedestrian corridors).

Objective 5D.3: Continue to support proper management in the disposal and transportation of hazardous and other special wastes in accordance with all State and Federal regulations.

Policy 5D.3.1: Monitor the volume and types of hazardous waste collection and temporary storage on site to determine the feasibility of constructing and operating the next higher level of storage facility on campus. If determined appropriate to proceed, Florida Polytechnic shall amend the adopted Campus Master Plan to reflect the timing, location, and scope of such a facility.

II. Utilities

Goal 5E: Florida Polytechnic University's goal is to provide adequate hot water/ heating in a flexible, efficient and cost-effective manner to support the growth of the campus.

Objective 5E.1: Provide hot water or electric resistance heating plants and/or components for each new facility.

Policy 5E.1.1: Approve proposed increases in hot water use, whether residential or non-residential, only after a finding that existing hot water distribution capacity is sufficient to accommodate the increased need, or determination that additional capacity will be funded and on-line at the forecasted time of need.

Objective 5E.2: Provide sufficient hot water to meet the future needs of the campus.

Policy 5E.2.1: Implement hot water improvements in conjunction with all phased facility development plans and maintain adequate level of service.

Goal 5F: Florida Polytechnic University's goal is to provide an adequate chilled water service to the campus facilities in an efficient and cost-effective manner to support future expansion.

Objective 5F.1: Develop chilled water service capacity to accommodate future facilities.

Policy 5F.1.1: Require a computerized life cycle cost analysis of the HVAC systems for all new facilities.

Policy 5F.1.2: Establish the timing and phasing requirements for any chilled water system improvements to coordinate with new buildings planned in the Capital Improvement Plan.

Policy 5F.1.3: Review all proposed development projects to ensure that adequate chilled water capacity will be available.

Policy 5F.1.4: Approve proposed increases in chilled water use, whether residential or non-residential, only after a finding that existing chilled water distribution capacity is already on-line to accommodate the increased need or finding that additional capacity will be funded and on-line at the forecasted future time of need.

- Policy 5F.1.5: Develop and implement a campus utility load profile for chilled water peak demand to determine the campus diversified peak load factor and establish firm capacity of the chiller plant that will be essential in accommodating future campus growth.
- Policy 5F.1.6: Develop complete verified hydraulic models for the modifications and expansions of the piping system throughout the campus.
- Policy 5F.1.7: Develop and implement non-destructive testing procedures and practices to evaluate the status of existing underground piping systems.
- Policy 5F.1.8: Meter chilled water loads to implement load management and load history for planning and conservation measures.
- Policy 5F.1.9: Develop a plan to meet campus build out requirements for chiller capacity and a methodology for incremental addition of chillers.

Goal 5G: Florida Polytechnic University's goal is to provide adequate, reliable, efficient, and cost-effective service with electrical power and other fuels to support campus operations and expansions through the 10-year planning period.

Objective 5G.1: Implement design and construction standards to establish the necessary service and improvements required to ensure that adequate, reliable, and cost-effective service is provided for existing and planned facilities.

- Policy 5G.1.1: Require that a computerized life cycle cost analysis be submitted for all new facilities to determine whether natural gas and/or electricity should be the source of fuel.

Objective 5G.2: Reduce unnecessary energy losses in the campus distribution system and in associated University-controlled and operated facilities.

- Policy 5G.2.1: Use energy efficient lighting fixtures, electronic ballasts, building metering and high lumen efficiency lamps in all new and renovated buildings.

Objective 5G.3: Create a computerized, data-based load tabulation of electric power requirements for proposed new buildings and provide updates to reflect changes on an as-needed or programmed basis.

- Policy 5G.3.1: Require analysis to determine the amount of electricity that will be required for each new facility.
- Policy 5G.3.2: Require modifications to the campus electrical power distribution system as needed to meet the electricity demands created by new facilities.
- Policy 5G.3.3: Review all proposed development projects to ensure that adequate electrical service capacity exists.
- Policy 5G.3.4: Approve proposed increases in electrical energy use only after a finding that existing electrical energy distribution capacity is sufficient to accommodate the increased need, or determination that additional capacity will be funded and on-line when needed.

Objective 5G.4: Limit the expansion of the Florida Polytechnic-owned electrical distribution system to within the campus boundaries.

- Policy 5G.4.1: Implement electrical system improvements based on two priorities: 1.) maintaining the existing system, and 2.) expanding the system to accommodate new campus electrical energy needs.

Objective 5G.5: Identify, inventory, and evaluate emergency generators on the campus.

- Policy 5G.5.1: Program funds to perform an inventory and evaluation of emergency generators on campus at appropriate intervals. Incorporate emergency generators into new construction projects as needed.

Goal 5H: Florida Polytechnic University's goal is to provide each building on the campus with communications connectivity for telephone, data and video networks.

Objective 5H.1: Plan, design and install campus communications systems that are sufficient to correct existing deficiencies and meet voice, data and video communications needs.

- Policy 5H.1.1: Program funds for design and implementation of redundant/alternative pathways for the campus fiber backbone.
- Policy 5H.1.2: Program funds for design and installation of fiber optic cable to all classrooms, offices, and dormitories to provide connectivity for faculty, staff, students, and residents.
- Policy 5H.1.3: Program funds for design and installation to provide adequate copper connectivity for voice, multi-mode fiber for data and/or VOIP, and single mode fiber for video/data to all buildings on the Florida Polytechnic campus.
- Policy 5H.1.4: Standardize on a data local wide area network for campus-wide use and expansion as the campus develops.
- Policy 5H.1.5: Maintain and periodically revise a Florida Polytechnic voice/data/video construction standard for application to all new construction and renovation projects requiring these services.
- Policy 5H.1.6: Program funds to perform an inventory and study of video systems on campus.
- Policy 5H.1.7: The office of Planning, Design, and Construction shall manage and encourage joint use of underground infrastructure trenches to minimize redundant construction costs.

Objective 5H.2: Identify, inventory, and study any electromagnetic field generators on the campus.

- Policy 5H.2.1: Program funds to perform an inventory and study of electromagnetic fields on campus.

Chapter 6: Conservation

Florida Poly will continue to apply conservation policies to campus grounds, in existing buildings, and with future development. Building-specific energy use and management techniques will be integrated with new construction, and air quality-related measures will address transportation and building systems. Mitigation, monitoring and coordination measures necessary to address the impacts of development will continue to be implemented. This approach will minimize impacts on environmentally sensitive lands and natural resources.

Goal 6A: Florida Polytechnic University's goal is to be a model for conservation practices to improve the environment and to improve air, water and open space quality on campus and in the vicinity of the campus.

Objective 6A.1: *Identify mitigation techniques, including traffic and parking demand reduction, to maintain or improve air quality.*

- Policy 6A.1.1: Reduce mobile sources of air pollution by promoting alternative modes of transportation on campus (i.e., public transit, bicycles, etc.).
- Policy 6A.1.2: Explore and implement, as appropriate, alternative fuel vehicles for use on campus, including any campus shuttle systems.
- Policy 6A.1.3: Minimize emissions of air pollutants from and within campus buildings through the installation of appropriate filtering devices on fume hoods and by minimizing the storage and use of volatile and hazardous materials in campus buildings.
- Policy 6A.1.4: Monitor indoor and outdoor air quality. Indoor sampling shall occur at chemistry laboratories, kitchens, and other sites where fumes are produced. Outdoor sampling sites shall include parking lots and congested intersections. Failure to meet air quality standards adopted by the Florida Department of Environmental Protection shall result in an assessment of the probable cause and the preparation and implementation of a plan to improve and maintain air quality.
- Policy 6A.1.5: Planning, Design and Construction is to review proposed improvements to assure adherence to appropriate Campus Master Plan policies. Copies of land development criteria and design standards which reflect the policies contained in the adopted Campus Master Plan shall be provided to design consultants and appropriate campus staff.

Objective 6A.2: *Protect identified jurisdictional native vegetative communities, whether uplands or wetlands, and protected wildlife species and habitat.*

- Policy 6A.2.1: Protect jurisdictional native vegetative communities from development by designating them as "no build" zones, and maintain the jurisdictional areas based upon the most recent Florida Department of Environmental Protection and Southwest Florida Water Management District criteria, standards and guidelines.
- Policy 6A.2.2: All campus landscape improvements will follow the landscape design guidelines by use plant species that are indigenous to the natural plant communities of the Lakeland and Central Florida area.
- Policy 6A.2.3: Minimize stormwater-borne pollutants generated as a result of the University operations and maintenance practices.
- Policy 6A.2.4: Conduct studies to identify protected vegetation, protected wildlife species and associated habitat on Florida Polytechnic-controlled properties in accordance with applicable regulatory agency requirements.

Objective 6A.3: *Identify measures to conserve energy and minimize future demand.*

- Policy 6A.3.1: Evaluate and implement, as appropriate, solar energy projects to provide alternative sources of power for irrigation systems, lighting, shuttles, phones, and similar systems.

- Policy 6A.3.2: Require energy conservation fixtures, high-efficiency air conditioning and lighting systems, low water volume plumbing fixtures and other building specific energy use and management techniques in all new buildings constructed on the campus.
- Policy 6A.3.3: Use courtyards, arcades and other shade and ventilation design techniques to further reduce energy demands. Landscaping and building orientation should also enhance conservation.
- Policy 6A.3.4: Encourage recycling by creating informational materials to increase awareness and installing convenient recycling centers.
- Policy 6A.3.5: Employ reclaimed water service to reduce potable water use on campus.

Chapter 7: Recreation and Open Space

New development will adhere to the open space framework as illustrated in the Conservation, Recreation & Open Space map (Appendix 1, Fig. 1.12). Areas designated to remain as open spaces or to provide outdoor campus recreation opportunities include the Central Lakes, the multi-purpose field on the east side of campus, open lawns in various campus locations, and wooded areas outside of Polytechnic Circle. Site design for future buildings will seek to maximize open space and protect sensitive lands. The Student Development Center, located southeast of existing on-campus housing, provides enclosed recreation facilities. The recently constructed outdoor multi-purpose athletic field, basketball courts and volleyball court provide much-needed on-campus recreation options for students. The Student Development Center includes a recreation building, pavilion and pool near the multi-purpose athletic field. Future recreational facilities may also be considered in nearby off-campus areas in coordination with the City of Lakeland.

Goal 7A: Florida Polytechnic University's goal is to provide adequate recreation options for the campus community in a diverse open space environment that links the campus and the larger community.

Objective 7A.1: Provide recreational facilities and open space to meet campus demand through the coordinated use of public and private resources.

Policy 7A.1.1: Establish a private donor program to contribute to the development and maintenance of on-campus recreation facilities.

Policy 7A.1.2: Coordinate with the City of Lakeland and Polk County to evaluate the potential for future joint use recreation opportunities.

Objective 7A.2: Provide improved facilities to meet on-campus recreation and physical education needs.

Policy 7A.2.1: Maximize the potential of the Student Development Center and construct additional recreational and open space facilities to meet on-campus recreation and physical education needs. The timing and phasing for improvements shall be established by the University Administration and Board of Trustees with input from the Student Government Association in conjunction with the Capital Improvement Plan annual review.

Objective 7A.3: Provide increased opportunities for student access to varied, high quality open spaces in accordance with the Campus Master Plan.

Policy 7A.3.1: Invest in planning and design for campus open spaces to provide inviting outdoor living spaces appropriate to the climate.

Policy 7A.3.2: Locate lawns and wooded parks adjacent to residential and academic facilities to provide a physical setting that promotes an atmosphere of collegiality and reinforces the campus character.

Policy 7A.3.3: Develop pedestrian walkways and paths that link the campus core to recreation facilities, open spaces, parking, and natural wooded areas.

Policy 7A.3.4: To the extent practical, include interior and exterior courtyard spaces in all buildings, or closely clustered groups of buildings, as appropriate.

Chapter 8: Intergovernmental Coordination

Florida Polytechnic University initiated the policy measures necessary to implement a campus development agreement (CDA) with the City of Lakeland. The CDA, established in 2007 and in 2017, remains in effect until December 31st, 2026. It addresses concurrency management to maintain the City's adopted levels of service for infrastructure and services, and establishes measures to mitigate the impacts of campus development on the community. The University will continue to coordinate with the City of Lakeland in accordance with the CDA, and with other public entities to provide adequate infrastructure to serve campus growth. The University will also follow the mandated reciprocal review processes for plan amendments and proposed development, as required by Florida statute.

Goal 8A: Florida Polytechnic University's goal is to achieve the goals, objectives, and policies of the Campus Master Plan through the use of collaborative planning with local agencies and governmental entities.

Objective 8A.1: Follow the established process for reciprocal review of growth management plans, Campus Master Plans, and plan amendments by University and local government officials.

- Policy 8A.1.1: Transmit proposed campus plan amendments which exceed the thresholds established in § 1013.30(9) Fla. Stat., to the appropriate local, regional and state agencies for review in accordance with the procedures established in Chapter 6C-21, Part I, Florida Administrative Code.
- Policy 8A.1.2: Transmit proposed campus plan amendments which do not exceed the thresholds established in § 1013.30(9) Fla. Stat., but which have the effect of changing future land use designations or impacting public facilities, services or natural resources to the host and affected local governments for a courtesy review.
- Policy 8A.1.3: Meet with officials from the City of Lakeland, Polk County and regional agencies on a regular basis, or as required for the purpose of coordinating planning activities. Other local, regional, state and federal agencies shall be invited to participate in these meetings as appropriate.
- Policy 8A.1.4: Resolve any disputes with a local government by the process established in § 1013.30(8) Fla. Stat.

Objective 8A.2: Follow a reciprocal development review process that assesses the impacts of proposed campus development on significant local, regional, and state resources and facilities, and assess the impacts of off-campus development on University resources and facilities. The review process is as follows:

- Proposed development within the context area which has the potential to impact or affect University facilities and resources shall be transmitted by Florida Polytechnic to the University System's Campus Development Committee for review.
- The appropriate Florida Polytechnic representative and the University System's Vice President (as appropriate) shall meet with City and County officials to establish the criteria and thresholds for development proposals which would be subject to review by Florida Polytechnic. Florida Polytechnic shall adhere to development thresholds, developed in cooperation with City and County officials, which allow for both to review significant development proposals within the context area. Established thresholds for review will allow for exceptions to the review process for development proposals which are mutually agreed to be not significant.
- Upon receipt of an application for a development order proposed for the context area, Florida Polytechnic and the University System's Vice President shall assess the potential impacts of the proposed development on Florida Polytechnic facilities and resources. Findings shall be remitted in writing to the appropriate local government.
- When it has been determined that proposed development on campus would have an adverse impact on local services, facilities or natural resources, Florida

- Polytechnic officials will participate and cooperate with City and County officials in the identification of appropriate strategies to mitigate the impacts.
- When it has been determined that proposed development within the designated context area would have an adverse impact on campus facilities and resources, Florida Polytechnic officials will participate and cooperate with City or County officials in the identification of appropriate strategies to mitigate the impacts on campus facilities and resources.
- Any dispute between Florida Polytechnic and any host or affected local government regarding the assessment or mitigation of impacts shall be resolved in accordance with the process established in § 1013.30(8) Fla. Stat.
- All campus development may proceed without further review by the host local government if it is consistent with the campus development agreement and the adopted Campus Master Plan.
- Once Florida Polytechnic pays its "fair share" and annually reports construction of capital improvements, as identified in the campus development agreement, all concurrency management responsibilities of Florida Polytechnic are deemed to be fulfilled.

Objective 8A.3: *Maintain and enhance coordination between Florida Polytechnic and public agencies to create a better community and environment.*

- Policy 8A.3.1: Work with the City of Lakeland and other agencies and organizations as described in the Housing Element to coordinate, improve, and increase the availability of safe affordable housing in the Florida Polytechnic area.
- Policy 8A.3.2: Coordinate with the City of Lakeland and Polk County in support of the use of appropriate funding mechanisms to coordinate and facilitate the safe use of bicycles and reduce automobile impacts on the area.
- Policy 8A.3.3: Continue to cooperate with the appropriate entities to evaluate traffic impacts on roadways and endeavor to mitigate impacts through increased on-campus housing, improved transit service, and other mitigation techniques described in the Transportation Element.
- Policy 8A.3.4: Maintain and periodically update the Emergency Operations Plan in coordination with Polk County Emergency Management Operations (EMO), the City of Lakeland, and other appropriate entities. The plan shall identify the extent to which University buildings can be used to provide shelter for students, faculty, staff, and the general public. Suitable campus open spaces shall be designated for use as staging areas for emergency supplies, equipment, and resources.

Goal 8B: **Florida Polytechnic University's goal is to develop collaborative public and private partnerships that enhance research and funding opportunities, including leveraging state and federal funds.**

Objective 8B.1: *Negotiate collaborative partnerships for research and funding.*

- Policy 8B.1.1: Achieve increased visibility by developing and implementing an image and marketing plan that communicates the University's vision and mission and highlights achievements and contributions to the region and state.
- Policy 8B.1.2: Establish mutually beneficial partnerships with pre K-12 school systems and human services organizations.
- Policy 8B.1.3: Identify mutually beneficial research and grant development opportunities.
- Policy 8B.1.4: Establish an Office of Community Education and Outreach and provide community education opportunities to support lifelong learning for all generations.
- Policy 8B.1.5: Set and achieve ambitious fund-raising goals through collective efforts and the creative vision of the campus community.
- Policy 8B.1.6: Encourage and support faculty and staff involvement in civic, professional and local service organizations.
- Policy 8B.1.7: Strengthen the Alumni Organization in the central Florida region and promote alumni affinity with Florida Polytechnic.

Chapter 9: Capital Improvement

The Florida Polytechnic University 10-Year Capital Improvement Plan (CIP) provides a schedule of planned campus major capital projects by year. The projects included are those given highest priority and needed to accommodate projected student enrollment growth and planned program enhancements. The CIP is reviewed annually, and a 5-year outlook of facility needs is also prepared annually. Table 11 lists CIP projects as well as incremental phasing for construction.

The following summary descriptions of the CIP projects are ordered by priority. These priorities are based on projected space needs through the planning period with consideration for existing space in the IST building and the planned space in each of the CIP projects.

<i>Priority 1: Applied Research Center (2021-2022)</i>	Estimated completion; public funding sources – New construction of a 63,000 NASF/95,000 GSF facility that will accommodate laboratories and an entrepreneurship center to assist with the commercialization of products and services created from the University’s research. The facility will also provide space to meet the demand for hosting industry research groups as well as national and international meetings.
<i>Priority 2: Academic Building 3 (2023-2026)</i>	New construction of an approximately 58,000 NASF/92,800 GSF facility which will house specialized research spaces and provide computer/office spaces for faculty and students involved in the academic research. The space will be supplemented with campus support spaces providing student services for the research and academic activity. It is anticipated that this project will be funded through a combination of public and private funding.
<i>Priority 3: Residence Hall 3 (2023-2024)</i>	New construction of a 96,000 NASF/134,400 GSF residence hall with 250 beds and planned spaces for learning and living. The addition of this building is based on projected on-campus housing needs described in the Housing Chapter.
<i>Priority 4: Student Achievement Center (2026-2028)</i>	New construction of a 40,986 NASF/65,578 GSF facility that will house an honors college, industry job center, international liaison office, faculty and industry mentorship program, and tutoring programs. Additionally, the facility will house programs that provide support for the psychological and social well-being of students. It is anticipated that this project will be funded and developed through a combination of public and private funding.

In addition to new buildings, the CIP includes expansions and upgrades to campus utilities and infrastructure. A substantial portion of the overall campus infrastructure requirement was met through Phase 1 construction. Ongoing funding will be required to extend infrastructure across the entire campus in anticipation of future development, and to enhance infrastructure in already-developed campus areas. Specific infrastructure investments are anticipated for the 2020/2021 academic year (chiller expansion), the 2024-2025 timeframe (proposed multi-use parking deck project), and the 2028/2029 academic year (chiller expansion). The anticipated funding source for campus infrastructure improvements is public funding, except for the option for bond or public private partnership financing for the proposed parking structure.

Table 11: Florida Polytechnic University 10-Year Capital Improvement Plan

PROJECT	YEAR										TOTAL NASF/ GSF
	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	
Applied Research Center	63,000 NASF										63,000
	\$15M	\$15M									95,000
Academic Building				58,000 NASF							58,000
				\$12M	\$19M	\$13M					92,800
Student Achievement Center						40,986 NASF					40,986
						\$11M	\$14M	\$3M			65,578
Sub-Totals, Academic Buildings											161,986 253,378
Residence Hall 3 & 4				96000 NASF			96000 NASF				192000
				\$35M			\$35M				268,800
Sub-Totals, Residence Halls											192,000 268,000
Utilities &Infrastructure	**	**	**	**	**	**	**	**	**	**	--
		\$2M				\$2M		\$4M			

** Annual improvements and expansions to campus utilities and infrastructure as well as recreation and parking facilities.

Goal 9A: Florida Polytechnic University's goal is to provide educational and support facilities in a manner that protects the investment in and maximizes the use of facilities, and promotes prioritized, planned campus development.

Objective 9A.1: Provide a schedule of capital improvements needed to maintain adequate levels of service and address existing and projected needs for campus facilities.

Policy 9A.1.1: Continue to adopt a Capital Improvement Plan and annual capital budget as part of the annual budgeting process.

Policy 9A.1.2: Schedule and fund capital improvements identified in the Capital Improvement Plan in cooperation with the State University System's Office of Capital Programs.

Policy 9A.1.3: Evaluate, rank and revise the order of priority as necessary for facilities and projects identified in the 10-Year Capital Improvement Plan (CIP). Building locations indicated in the CIP may be exchanged for other building locations, as depicted in the Campus Master Plan, if the alternative location is deemed preferable due to unforeseen or changed conditions related to program, cost, or other justifiable reason, and is within the same Future Land Use area. (Any such location changes shall require approval of the Florida Polytechnic Board of Trustees with indication that the project supports the primary land use function and is consistent with the Land Use element of this plan as well as with the Campus Development Agreement with the City of Lakeland.)

Objective 9A.2: Provide needed campus improvements and manage the expansion campus development process without exceeding the University's ability to fund initial construction costs, on-going operation costs, maintenance costs and impact costs.

Policy 9A.2.1: Ensure improvements are consistent with the Campus Development Agreement and the Campus Master Plan.

Policy 9A.2.2: Program and budget for future facilities with consideration for the cost of site improvements, utility extensions and associated easements, parking, traffic

- circulation improvements, operation and maintenance, and other elements necessary for proper function.
- Policy 9A.2.3: Make provisions for the adoption of the capital budget as part of the annual budgeting process and include provisions which are consistent with the Campus Development Agreement and Campus Master Plan.
- Policy 9A.2.4: Plan for adequate level of service when implementing capital improvements identified in this Campus Master Plan.
- Policy 9A.2.5: Adhere to sound fiscal policies in the process of campus development. New capital improvements, expansions or replacements should not proceed until adequate funding sources have been identified and committed.
- Objective 9A.3: Use the Capital Improvement Plan to guide the construction of capital facilities, to correct existing deficiencies, to accommodate desired future growth and to replace exhausted or obsolete facilities.
- Policy 9A.3.1: Make provisions for the replacement and/or renovation of capital facilities when it is determined that a facility is nearing the end of its useful life.
- Policy 9A.3.2: Continue to adhere to capital improvement programming procedures and amend this master plan as needed, in concert with revisions to the Capital Improvement Plan.

Appendix 1

Maps and Figures

Florida Polytechnic University Campus Master Plan 2021-2031

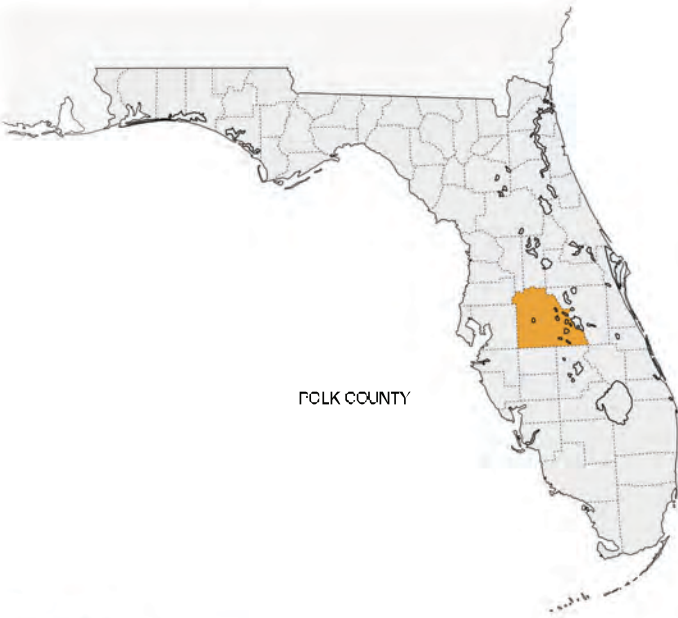
Prepared by:

**Facilities and Safety Services
Florida Polytechnic University**

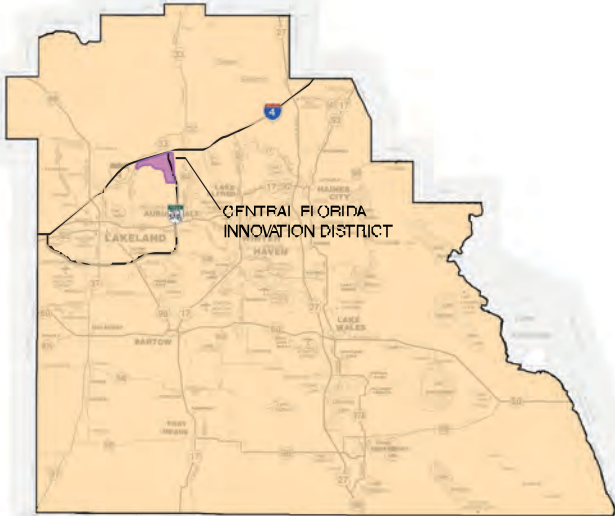


**Straughn Trout Architects LLC
Lakeland, Florida**

Figure 1.1: CAMPUS PROPERTY LOCATION MAP

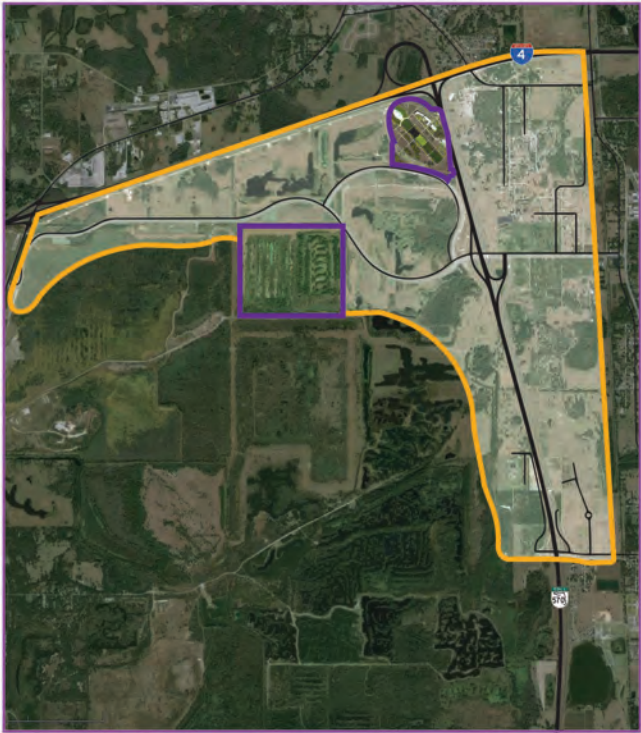


STATE MAP



POLK COUNTY MAP

CENTRAL FLORIDA INNOVATION DISTRICT MAP



LEGEND

CENTRAL FLORIDA INNOVATION DISTRICT

FLORIDA POLYTECHNIC UNIVERSITY PROPERTIES

VICINITY AERIAL PHOTOGRAPHY



LEGEND

A

MAIN UNIVERSITY CAMPUS

B

PLANNED RECREATION

C

PLANNED CONSERVATION & WETLANDS



Figure 1.2: EXISTING DEVELOPMENT MAP

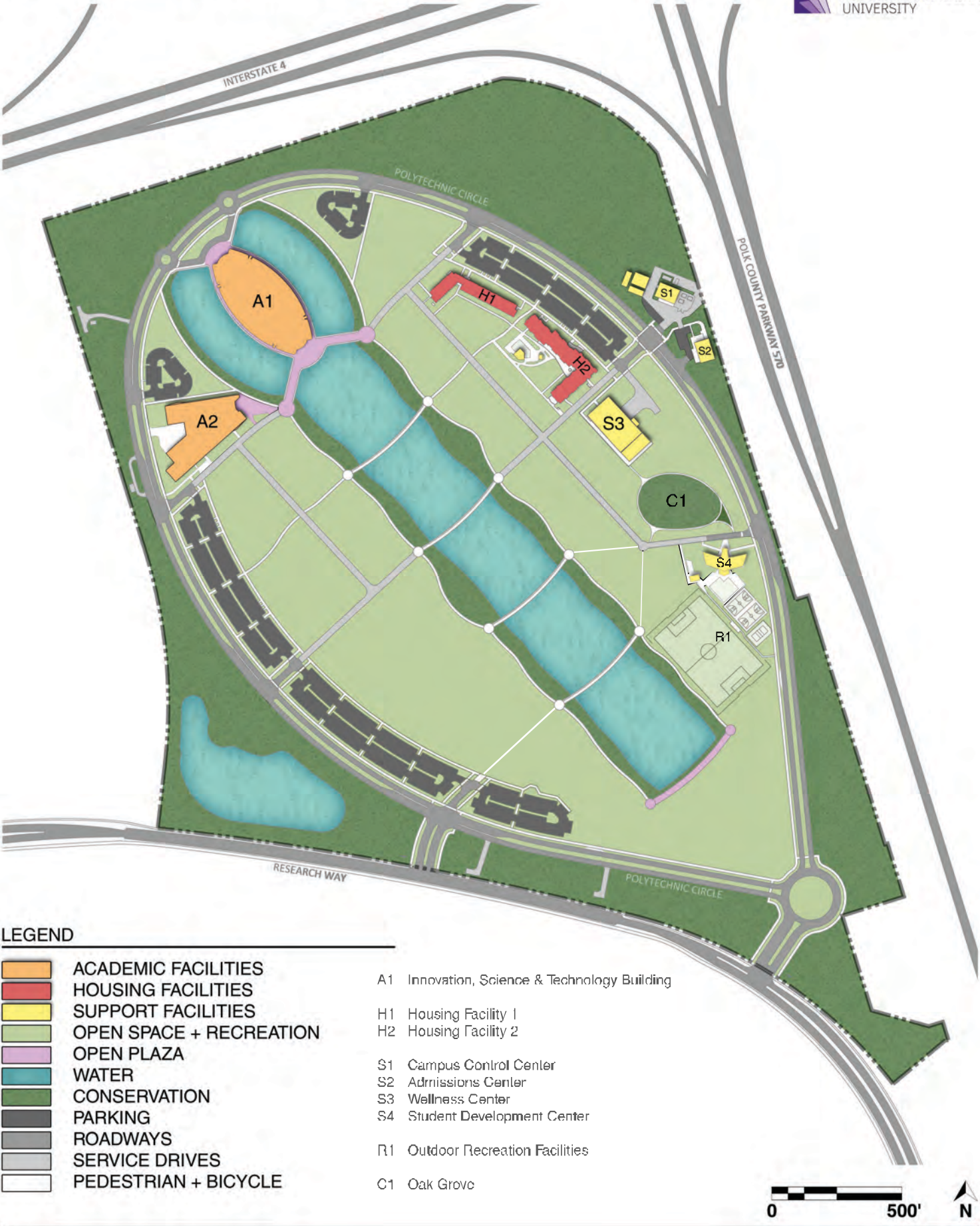


Figure 1.3: FUTURE LAND USE MAP



Figure 1.4: VEHICULAR CIRCULATION & PARKING MAP

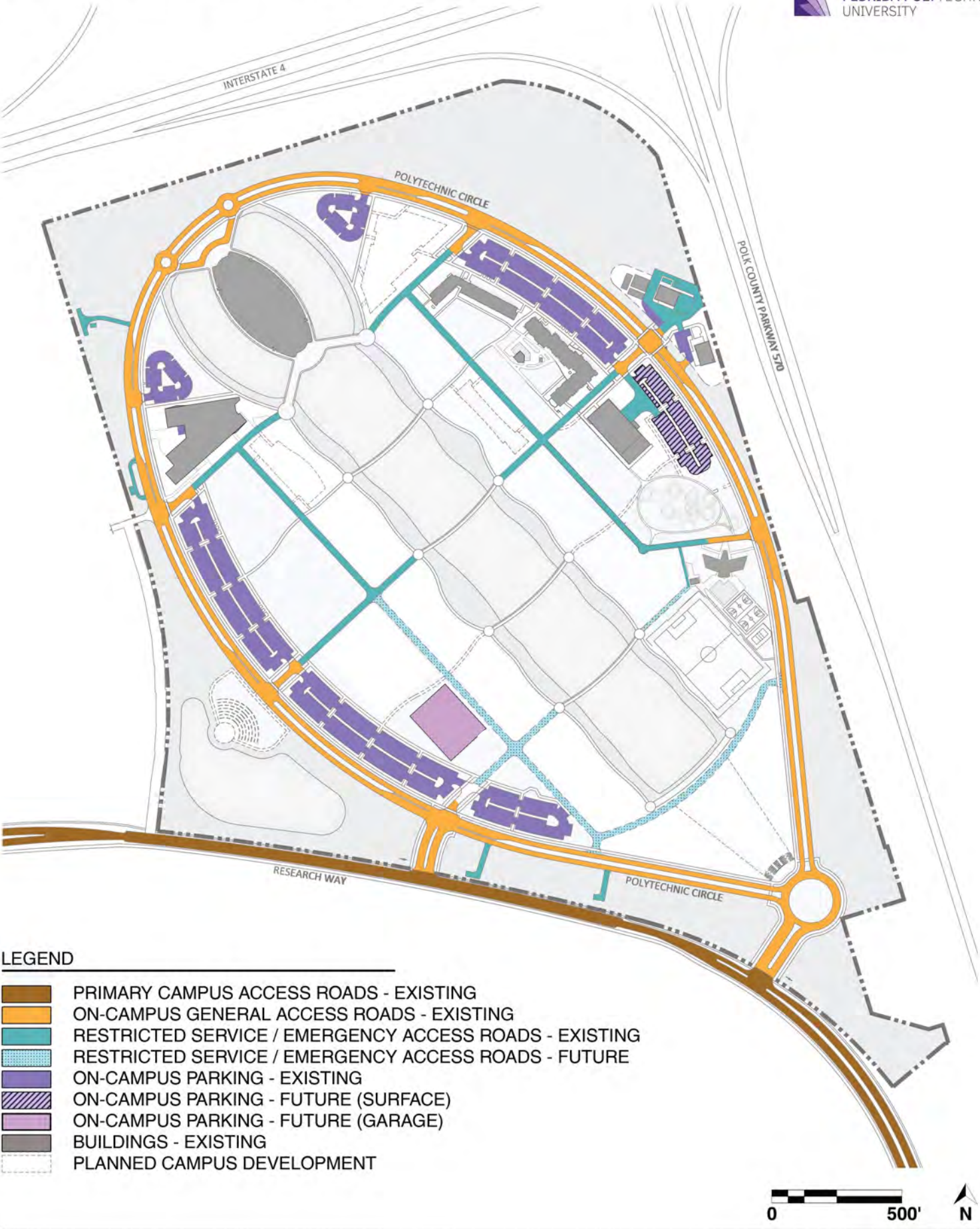


Figure 1.5: PEDESTRIAN & BICYCLE CIRCULATION MAP



Figure 1.6: **CAMPUS TRANSIT MAP**

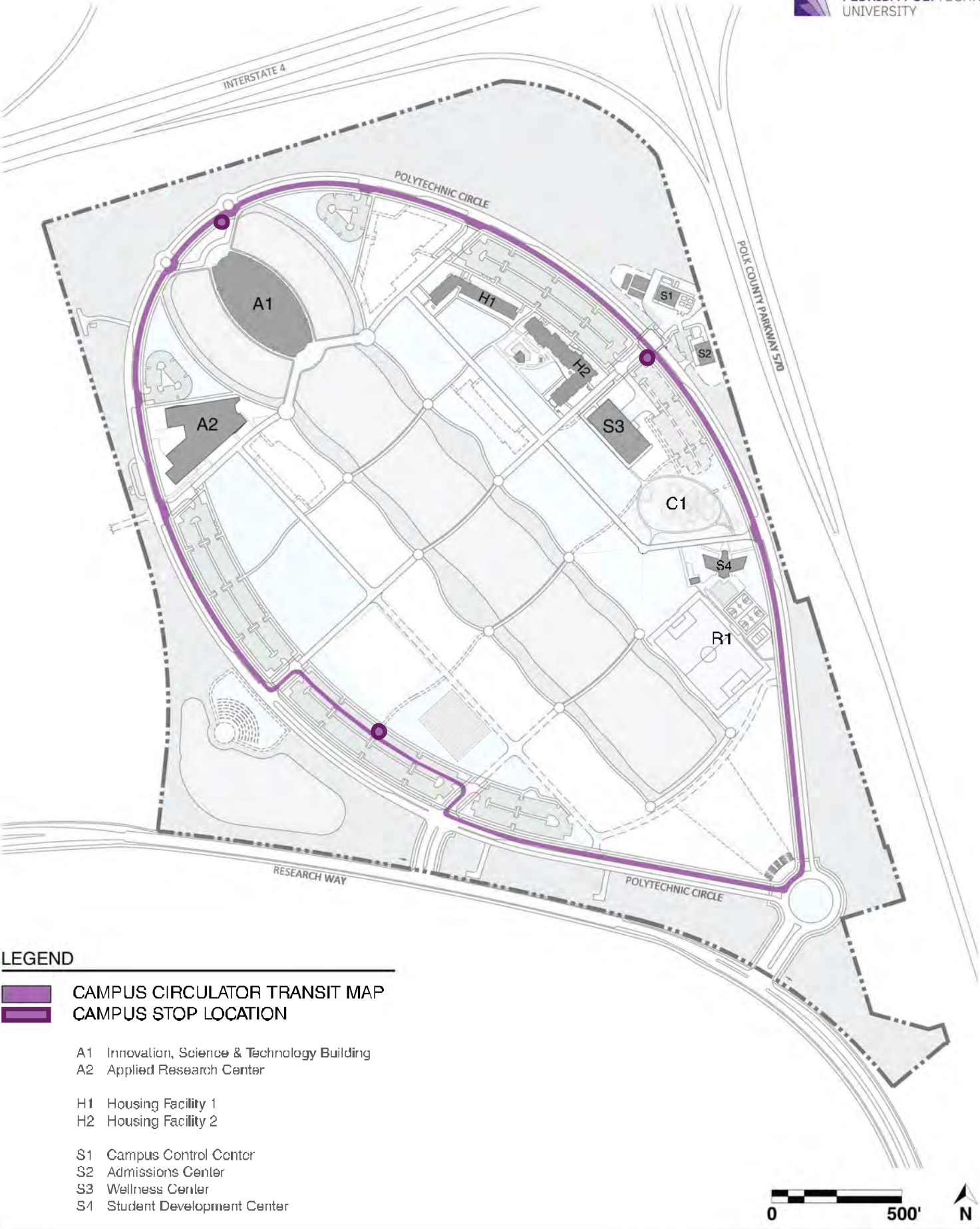


Figure 1.7: WALKING DISTANCES & ADJACENT NON-UNIVERSITY LAND MAP

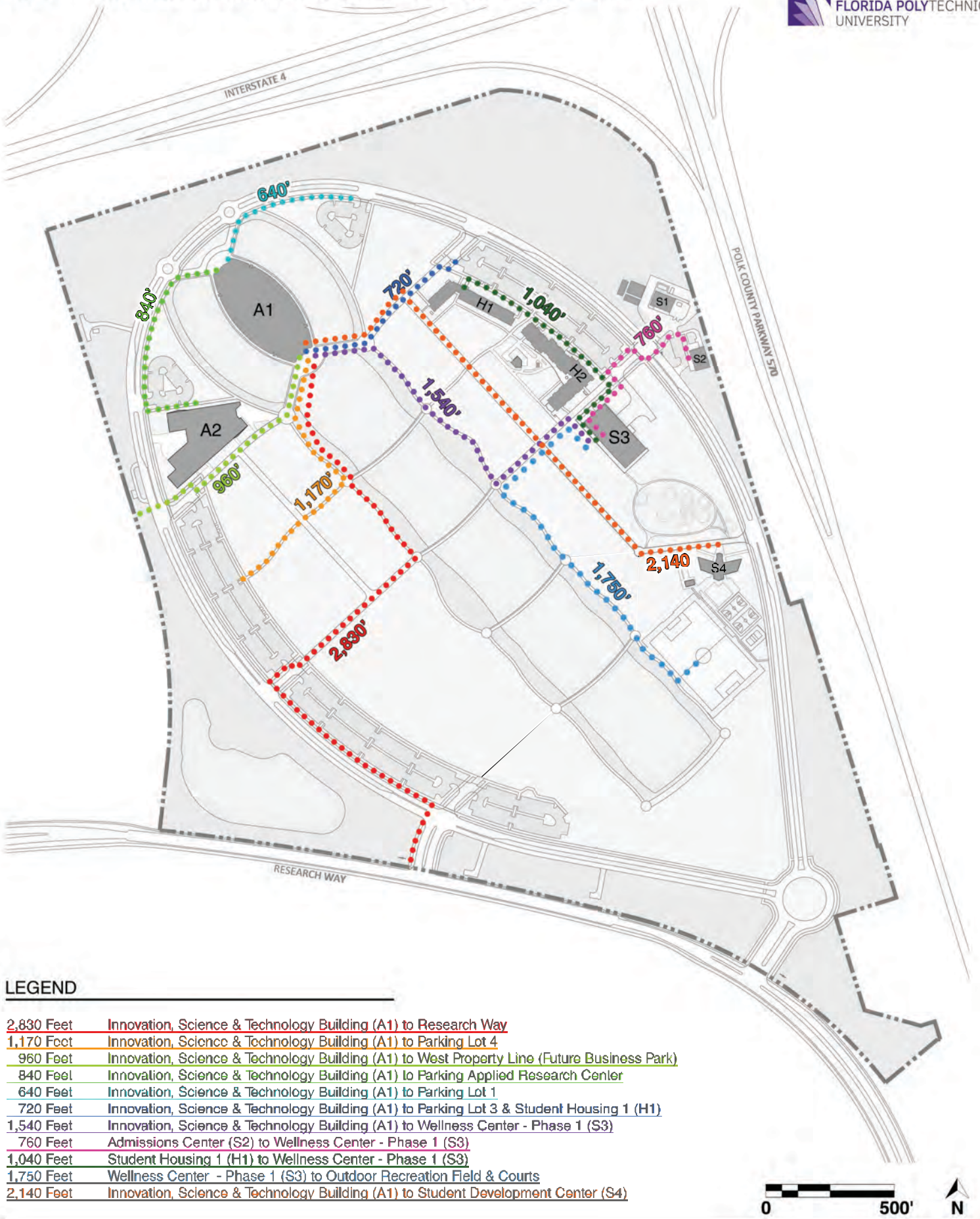


Figure 1.8: HOUSING FACILITIES MAP

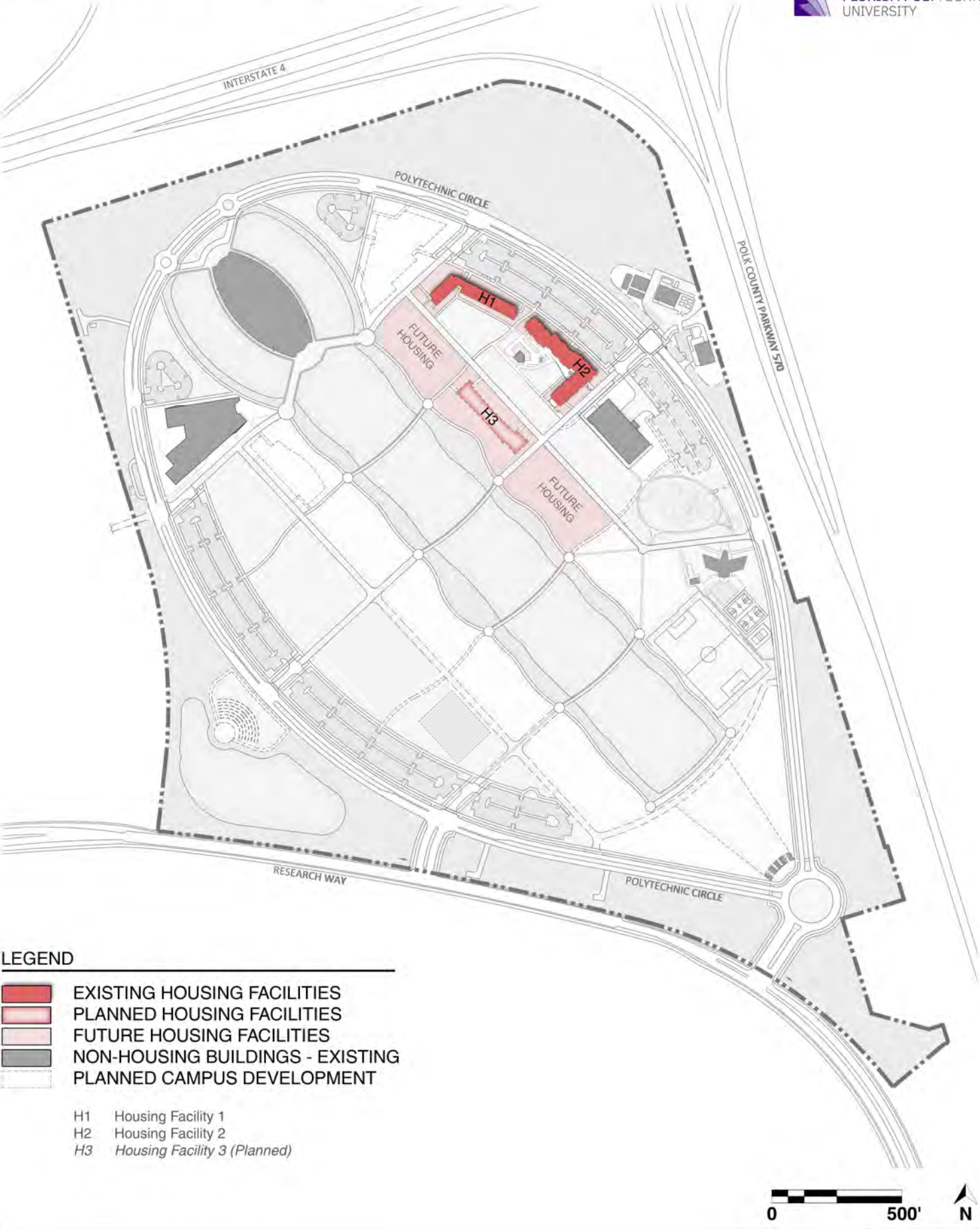


Figure 1.9: **STORMWATER MANAGEMENT MAP**

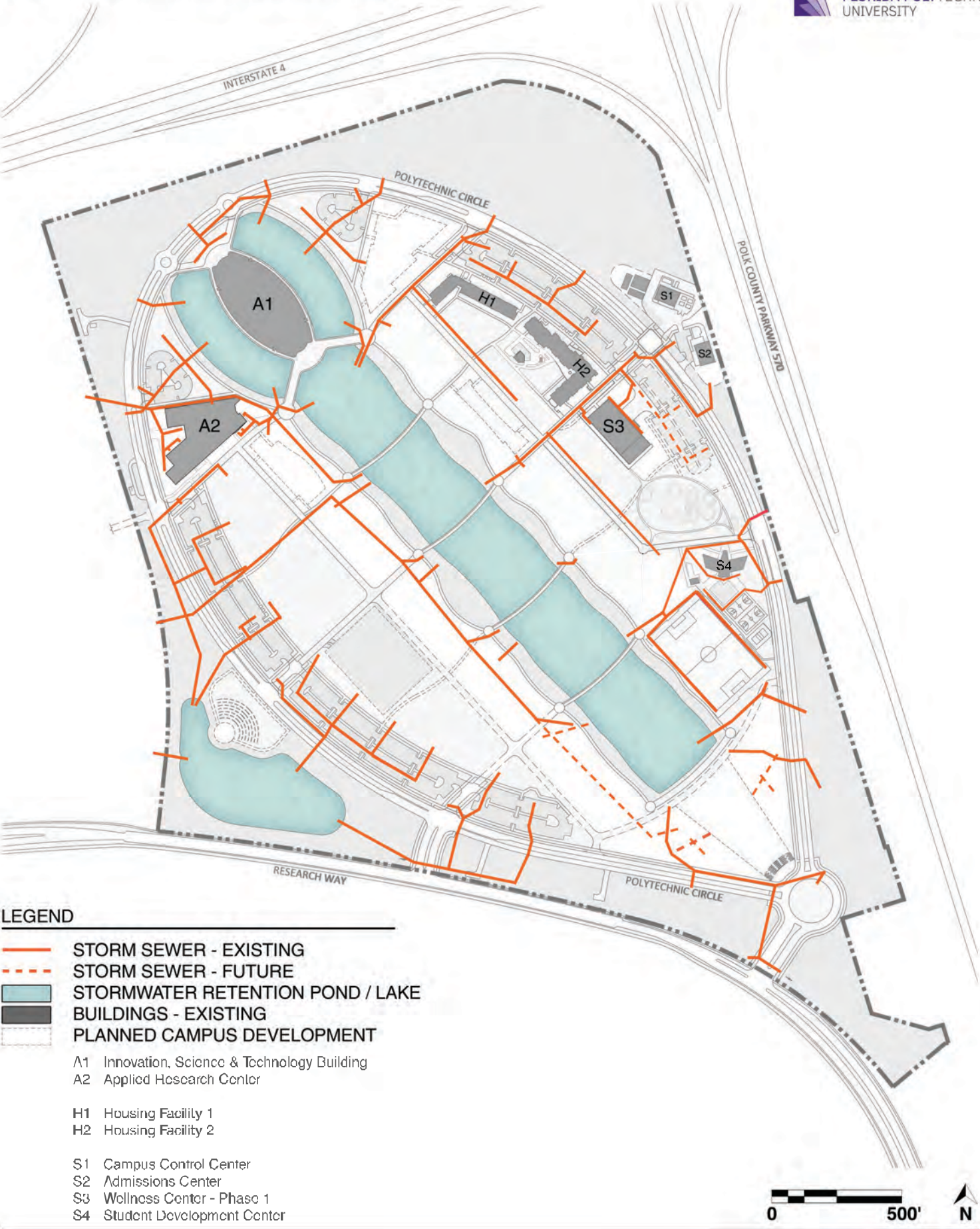


Figure 1.10: POTABLE & REUSE WATER DISTRIBUTION MAP

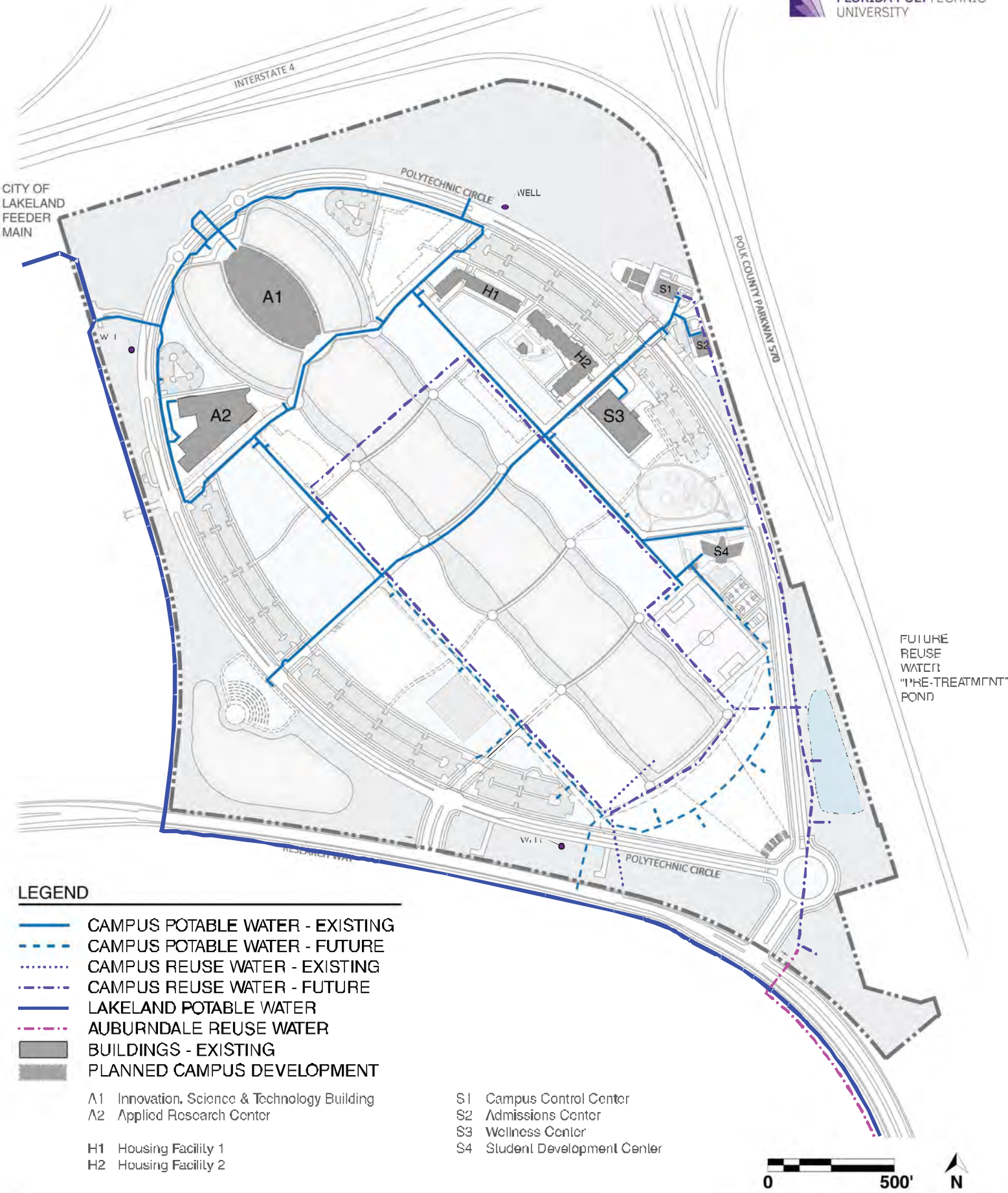


Figure 1.11: **SANITARY SEWER COLLECTION MAP**

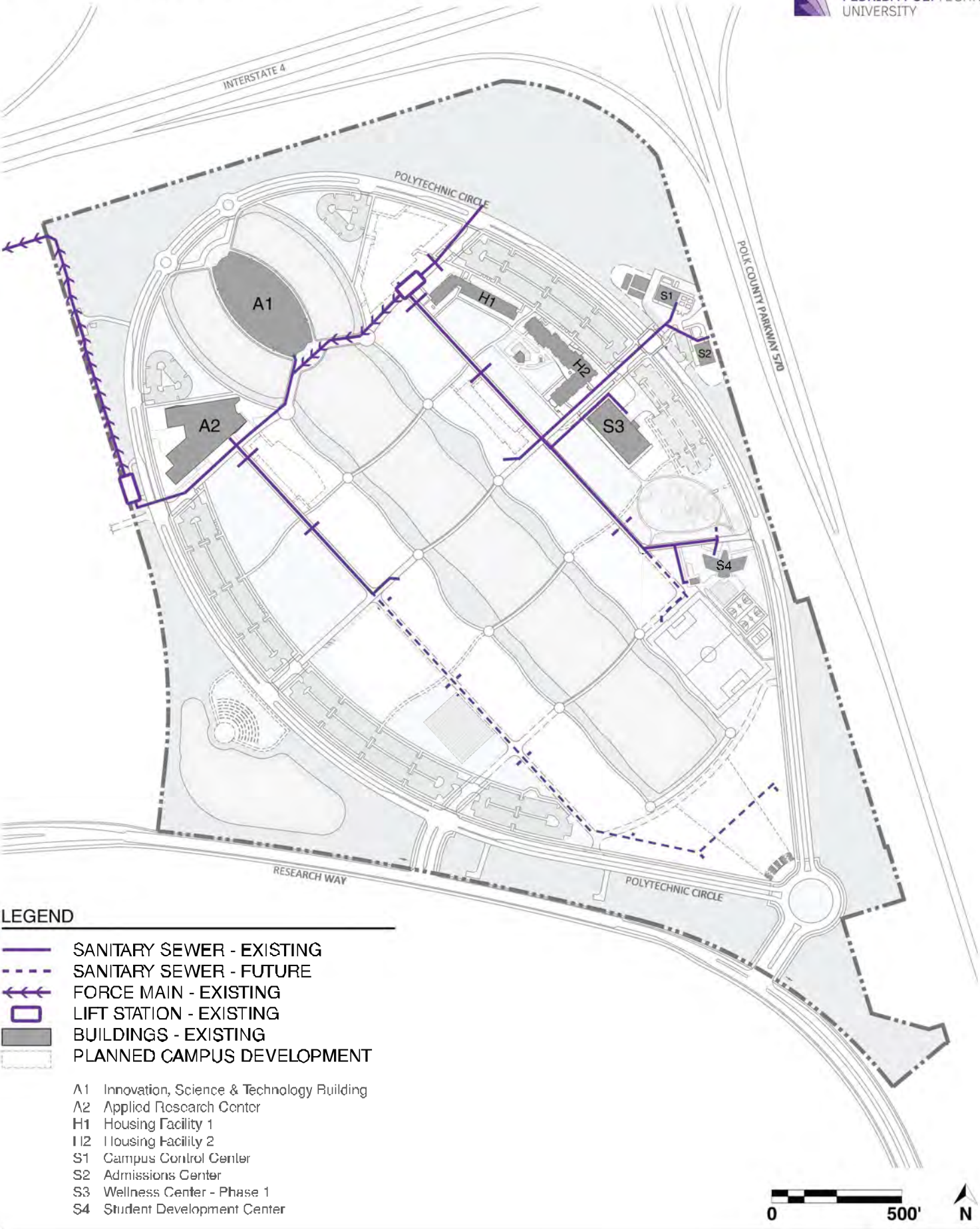
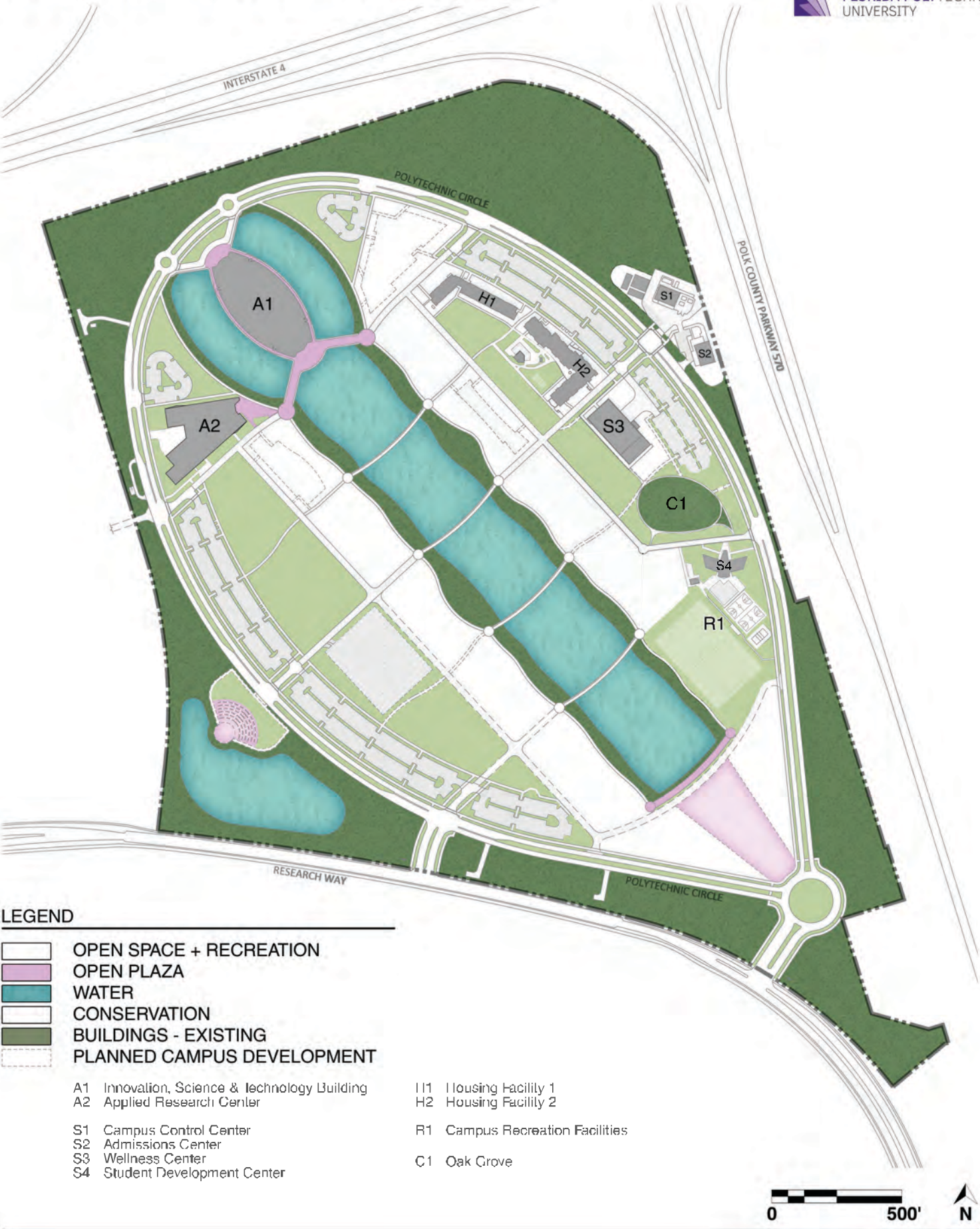


Figure 1.12: CONSERVATION, RECREATION & OPEN SPACE MAP



Appendix 2

Data Collection and Analysis Report

Florida Polytechnic University Campus Master Plan 2021-2031

Prepared by:

**Facilities and Safety Services
Florida Polytechnic University**

TABLE OF CONTENTS

Chapter 1:	Academic Mission
Chapter 2:	Future Land Use
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Chapter 4:	Housing
Chapter 5:	General Infrastructure
Chapter 6:	Conservation
Chapter 7:	Recreation and Open Space
Chapter 8:	Intergovernmental Coordination
Chapter 9:	Capital Improvement

Chapter 1: Academic Vision

The Florida Polytechnic University Strategic Plan is the basis for Academic Mission and Program goals and objectives presented in the Campus Master Plan. The Strategic Plan details the University's guiding principles, goals and objectives for the next five years.

Since the inception of Florida Polytechnic University, the Board of Trustees and University leaders have worked diligently to establish Florida Polytechnic University as the 12th member of the State University System of Florida. The University's foundational Strategic Planning process began in September 2013 with environmental scans conducted with external constituents. On December 6, 2013 the environmental scan was followed by a SWOT analyses (strengths, weaknesses, opportunities and threats). Faculty, staff, Board of Trustees and Foundation members, community leaders, and other stakeholders participated in the SWOT analyses. Through those efforts and subsequent meetings five strategic goals were identified, along with core values and objectives, to help fulfill the University's mission, vision, and strategic position for the next five years.

Titled **Advancing to Excellence**, the Florida Poly 2018-2023 strategic plan outlines the academic and economic goals the University will work to attain by the year 2023. One of the goals is to influence the economic development of the 4,000 acres which surround Florida Poly, to create a research park that will bring together industry, academia, and government. The strategic plan was approved by the Board of Trustees in September 2018.

In addition to providing guidance for Campus Master Planning, the Strategic Plan guides the budgeting process and assessment plans with corresponding strategies to achieve the goals and objectives. These strategies also tie ownership to the goals and objectives.

Chapter 2: Future Land Use

This element designates existing and future development as reflected in the goals, objectives and policies of the 2021-2031 Campus Master Plan, and describes how future development will be coordinated with land uses planned by the host government in the planning study area.

Space and Building Needs Assessment

This section inventories and assesses existing and projected space and building needs based on full-time equivalent (FTE) and headcount enrollment projections.

Enrollment

Student population data were provided by Florida Polytechnic University for the projected future enrollment over the 10-year master plan horizon. Faculty and staff employment is assumed to grow at a similar rate with the student population growth over the planning horizon. A summary of the existing and projected student enrollment at Florida Polytechnic University, by FTE and headcount (HC), for the 10-year planning period is shown in Table 1.

Table 1: Existing and Projected Florida Polytechnic University Enrollment (FL FTE* and Headcount)

CATEGORY	2020-2021 ACADEMIC YEAR	2025-2026 ACADEMIC YEAR	2030-2031 ACADEMIC YEAR	PROJECTED GROWTH (2020-2021 to 2030-2031)
FL FTE*	1,250	1,970	2,736	218.88%
Headcount	1,422	2,160	3,000	210.97%

* Florida Full Time Equivalent (FL FTE)

Source: Florida Polytechnic University Office of Institutional Research (OIR)

Existing Land Uses

The Existing Development Map (Figure 1.2 in Appendix 1) shows existing land uses on the 170.54-acre main campus that have resulted from completion of Phase 1 of campus development. The existing land uses include Academic Facilities (the IST Building), Housing Facilities, Support Facilities (Wellness Center, Admissions Office, Campus Control Center, the

Student Development Center), and Open Space and Recreation areas that are linked by a network of shared pedestrian and bicycle paths. Specific buildings and uses are described below:

- The state-of-the-art Innovation, Science & Technology (IST) Building is the University's first academic building. As it serves multiple functions, space in the IST building includes all applicable classifications: classrooms, teaching labs, library space, research labs, office space, student center space and support space.
- Housing facilities are located on the north end of campus and include a 219-bed apartment-style 4 bedroom/2 bath residence hall and an adjacent 539-bed residence hall, with 490 in semi-suite style and 49 beds in apartment style.
- The Wellness Center (student center, dining hall, and mailroom) is a support facility located on the east side of campus in close proximity to the Admissions Office and Campus Control Center. Though substantial in size and function, the Wellness Center is not considered to be a permanent building (classified as temporary due to projected service life less than 20 years).
- In addition to fitness amenities in the 8,600 GSF Student Development Center, an outdoor multi-purpose athletic field, basketball courts and volleyball court provide on-campus recreation options for students.
- Undeveloped areas are primarily designated as Open Space or Conservation areas.

Parking areas, roads, service drives, open plazas, and water (generally seven stormwater retention ponds, or the "Central Lakes," along the axis of the campus) are also delineated on the Existing Development Map.

Projected Space and Building Needs

Projections for building space needs at the Florida Polytechnic Campus are shown in Tables 2 and 3. Table 2 provides projections of facility space needs based on application of Florida Board of Governors standards to Florida Polytechnic enrollment projections. In total, for the 2030-2031 academic year with projected FTE of 2,736 the total net/assignable space need for the campus will be 243,504 square feet, not inclusive of on-campus residential buildings. The category with greatest space requirement will be offices, study space, and research labs.

Table 2: Florida Polytechnic University 2031 Facility Space Needs Projections*

CATEGORY OF SPACE	SPACE FACTOR (Required Net/ Assignable Square Feet/FTE)	2030-2031 NET/ASSIGNABLE SPACE PROJECTED NEED ^(B)	2030-2031 GROSS SPACE PROJECTED NEED ^(C)
Classroom (lecture)	9.0 sq. ft. per FTE	24,624	39,398
Teaching Lab	11.25 sq. ft. per FTE	30,780	49,248
Research Lab	18.75 sq. ft. per FTE	51,300	82,080
Instructional Media	3.0 sq. ft. per FTE	8,208	13,133
Auditorium/Exhibit	2.25 sq. ft. per FTE	6,156	9,850
Office/Computer	22.5 sq. ft. per FTE	61,560	98,496
Gymnasium	4.5 sq. ft. per FTE	12,312	19,699
Study	13.5 sq. ft. per FTE	36,936	59,098
Campus Support	4.24 sq. ft. per FTE ^(A)	11,628	18,605
TOTAL^(D)		243,504	389,606

* Based on latest approved OIR projections

^(A) 5% of total space per State Requirements for Educational Facilities' guidelines

^(B) Based on projected 2,736 FL FTE for 2030-2031 Academic Year

^(C) Based on 1.6 Net to Gross Conversion Rate

^(D) Residence Hall space needs not included

Source: Florida Polytechnic University Office of Institutional Research (OIR)

Table 3 presents a comparison of existing net/assignable square feet provided by the IST building with the projected space needs for 2030-2031. When existing academic space in the IST and ARC buildings are factored in, the resulting additional net/assignable space need over the 10-year planning horizon totals 243,504 net assignable square feet. The majority of needed additional space is for offices, study space and research labs. Needs also are projected for instructional media, gymnasium, and campus support spaces.

Table 3: Florida Polytechnic University Required Additional Facility Space Needs

CATEGORY OF SPACE	EXISTING ON CAMPUS NET/ASSIGNABLE SPACE	PROJECTED (ARC) NET/ASSIGNABLE SPACE ^(A)	EXISTING & PROJECTED NET/ASSIGNABLE SPACE	2031 NET/ASSIGNABLE SPACE PROJECTED NEED	10-YEAR FORECAST OF REQUIRED ADDITIONAL NET/ASSIGNABLE SPACE
Classroom (lecture)	19,142	8,256	27,398	24,624	-2,774
Teaching Lab	20,909	9,226	30,135	30,780	645
Research Lab	6,754	10,525	17,279	51,300	34,021
Instructional Media	0	0	0	8,208	8,208
Auditorium/ Exhibition	2,499	5,594	8,093	6,156	-1,937
Office/Computer	16,903	9,730	26,633	61,560	34,927
Gymnasium	4,487	0	4,487	12,312	7,825
Study	15,172	2,472	17,644	36,936	19,292
Campus Support	5,198	2,783	7,981	11,628	3,647
TOTAL	91,064	48,587	139,651	243,504	103,853

^(A) Existing IST Building and Projected ARC Building Net/Assignable Square Feet
Source: Florida Polytechnic University Office of Institutional Research (OIR)

The 10-Year Capital Improvement Plan (see Table 11 Chapter 9) responds to space needs projections by prioritizing facilities that correspond to highest projected levels of facility space needs. In total, planned capital improvements total 103,853 net/assignable square feet, which is slightly less than projected requirements for the 2030-2031 academic year. Future needs are depicted on the Future Land Use Map (Figure 1.3, Appendix 1) and are described in detail in the next section.

Future Development

This section assesses and describes future development needs, including specific land uses, facilities, density/intensity of use standards, and the suitability of existing Florida Polytechnic- controlled properties for accommodating anticipated growth.

Future Land Use Map

The Future Land Use Map (Figure 1.3, Appendix 1) presents the plan for campus development by identifying future land uses for all areas of the Florida Polytechnic campus, and identifying the intended locations for planned buildings to be included in Phase 2 of campus development over the next ten years (see also Chapter 9). Proposed development is based on projected enrollment and space needs described in the previous sections of this Chapter.

The Future Land Use Map shows the following land use categories for future development:

- **Academic Facilities:** A combination of classroom, teaching lab, research and supporting uses
- **Housing Facilities:** On-campus residences for students
- **Support Facilities:** Support, faculty and staff office, and auxiliary services
- **Open Space and Recreation:** Passive and active greenspace, including recreation and support buildings
- **Open Plaza:** Spaces designed for outdoor gathering and assembly uses
- **Water:** Permanently inundated landscape areas that serve functions such as stormwater management and irrigation
- **Conservation:** Undeveloped areas that may remain in conservation use (such as environmental preservation or stormwater conveyance) or that, in some circumstances, may be reserved for future facilities development
- **Parking:** Surface parking and parking structures

Density and Intensity of Use Standards

The preceding section (Space and Building Needs Assessment) describes the analysis to determine campus space needs within the planning horizon (extending to the 2030-2031 academic year), and the sub-section to follow (Future Facilities)

also identifies facilities planned to be developed within the planning horizon. The planning intent for density and intensity of land uses extends beyond the horizon of this Campus Master Plan to the ultimate build-out of the campus, with timeframe undetermined at this time.

Campus build-out density and intensity standards are directly associated with each of the land use categories for future development as shown on the Future Land Use Map. Maximum allowances for density and intensity of each type of land use is applied at the level of the land use category and is phrased in terms of Floor to Area Ratio (FAR), which is a common measure of land use intensity for non-residential land use. The FAR is a comparison of built space (square feet of construction) to the land area on which a structure is built. For example, if 100,000 square feet of construction is located on a site measuring one acre, the FAR is approximately 2.3 ($100,000/43,560=2.295$).

For purposes of the areas of campus designated for housing land use, density is expressed in terms of the number of beds per acre. This compares with the common practice in urban/regional land use planning of expressing residential density in terms of the number of housing units per acre. The standard for density and intensity of each land use category is described below.

- Academic Facilities: Intensity standard at the level of 2 FAR, maximum, averaged over the approximately 13.3 acres of campus land designated as Academic Facilities category.
- Housing Facilities: Density standard at the level of 250 beds per acre, maximum, averaged over the approximately 9.5 acres of campus land designated as Housing Facilities (equating to a maximum density of 14 beds per acre over the approximately 170.5 acres of the entire campus).
- Support Facilities: Intensity standard at the level of 1 FAR, maximum, averaged over the approximately 9.3 acres of campus land designated as Support Facilities category.
- Open Space and Recreation Facilities: Intensity standard at the level of 0.1 FAR, maximum, averaged over the approximately 24.3 acres of campus land designated as Open Space and Recreation Facilities category.
- Open Plaza: Open Plaza areas, by definition, are areas of open space for public gathering and not sites for permanent facilities. Density/intensity standards do not apply.
- Water: Though primarily inundated land areas that serve stormwater management function, there is potential for facilities to be constructed that extend into the system of lakes, in keeping with the original conceptual master plan for the campus. Therefore, an intensity standard at the level of 0.2 FAR, maximum, is averaged over the approximately 23 acres of campus land designated as Water.
- Conservation: Intensity standard at the level of 0.05 FAR, maximum, averaged over the approximately 50 acres of campus land designated as Conservation (on the main campus).
- Parking: Intensity standard at the level of 2 FAR, maximum, averaged over the approximately 13 acres of campus land designated as Parking land use category. Parking areas include impervious surfaces as well as pervious surfaces for landscape and storm water management, and may include structured parking in the future with ancillary supporting uses incorporated into parking structure(s).

Future Facilities

Planned buildings shown on the Future Land Use Map are described below:

- The constructed Applied Research Center (ARC) building is located adjacent to the west of the IST building, with complementary architecture. Additional academic facilities will be sited in general accordance with the Future Land Use Map. Sites for future academic buildings are generally oriented on the west side of campus opposite existing and planned student housing, and easily accessible by foot or bicycle.
- Future permanent academic research building facility which will house specialized research spaces and provide computer/office spaces for faculty and students involved in the academic research. The space will be supplemented with campus support spaces providing student services for the research and academic activity. It is anticipated that this project will be funded through a combination of public and private funding.
- Future residential housing construction for approximately 250 beds in a mixture of apartment style and semi-suite style is planned for a site along the eastern bank of the Central Lake. This third residence hall will be in close proximity to the other two existing buildings and the combined beds of all three buildings will provide for approximately 1,000 beds to serve first-year undergraduate residents.
- Future permanent support facilities will be located on both ends of campus, adjacent to the IST building and on the south end of the Central Lakes. Based on enrollment growth projections and the projected level of

student demand for admittance to the University, building needs will include a Student Achievement Center (SAC). Located adjacent to the IST building, the SAC will house an honors college, an industry job center, an international liaison office, a faculty and industry mentorship program, tutoring programs, and programs that provide support for the psychological and social well-being of students.

Inventory and Future Needs Assessment of Properties and Facilities

The required land area to support continued campus development described in this 2021-2031 Master Plan update can be accommodated by the 170.54-acre main campus, which is under the jurisdiction of the State University System (SUS) and is owned in fee-simple by the Florida Polytechnic University Board of Trustees. Ground lease and operating arrangements have been entered into with private entities for the construction and operation of the on-campus residence halls.

Assessment of Properties to Serve Existing or Future Needs

Completion of Phase 1 campus development demonstrates the suitability of the campus property to serve existing and future needs. In particular, the completion of the campus-wide stormwater management system will greatly facilitate future campus development. Land across the campus is relatively level and suitable for buildings. Soils in certain areas of campus will require modification to support development, as was the case with Phase 1 construction. It is not anticipated that the physical condition of property planned for development will cause an impediment to future construction.

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

In addition to the main campus parcel, Florida Polytechnic controls two additional parcels to the southwest. They are 176.39 and 183.94 acres in size. The locations of these parcels are shown on Figure 1.1 Campus Property Location Map in Appendix 1. These two additional parcels are forested and have significant wetlands. There are no uses planned at the present time for these additional parcels. The anticipated long-term intended use for a portion of these parcels is recreational use.

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

A study developed by MSCW, Inc. provides a detailed account of any known historic or archaeological resources found at on the Florida Polytechnic Campus. This report is on file at Florida Polytechnic office of Facilities and Safety Services.

Natural resources are addressed in Chapter 6 of this Appendix.

Inventory and Assessment of Existing and Projected Land Uses, Goals Objectives, Policies and Zoning within the Study Area (as defined in the local governments' comprehensive plan to determine their impact on meeting the needs of the University)

The City of Lakeland Comprehensive Plan: 2010-2020 is compatible with the existing and planned development of the Florida Polytechnic campus. Undeveloped property adjacent to the campus on the south and west is included in the Williams Development of Regional Impact (DRI) Master Plan (to the north and east, the campus is permanently bordered by Interstate 4 and Polk Parkway, both limited access freeways). The approved Williams DRI Master Plan proposes a mix of uses, as shown on the following page: Business Park, High-Density Residential, Community Activity Center and Interchange Activity Center. The intent of the Comprehensive Plan and Williams DRI Master Plan is to create an activity center adjacent to the Florida Polytechnic campus, and the University is envisioned as a catalyst for this development.

Chapter 3: Transportation

This element assesses and makes transportation recommendations for integrating all modes of travel (bicycle, bus/transit, rideshare, and motor vehicle) both on campus and off-campus in the host community and affected communities.

Parking

Six surface parking lots are located on campus, inside Polytechnic Circle (see Figure 1.4 Vehicular Circulation & Parking Map in Appendix 1). Lots 1 and 2 are located on either side of the IST Building. Lot 3 is adjacent to the existing residence hall and accessible to the Wellness Center, the Campus Control Center, and the Admissions Center. Lots 4, 6 and 8 are

located on the west side of campus in close proximity to the campus entrance and the recreation complex. These lots were constructed as part of the Phase I campus development. A total of 1,050 parking spaces have been provided to date. The Campus Master Plan shows additional surface parking lots continuing along the inside of Polytechnic Circle to serve future housing and academic and support facilities. At build out a total of 1,500 to 1,800 parking spaces is planned to be constructed on campus in the parking areas shown in Figure 1.4 in Appendix 1, which may include a multi-use parking structure.

On-street parking is available along Research Way, abutting the southern portion of campus. No parking facilities owned or controlled by Florida Polytechnic are located off-campus.

Transit

University owned shuttle provides transportation for students as a means to accommodate access to retail establishments and activities not provided on campus.

- **Shuttle:** The Polytechnic shuttle operates with evening and weekend opportunities for students to access stores and activities off campus.
- **Ride Share:** A rideshare program is expected to be implemented during 2020 Academic Year, which is one of the most effective ways to alleviate the problems associated with campus traffic and provide accessibility to all members of the educational community. Beyond reducing the number of vehicles traveling to and around campus, university rideshare solutions also help improve pedestrian safety. Rideshare programs reinforce forward-thinking institutional values while helping commuters develop smarter and more positive personal transportation habits. Students also benefit through transportation cost savings, something that tends to be very important to young people shouldering the rising costs of higher education.
- **Health Service Rides:** The university provides transportation for students relating to health care visits by partnering with a ride-hailing company.

Bicycling and Walking

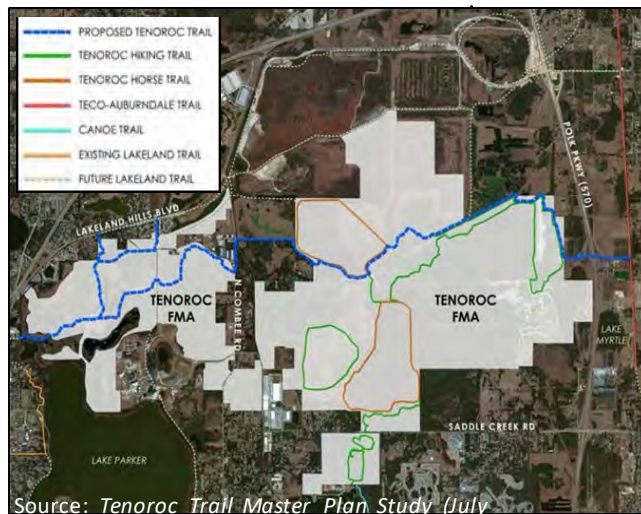
Figure 1.5: Pedestrian & Bicycle Circulation Map in Appendix 1 shows existing and future multi-use paths. Phase 1 construction included a comprehensive network of shared pedestrian and bicycle paths that will be expanded to the southern end of campus as development continues. The pathways are designed to provide efficient non-vehicular connectivity throughout the campus. Multi-use paths are also provided adjacent to Research Way (see pathway segment #31 below), and there is a bi-directional bike lane on Polytechnic Circle. The on-roadway bike lane connects to off-campus trail facilities including the Auburndale TECO Trail located approximately one mile east of the campus via 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.

The City of Lakeland's Citywide Pathways Plan (adopted 2009, amended 2012 and 2015) maps locations of existing and proposed pathways in the city, including sidewalks, bike lanes and trail corridors. Existing pathways include the 12-foot wide Bridgewater-Williams Trail (#12), which links the campus to both Polk Parkway and State Road 33 and is planned to extend further west to Walt Williams Road. The existing segment was constructed per the requirements of the amended 2007 Williams DRI Development Order. It was funded through the Federal American Reinvestment and Recovery Act (ARRA) and opened in 2012.

Several other pathways are proposed that will connect the Florida Polytechnic campus to the surrounding areas. These pathways are shown as dashed red lines on the map from the Citywide Pathways Plan (previous page) and are generally represented by path segments #21, #22, #34 and #35. These segments comprise what the Pathways Plan calls the Williams Trail, with a total estimated cost of \$4,844,375. Potential funding sources include local, state and/or regional funds. The Campus Development Agreement states no off-campus improvements concerning pedestrian and non-vehicular circulation need to be assured by the University to maintain the City's adopted level of service standards.



Source: City of Lakeland Comprehensive Plan: 2010-2020, Citywide Pathways Plan (amended



Source: Tenoroc Trail Master Plan Study (July 2016)

The updated Pathways Plan also incorporates recommendations from the City of Lakeland's 2014 Tenoroc Trail Master Plan Study (path segments #33 and #36 on the Citywide Pathways Plan map). The proposed 14-mile trail is part of a regional multi-use trail network that will ultimately connect to the Florida Polytechnic campus. The proposed trail alignment is shown at right. The first phase of the trail, a two-mile segment between Lake Parker and SR 33, is included in the Polk County TPO FY 2016/17-FY 2020/21

Transportation Improvement Program (TIP). The estimated construction cost is \$1,196,000.

As part of the Florida Department of Transportation's (FDOT) planned widening of State Road (SR) SR 33 from Old Combee Road to North of Tomkow Road (generally where #100 and #30 are shown on the Proposed Pathways

concept map on the previous page), both bicycle and pedestrian accommodations are proposed. FDOT's SR 33 Project Development & Environment (PD&E) Study (August 2014) states that a 12-foot shared-use path is proposed along the east side of the road from the beginning of the project to University Boulevard, and a five-foot sidewalk is planned along the west side for the entire project limits and along the east side of the road from University Boulevard to north of Tomkow Road.

Safety

Pedestrian and vehicular conflicts are minimized by the campus design. As shown in Figure 1.4: Vehicular Circulation and Parking Map in Appendix 1, motorists can traverse the perimeter of campus but the interior spaces and buildings are accessible only by pedestrians and cyclists. Exceptions are the restricted/emergency access segments that allow emergency vehicles and service vehicles; the vehicles use the specially designed multi-use pathways.

As future development occurs on campus, the pathways/emergency access segments will continue to the southern end. Bicycle/pedestrian connectivity to future development offsite is in place with a pathway connection to Research Way and University Boulevard. Lighting was included in the construction of all pedestrian and bicycle facilities and will continue as future path segments are added.

Transportation Demand Management Strategies

Transportation Demand Management (TDM) strategies are policies and programs that are intended to reduce automobile travel demand on roadways by encouraging the use of alternative modes of transportation. A primary strategy used by the University is coordinated transportation and land use planning. The campus is walkable with convenient and safe pathways linking uses and transit stops, and on-campus housing reduces the number of commuting students.

TDM strategies that can be evaluated for potential use on campus to minimize potential off-site impacts include the following:

- Academic scheduling modifications, including scheduling more classes during non-peak hours; and
- Parking pricing strategies designed to make other modes of travel, such as transit and carpooling, more economical and to provide revenue for improved TDM services and facilities.

Transportation System Management Strategies

Transportation System Management (TSM) strategies are intended to improve traffic flow and safety through operational modifications to existing roadways. Examples of strategies that have been implemented on campus or are on-going include:

- Coordination of 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.

Existing Roads

The campus has one general access road, Polytechnic Circle. Primary access roads provide direct access to the University and include Research Way, University Boulevard and Polk Parkway (SR 570). Roadway improvement projects constructed to facilitate access to the campus include the Polk Parkway/Pace Road I-4 interchange and the parkway's upgrade to a four-lane highway. The primary access roads and roadway improvement projects were constructed after the development of the original Campus Master Plan. Secondary roadways are those that intersect the primary roadways and distribute the University traffic to the surrounding area. Table 4 summarizes existing characteristics (excluding pavement conditions due to lack of available information) of primary and secondary access roads in the study area. The "Link" numbers shown correlate to the numbers in the Polk County Roadway Network Database.

Table 4: Summary of Existing Roadway Characteristics

Roadway Characteristics	Primary Roadway			Secondary Roadways		
	<i>Polk Pkwy (SR 570)</i>	<i>University Boulevard</i>	<i>Research Way</i>	<i>I-4 (SR 400)</i>	<i>Memorial Blvd (US 92 SR 600)</i>	<i>SR 33 (Common- Wealth Ave.)</i>
Roadway Segment	Link 7401: US 98 to CR 546 (Old Dixie Parkway) Link 7402: CR 546 to I-4	Link 6909: SR 33 to Polk Parkway	Link 6910: University Boulevard to University Boulevard	Link 5506: SR 33 to CR 557	Link 5306: SR 659 (Combee Road N) to SR 655 (Recker Highway)	Link 5602: I-4 at Socrum Loop Road to I-4
No. of Lanes ¹	4 Freeway	4 Divided	4 Divided	6 Freeway	4 Divided	2 Bypass-Lane
Functional ² Classification	Principal Arterial	Urban Collector	Urban Collector	PA	PA	MA
Access Control	1	N/A	N/A	1	5	4
Classification ³						
2021 Traffic Volume (AADT)	12,900	2,000	2,000	99,180	40,500	14,900
Peak Hour/Peak Season Level of Service (LOS)	B	C	C	B	C	C

Source: CivilSurv Master Plan Support Services Report Dated June 3, 2021

KEY:

- 1 Limited access, no direct access to adjacent property
- 3 Controlled access facilities where direct access to abutting land is controlled to maximize the operation of the through traffic movement. The land adjacent to these roadways is generally not extensively developed and / or the probability of significant land use change exists. These roadways are distinguished by existing or planned restrictive medians
- 4 Controlled access facilities where direct access to abutting land is controlled to maximize the operation of the through traffic movement. The land adjacent to these roadways is generally not extensively developed and / or the probability of significant land use change exists. These roadways are distinguished by existing or planned non-restrictive median treatments.
- 5 Controlled access facilities where adjacent land has been extensively developed and where the probability of major land use change is not high. These roadways are distinguished by existing or planned restrictive medians

N/A – FDOT Access Control Classifications not applicable. Roadways are under the jurisdiction of the City of Lakeland and are subject to the Access Management Standards of the City of Lakeland Land Development Code. Connection locations / standards for University Boulevard and Research Way are also generally depicted in the Williams DRI Development Order.

Table 5 shows that all roadways are currently operating above the adopted roadway level of service (LOS). Over the next ten years Polk Parkway, University Boulevard and Research Way are projected to maintain the same LOS. Roadways that are projected to experience a change in level of service in ten years (2025/2026) are I-4, SR 33, and Memorial Boulevard. However, these road segments are not projected to fall below their adopted level of service.

Table 5: Level of Service Comparison

Roadway	Current LOS Peak Hour	Adopted LOS	Projected LOS in 5 Years	Projected LOS in 10 Years
Polk Pkwy (SR 570)	B	D	B	B
I-4 (SR 400)	C	D	D	D
Memorial Blvd (US 92/SR 600)	C	D	C	C
SR 33 (Commonwealth Ave)	C	D	C	C
University Boulevard	C	E	C	C
Research Way	C	E	C	C

Source: CivilSurv Master Plan Support Services Report Dated June 3, 2021

No additional transportation facility improvements are needed to maintain the adopted level of service standards on State and Strategic Intermodal System (SIS) roadways or on University Boulevard and Research Way. Roadway improvements to mitigate decreasing levels of service are planned for SR 33 (see also the New Road Projects section). According to the Florida Department of Transportation's SR 33 Project Development and Environment Study Project Traffic Report (November 2013), the road is projected to operate at LOS "E" or "F" in 2036 without improvements. The project, which includes reconstruction of the SR 33 / I-4 interchange, will allow the road to operate at an acceptable LOS "D" or better.

Roadway Capacity

Table 6 provides traffic generation figures for both current and projected enrollment based on the Institute of Traffic Engineers' (ITE) trip generation rates. 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 6. Credited trips are trips that had been accounted for in the identification of transportation improvements to be provided by Williams 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.

Table 6: Florida Polytechnic Trip Generation

Trip Generation	Year			
	2020-2021*		2030-2031**	
<i>Headcounts-Students</i>	<i>1,422</i>		<i>3,000</i>	
Daily Trip Generation				
Daily Trip Generation Rate	x	<u>1.56</u>	x	<u>1.56</u>
Total Daily Trips Generated		2,218		4,680
Credited Daily Trips	-	<u>2,818</u>	-	<u>4,861</u>
Total Daily Impact Trips		-600		-181
Peak Hour Trip Generation				
Peak Hour Trip Generation Rate	x	<u>0.15</u>	x	<u>0.15</u>
Total Peak Hour Trips Generated		213		450
Credited Peak Hour Rates	-	<u>364</u>	-	<u>558</u>
Total Peak Hour Trips		-70		30

*Phase 1

** Phase 2

Source: CivilSurv Master Plan Support Services Report Dated June 3, 2021

Based on the current and projected enrollment figures and the credited trips, there is a negative number of total trips for both the present year. As a result, the projected growth of Florida Polytechnic through the year 2030-2031 will not create the need for any additional roadway capacity improvement projects.

New Road Projects

The Campus Development Agreement (CDA) with the City of Lakeland identified road and vehicular circulation improvements that were needed due to insufficient capacity on certain segments of SR 33 to accommodate the impacts

of the original projections for campus development, which far exceed the revised enrollment projections. The University paid \$5,029,906 to Lakeland to mitigate SR 33 deficiencies, as follows:

- \$2,498,751 – I-4 @ Socrum Loop Road to CR 659
- \$1,825,046 – CR 659 to University Boulevard
- \$706,110 – University Boulevard to I-4

In addition, the CDA stipulated that Florida Polytechnic pay \$35,000 for an alignment study for SR 33 and \$32,000 for two mast arm traffic signals at the I-4 ramps.

The City's expenditure of the committed funds has been used to widen State Road 33 from two to four lanes between Interstate 4 EB Ramps/Lakeland Harbor to just east of Old Combee Road/Deeson Pointe Boulevard. The project was let in the fall of 2011 and completed in the first half of 2013. The project included the addition of sidewalks (extending south to Jenkins Nissan), bicycle lanes, transit stop improvements (including new bus bay at Lakeland Harbor), street lighting, and turn lane improvements on the Old Combee Road approaches to the SR 33 intersection. The traffic signals were also re-built and installed on new mast arms.

In 2014, the Florida Department of Transportation prepared the State Road 33 Project Development and Environment (PD&E) Study to evaluate the proposed widening of SR 33 from a two-lane undivided roadway to a four-lane divided highway between Old Combee Road to north of Tomkow Road. The project also proposes the reconstruction of the SR 33 interchange with I-4, which provides access to the Florida Polytechnic campus. The interchange improvements include replacing the functionally obsolete bridges over SR 33 and reconstructing portions of I-4 approaching the interchange to provide turn lanes and traffic signals. The interchange improvements will accommodate projected traffic associated with development planned in the vicinity.

Following adoption of the SR 33 PD&E Study in 2014, FDOT proceeded to the project design phase. The segment of SR 33 between Old Combee Road and University Boulevard is currently under design by FDOT; however, construction funding is not programmed at this time. FDOT is also currently designing the reconstruction of the Exit 38 interchange (including SR 33 between University Boulevard and Tomkow Road) with right-of-way funding programmed in FY 2018/2019 of its Five-Year Work Program. Construction is estimated to occur between 2021 and 2025. To facilitate the interchange reconstruction phase of the SR 33 project, the City of Lakeland passed a resolution (No. 5254, signed December 7, 2015) requesting FDOT funding. The total estimated cost for the SR33 widening and interchange improvement projects is \$79,730,000, using state and federal funding sources.

Chapter 4: 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.

Current Housing

On-Campus

On-campus housing is intended for undergraduate students, with no specific housing designated for graduate or married students. On-campus student housing is owned and operated by a third party under ground lease and operating arrangements with the University. On-campus housing is located on the north end of campus.

Residence Hall 1 was designed for 219 beds in apartment style with three- and four-bedroom suites.

Residence Hall 2 accommodates a total of 539 beds, with 490 in semi-suite style (two double bedrooms) and 49 beds in apartment style. Both buildings are designed for compliance with the federal Americans with Disabilities Act (ADA).

Rental rates for the 2020/2021 range from \$749.78/month to \$1,009.11/month, with rental rates dependent on the floor plan chosen by the student. These monthly rental rates are higher than the FY 2019 fair market rents (FMRs) for the Lakeland-Winter Haven Metropolitan Statistical Area (MSA) based on data maintained by the U.S. Department of Housing and Urban Development: \$925 for two bedrooms and \$1,532 for four bedrooms but allow for students to lease 9 months rather than the 12 months required with most off-campus leases.

There are no other non-university-controlled facilities on the campus (e.g. fraternities, sororities, etc.), nor are there any historically-significant housing facilities on campus.

Off-Campus

Off-campus housing can accommodate undergraduate, graduate and married/family students. Current options include non-university controlled rental apartments in the surrounding Lakeland area, where approximately 200 undergraduate students live in four apartment complexes (Arbor Glen, The Landings, Victoria Manor, and The Preserve) southwest of campus on SR 33 in Lakeland. Each of the apartment complexes offers 1-, 2-, and 3-bedroom options.

Future Housing

The projected enrollment for 2025 is 2,319 students (see Table 1), who will be housed in both on-campus and off-campus housing. Of this number, 1,000 students are projected to live in on-campus housing (see Table 7). The majority will be underclassmen. Off-campus options include non-university-controlled options in Lakeland, with various options available to accommodate upperclassmen and graduate and married/family students.

The ten-year residential housing program for the Florida Polytechnic Campus Master Plan provides for approximately 1,000 on-campus beds to accommodate projected needs. Approximately 750 of the beds will be provided in Residence Hall 1 and Residence Hall 2. The remaining 250 beds will be provided in a third building that is planned along the eastern bank of the Central Lakes. Residence Hall 3 will be a four-story, ADA compliant facility constructed as a mixture of apartment style and semi-suite style along the eastern bank of the Central Lakes.

Table 7: On-Campus Housing Projections

Year	Year in College						Total Beds	New Beds
	Freshman	Sophomore	Junior	Senior	Graduate	Doctorate		
2021	343	176	88	42	5	-	655	-100
2022	362	186	93	45	5	-	691	-64
2023	410	211	105	51	6	-	782	27
2024	445	229	114	55	7	-	850	95
2025	483	248	124	60	7	-	922	167
2026	522	268	133	65	8	-	995	240
2027	543	279	139	67	8	-	1036	281
2028	576	296	148	71	9	-	1100	345
2029	604	310	155	75	9	-	1152	397
2030	676	348	173	84	10	-	1291	536
2031	724	372	185	90	11	-	1382	627

Source: Florida Polytechnic University Office of Institutional Research (OIR), December 2021

Future residence halls may also be located on the east side of the Central Lakes in close proximity to Residence Halls 1, 2 and 3. Any future facilities are anticipated to be university-controlled and will have pedestrian linkages to academic buildings across the Central Lakes, campus support facilities to the north and south, adjacent open space and recreational facilities, and parking adjacent to Polytechnic Circle.

Chapter 5: General Infrastructure

This element addresses critical campus infrastructure systems including stormwater management, potable water, sanitary sewer and solid waste management. Analysis concerns the capacity required to meet the future needs of the University.

Stormwater Management

Inventory and Assessment of Stormwater Management Facilities

The core stormwater management infrastructure to serve the Florida Polytechnic campus has been installed in conjunction with Phase 1 campus development. It is exclusive to the University and is not shared with the City of Lakeland. The majority of the campus-wide storm drainage system needed to accommodate future build-out in accordance with this master plan update has been constructed, as illustrated in Figure 1.9 (in Appendix 1).

Stormwater attenuation and water quality treatment is provided within the Central Lakes, which were constructed along the axis of the campus, extending south from the IST building. These seven stormwater retention ponds are structurally separated, but connected for water level management. The system was designed to function in accordance with campus topographic conditions and broader drainage dynamics.

The campus property is located within the Peace River Basin of the Southwest Florida Water Management District (SWFWMD). The campus topography falls from southwest to northwest, and the Central Lakes have varying surface levels consistent with topography. Stormwater leaving the campus will ultimately discharge into the Tenoroc Fish Management Area (FMA) in the headwaters of the Peace River. However, the majority of campus stormwater is retained on campus property.

Ability to Meet Projected Needs of the University

The Florida Polytechnic stormwater management system is designed to accept stormwater drainage from future construction with excess capacity in the stormwater retention structures and preserved utility corridors.

The system has been designed and constructed to meet the drainage criteria of SWFWMD and the City of Lakeland's adopted level of service (LOS). The City's LOS is retention and attenuation that does not exceed the pre-development flow quality and rate for the 25-year/24-hour storm event. In addition, water quality treatment must be provided for, at a minimum, the first one inch of storm runoff for the entire site.

The City of Lakeland previously confirmed through the Campus Development Agreement (CDA) that there is adequate capacity to meet future needs of the university and that future campus development will not degrade the operating conditions for off-campus stormwater management facilities below Lakeland's adopted LOS. The CDA further states that no off-campus stormwater management improvements are needed to maintain the City's adopted level of service.

Current Regulations and Programs

There are various federal, state, regional and local regulations that govern land use and development of drainage features on the campus. Rules set forth by the SWFWMD address stormwater quantity and quality. Prior to construction of the existing stormwater management system, Florida Polytechnic secured a National Pollution Discharge Elimination System (NPDES) permit from the Florida Department of Environmental Protection (FDEP). A permit was also obtained from the U.S. Army Corps of Engineers (USACOE) to permit dredge and fill activities on the campus prior to construction. USACOE Permit SAJ-2008-01424 was issued on May 11, 2010. Required permits were also issued by SWFWMD prior to site development, including Permit no. 49034389.000 and Permit no. 49034389.001 (both issued on April 13, 2010).

Potable Water

Inventory and Assessment of Potable Water Facilities

The City of Lakeland is the potable water provider to Florida Polytechnic University, both for domestic use and fire protection. The University has established a potable water distribution system that connects to a City potable water line point of terminus (see Figure 1.10 in Appendix 1). The system serves current campus activities and its design provides for efficient expansion to serve the entire campus. Underground hydrology is not used as a source for potable water. There are currently no known impacts of existing facilities upon adjacent natural resources.

Based on initial available data, campus-wide potable water use is estimated to be 26,000 gallons per day (GPD). This figure is significantly less than the 2007 CDA's approved build-out demand of 250,000 GPD, as estimated in the Campus Master Plan in effect at the time.

Future expansion of the potable water distribution system to reach the south end of campus will use established utility corridors, as shown on Figure 1.10. This will result in a complete campus water loop. Additionally, the University is

coordinating with the City of Auburndale to establish connection to the City's water system. The proposed interconnection is a safety improvement that will provide backup in the case of a supply limitation or interruption from the primary City of Lakeland source.

Ability to Meet Project Needs of the University

Water system demand projections for the planning period are presented in Table 8. The Full Time Equivalent Student, Staff and Faculty population is based on current estimates and listed as FTE. The students that currently reside on campus and the estimated future resident population are indicated as Residents.

For planning purposes, water system demands are calculated as GPD demands for FTEs and Residents. The demand factor for each Resident is 75 GPD and the demand for each FTE is 25 GPD. The calculated peak flow rates in gallons per minute (GPM) for Residents and FTEs are based on a peak factor of 4. Estimates and projections have been rounded.

The fire flow requirement for the campus is 2,400 GPM for four hours at a minimum pressure of 40 psi. The 2,400 GPM fire flow is based on a scenario where two fire hydrants are simultaneously involved to engage a fire, if each fire truck would require flow of 1,200 GPM for fire suppression.

Table 8 presents the projected potable water demand for the campus at the planning horizon year of 2031.

Table 8: Florida Polytechnic University Projected Potable Water Demand Planning Horizon 2030-2031

		Demand (GPD)	Peak Flow (GPM)
Residents	1382	103,679	288
FTE	2,736	68,400	190
Fire Flow			2,400
Totals		172,079	2,878

Source: CivilSurv Master Plan Support Services Report Dated June 3, 2021

The City of Lakeland has confirmed through the CDA that there is adequate capacity to meet the projected demand and flow rate over the next ten years. The CDA also states that campus development will not degrade operating conditions for off-campus potable water facilities below the City's adopted level of service, which is an average daily flow of 150 gallons per capita per day.

Current Regulations and Programs

Federal regulations include the Federal Safe Drinking Water Act (Public Law 93-253) that establishes operating standards and quality controls for the protection of public water supplies. As directed by this act, the Environmental Protection Agency (EPA) established minimum drinking water standards. Every public water supply system must conform to these standards.

State regulations include the Florida Safe Drinking Water Act. This act was adopted in accordance with federal guidelines. It designates the Florida Department of Environmental Protection (FDEP) as the state agency responsible for the regulation of drinking water. FDEP has established rules that classify and regulate public water systems in Florida, including mandatory water treatment criteria. The City of Lakeland has entered an inter-local agreement for redundancy, with a new potable source construction in 2021.

Opportunities for use of Reclaimed Water

In accordance with the Campus Development Agreement, the water distribution system is designed to segregate waters intended for potable use and waters intended for irrigation purposes. The Central Lakes, in addition to be used for stormwater management, are a sustainable source for irrigation. Water from the Central Lakes is pumped for irrigation in several areas on the campus. Florida Polytechnic has entered into an agreement with the City of Auburndale for the provision of reclaimed water, which can supplement the Central Lakes and provide additional capacity for landscape irrigation. Additional opportunities for collection and use of reclaimed water may be designed into future building projects on campus.

Sanitary Sewer

Inventory and Assessment of Sanitary Sewer Facilities

Phase one of campus development established a connection to the City of Lakeland municipal wastewater collection and treatment system (via a city force main to the northwest of campus). The on-site campus system consists of a gravity collection system that services all buildings and is operated and maintained by the University. The design allows efficient expansion to serve the entire campus (see Figure 1.11 in Appendix 1). There are currently no known impacts of existing facilities upon adjacent natural resources.

Based on initial available data, campus-wide wastewater flow is estimated to be 22,250 GPD. According to the City of Lakeland Comprehensive Plan: 2010-2020 (adopted 2010, updated 2015), the City's wastewater treatment plants have capacity to meet service area demand.

Ability to Meet Project Needs of the University

Wastewater system demand projections for the planning period are presented below. The Full Time Equivalent Student, Staff and Faculty population is based on current estimates and listed as FTE. The students that currently reside on campus and the estimated future resident population are indicated as Residents.

For planning purposes, wastewater system demands are calculated as GPD demands for FTEs and Residents. The wastewater flow generation is based on the estimate that 85 percent of potable water demand will be returned to the sanitary sewer system. Based on this approach, the wastewater flow for each Resident is estimated to be 42.5 GPD and estimate for each FTE is 14.5 GPD. Peak flows in for the wastewater system for Residents and FTEs were calculated based on a peak factor of 3.5. The results have been rounded.

Table 9 presents the projected potable water demand for the campus at the planning horizon year of 2031.

Table 9: Florida Polytechnic University Projected Wastewater Treatment Demand Planning Horizon 2030-2031

		Demand (GPD)	Peak Flow (GPM)
Residents	1382	88,127	214
FTE	2,736	58,140	141
Totals		146,267	355

Source: CivilSurv Master Plan Support Services Report Dated June 3, 2021

For the planning horizon, no problems or needs are projected that would impact the capacity of the sanitary sewer system to manage projected demand. Utility corridors have been established on campus for extension of the wastewater collection system, as illustrated in Figure 1.11 (below and Appendix 1). Florida Polytechnic has entered into an agreement with the City of Auburndale to establish a connection to the City's reclaimed water system. The City of Lakeland previously confirmed through the CDA that there is adequate capacity to meet the projected demand and flow rate for the planning horizon.

Current Regulations and Programs

Federal regulations include the Federal Pollution Control Act (Public Law 92-500) which 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 to implement area-wide wastewater treatment and management programs to ensure adequate control of pollutant sources.

State regulations establish the FDEP as the responsible state agency to manage compliance with federal and state regulations applicable to Florida.

Solid Waste

Inventory and Assessment of Solid Waste and Recycling Facilities

Florida Polytechnic contracts with Advanced Disposal for solid waste collection facilities and monthly pick-up for disposal at a local landfill. The contract agreement is in a form approved by the State of Florida and is effective through June 30, 2025. Under the agreement, Advanced Disposal provides four wheeled trash containers (4-cubic yard size) and one closed compactor containers (40-cubic yard size) as well as weekly pick-up for the compactor. The agreement affords Florida Polytechnic the flexibility to increase pick-up frequency and/or add solid waste facilities as required to meet campus needs.

The University provides waste receptacles across the campus and collects waste from receptacles and wheeled trash containers to fill the compactors. Single stream recycling is incorporated into the disposal process with the provision of campus waste receptacles that include separate containers for recycling in campus buildings and on campus grounds.

The level of service for solid waste generated by Florida Polytechnic is based on the City of Lakeland concurrency levels of 5.4 pounds per capita per day as documented in the City of Lakeland Comprehensive Plan (2011). Based on projected Florida Polytechnic enrollment of 2,880 (headcount) at the planning horizon (2030-2031), it is estimated that the campus will generate approximately 15,120 pounds of solid waste per day.

Polk County provides solid waste disposal for the entire county at the landfill facility that is the closest in proximity to the Florida Polytechnic campus. This facility, the North Central Landfill, is owned and operated by Polk County Environmental Services Division. This established facility operates in compliance with applicable environmental standards and has capacity to meet projected community-wide demand through 2050.

Ability to Meet Project Needs of the University

The CDA previously established that there is sufficient solid waste disposal capacity to serve campus needs without requirement for off-campus solid waste improvements. As previously stated, the North Central Landfill has capacity to meet communitywide demand well beyond the planning horizon of this Campus Master Plan.

A potential future limitation is the fact that the current agreement with Advanced Disposal for solid waste collection and disposal will end on June 30, 2025. A new or extended solid waste management agreement will be required for academic years 2025-2026 through 2030-2031. Any solid waste related problems or opportunities will be addressed through the contractual partnership of Florida Polytechnic and other solid waste management provider(s).

Through collaboration with Advanced Disposal or other solid waste management provider(s), Florida Polytechnic is receiving the benefit of their recycling capabilities. With future campus development and additional installation of waste receptacles, additional recycling bins will also be provided.

Current Regulations and Programs

There are a variety of regulations and programs that govern processes and facilities for disposal of solid waste. For on-campus solid waste facilities, Florida Polytechnic and contractor Advanced Disposal are complying with all applicable City of Lakeland standards and with the provisions of the State of Florida approved contract for services.

The Federal Resource Conservation and Recovery Act (RCRA) addresses issues associated with hazardous waste management. Regulations of RCRA as well as those of the Florida Department of Transportation, the Hazardous Material Transportation Act, and the EPA Clean Water Act govern disposal carriers.

The State of Florida maintains Hazardous Waste Guidelines that work in conjunction with EPA regulations. FDEP is the Florida regulatory agency that administers state requirements that govern solid waste facilities, including their design, operation, closure and long-term management. FDEP mandates that recyclable waste be removed from the waste stream prior to deposit in a landfill.

At the present time, Florida Polytechnic has determined minimal hazardous wastes will be generated through activities on campus. Through the CDA, the University has agreed to meet all state and federal regulations in the collection and transportation of hazardous wastes and materials, and has contracted for the disposal with Triumvirate Environmental, Inc. - Orlando.

Chapter 6: Conservation

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 planning study area.

Natural Resources Inventory and Protection Measures

Wetlands

Jurisdictional wetlands (17.57 acres) were delineated on the campus prior to Phase 1 construction. The acreage was permitted for impact by the Army Corps of Engineers (ACOE) in 2008 and was filled upon authorization by the SFWMD Mass Grading Permit. Mitigation for impacts to the wetlands was provided on campus and partially offsite in Parcel C (see Figure 1.1 Campus Property Location Map, Vicinity Aerial Photography, in Appendix 1). In addition, a total of 1.53 acres of surface waters on campus were permitted to be filled by the ACOE and SFWMD. Required mitigation resulting from future campus construction (as depicted on Figure 1.3 Future Land Use Map in Appendix 1) will continue to adhere to the terms of the Campus Development Agreement. In areas labeled as “Conservation” in Figure 1.3, wetlands will remain in conservation use while non-wetland areas may remain in conservation use or may be reserved for future facilities development.

Vegetative Communities

The vegetative and land use cover types on campus were classified using the Florida Department of Transportation Florida Land Use, Cover and Forms Classification System (FLUCFCS) prior to Phase 1 construction and as presented in the ACOE Individual Permit Application. Areas shown as Conservation (see also Figure 1.12 Conservation, Recreation & Open Space Map in Appendix 1) are primarily comprised of the following:

- FLUCFCS 1651 – Reclaimed Land, Pasture (northwest and southwest corners of campus) 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 211 – Improved Pasture (south end of campus) 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 (northeast corner, at I-4 and SR 570) 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.).

As the campus develops, areas shown as Conservation will remain in their natural state with the potential addition of passive recreation uses such as walking trails.

Floodplains

As part of the land donation agreement between Williams Co. and Florida Polytechnic, an amendment to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) removed the campus from the Special Flood Hazard Area (SFHA). A copy of the FEMA approval is included with the Campus Development Agreement.

The remaining parcels controlled by Florida Polytechnic are designated as Zone A and Zone X of the SFHA. While Parcel C will remain as wetlands / conservation use, Parcel B may potentially be developed for recreation uses (see Figure 1.1 in Appendix 1). Future development of Parcel B within any SFHA areas will need to take into account special design

considerations, including floor levels constructed above the 100-year flood elevation. To determine the 100-year Base Flood Elevation (BFE) in Zone A, where the 100-year flood elevation is undetermined, a hydraulic analysis would need to be carried out and approval obtained from FEMA for a Flood Insurance Rate Map (FIRM) amendment.

Plant and Animal Species of Concern

Two species of protected wildlife were observed in the project study area during an April/May 2003 site inspection: gopher tortoise and the Sherman's fox squirrel. Gopher tortoises are a threatened wildlife species and are protected by Florida state law, Chapter 68A-27, Florida Administrative Code. Gopher tortoises must be relocated before any land clearing or development takes place. Permits issued by the Florida Fish and Wildlife Conservation Commission (FWC) are required before the tortoises can be moved. The Sherman's fox squirrel is listed in Florida as a Species of Special Concern. State law prohibits the taking, possession, transporting or sale of any species of special concern except as authorized by permit by the FWC.

Two species of protected plants have been observed in the study area: 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.

A full list of wildlife species observed in 2003 is on file with the office of Facilities and Safety Services.

Aquifers

Three aquifers (underground layers of water-bearing rock) are in the vicinity of the project study area: the surficial aquifer system, the intermediate aquifer system, and the Floridian aquifer system. The aquifers are separated by confining layers which restrict the vertical movement of water between the aquifers. No subsurface areas surrounding a well or well field and supplying a public water system are found in the study area.

Pollution Prevention

To prevent pollution of natural resources, techniques are utilized on campus, including: limiting fertilizer use, maintaining/planting native vegetation, applying stormwater best management practices (BMPs), etc. Air pollution can be limited by promoting alternative modes of transportation on campus (i.e., public transit, bicycles, etc.) and evaluating the potential for alternative fuel vehicles on campus, including any campus shuttle systems. In campus buildings, pollution control techniques include installing filtering devices on fume hoods and minimizing volatile and hazardous materials storage and use.

Energy Conservation

To reduce energy consumption, existing buildings have energy conservation fixtures, high-efficiency air conditioning and lighting systems, and low water volume plumbing fixtures. These and other appropriate energy management techniques will continue to be used in all new buildings constructed on campus. Building and site design will also continue to incorporate arcades, landscaping, court yards and other shade and ventilation design techniques. The Santiago Calatrava-designed IST Building has a pergola of lightweight aluminum trellis wrapping its exterior that helps reduce the solar load on the building by 30 percent.

Solar energy can be evaluated for potential application as alternative sources of power for irrigation systems, lighting, shuttles, phones, and similar systems. The IST Building's operable roof moves in relationship to the sun and was designed to be fitted with solar panels.

Chapter 7: Recreation and Open Spaces

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

Existing Inventory

On-Campus

As part of Phase 1, the Student Development Center building was constructed on the east side of campus in close proximity to existing and planned residential housing. The facility provides an indoor fitness center. Residence Hall 1 also provides an indoor fitness center. The multi-purpose athletic field, basketball courts and volleyball court provide outdoor recreation options. Informal, outdoor recreation space is also available on existing open lawns on campus. The Oak Grove, adjacent

to the Student Development Center, provides additional outdoor recreation space. An extensive system of multi-use paths is located throughout campus, serving to connect buildings and areas for pedestrians and cyclists while also providing an outdoor recreation opportunity.

Off-Campus

The **City of Auburndale** provides a variety of parks and recreation facilities, including the 250-acre Lake Myrtle Sports Complex, which is accessible from campus by both road (SR570) and trail (Teco Auburndale) systems. The sports complex includes a soccer stadium, multi-purpose/soccer fields, a baseball stadium, and youth and collegiate baseball fields. A complete listing of Auburndale parks and recreation facilities is provided on the City's website: www.auburndalefl.com.

The **City of Lakeland** parks and recreation system is made up of a total of 70 parks and facilities. The system includes scenic, neighborhood, community and urban parks, as well as variety of outdoor fields, courts, jogging trails, larger sports complexes and athletic programs. A complete list of facilities and programs is provided on the City's website: www.lakelandgov.net.

Polk City's recreation facilities include small parks and boat launches on the north side of I-4. In addition, a portion of the 29-mile Van Fleet Trail is located in Polk City. The General James A. Van Fleet State Trail is officially designated as part of Florida's statewide system of greenways and trails. The City's listing of parks and recreation facilities is located here: www.mypolkcity.org.

Polk County offers over 60 facilities for parks and recreation activities including sports facilities, boat launches, camping, picnicking, and walking paths and trails. A complete list of facilities and programs is provided on the County's website: www.polk-county.net.

The Southwest Florida Water Management District (SWFWMD) manages a number of regional recreation facilities offering boating, hiking, and nature study. SWFWMD sites within Polk County include: Circle B Bar Ranch (1,267 Acres) and Lake Marion Creek Horseshoe Scrub Tract (300 Acres).

The **Tenoroc Fish Management Area**, managed by the Florida Fish and Wildlife Conservation Commission (FWC), offers fishing, wildlife viewing, hiking, bicycling, and horseback riding opportunities on over 8,000 acres of land in Polk County.

Projected Recreation 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 planning guideline to Florida Polytechnic enrollment projections, the University can identify potential recreation needs. In addition to LOS standards, other considerations include available land area and input from students.

Table 10 presents the recommended NIRSA standard for a variety of recreation facilities to arrive at a range of potential "needs" based on current and projected student enrollment.

Table 10: Projected 10-Year Recreation Facility Needs

Recreation Facility	NIRSA Level of Service (number of facilities per 1,000 students)	Existing Facilities	2030-2031 Projected Facilities based on FTE	2030-2031 Projected Facilities based on Head Count
Multi-Purpose Fields	1.14	1	3	3
Softball Fields	0.53	0	1	2
Tennis Courts	1.09	0	3	3
Outdoor Basketball Courts	0.48	2	1	1
Outdoor Volleyball Courts	0.42	1	1	1

Source: NIRSA Space Planning Guidelines for Campus Recreational Sports Facilities, 2009 Edition

The existing basketball and volleyball courts generally meet future needs based on the NIRSA standards shown in Table 10. To accommodate growing enrollment over the next 10 years, this Campus Master Plan shows dedicated areas throughout campus that are compatible for open space and recreation (see Figure 1.12 in Appendix 1). Recreation facilities completed construction in the year 2017, include a recreation building, pavilion and pool near the existing multi-purpose athletic field. Florida Polytechnic University-controlled Parcel B (see Figure 1.1 in Appendix 1) has also been identified for future recreational use.

Projected needs over the next ten years in the City of Lakeland include new neighborhood and community parks, trails and recreation facilities. These needs are identified in Lakeland's Parks and Recreation Facilities Master Plan (2006), which recommends the construction of additional neighborhood and community parks, trails and recreation facilities through the year 2030. The city's 10-Year Capital Improvement Plan element of the Fiscal Year (FY) 2015 Budget allocates funds for several recreation projects, including new parks and enhancements to existing facilities.

The Lakeland projects are intended to maintain the city's adopted minimum level of service standards for the provision of recreation sites and facilities, which include: a minimum 5.98 acres per 1,000 residents, 50 percent of which shall be in active park space (e.g., scenic, neighborhood, or community); one recreation center per 25,000 residents, one community park per 25,000 residents; and one neighborhood park per 6,500 residents. The Campus Development Agreement with the City of Lakeland states there is sufficient open space and recreation facility capacity to accommodate the impacts of proposed campus development and that no off-campus open space and recreation improvements are needed to maintain the City's adopted LOS standards.

Chapter 8: 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.

Host and Affected Local Governments

City of Lakeland

A Campus Development Agreement (CDA) is in place that addresses the following public facilities and services: transportation, wastewater, solid waste, stormwater management, potable water, and parks and recreation. The CDA identifies the level-of-service standards established by Lakeland as well as impacts of campus development on the adopted levels of service and any improvements necessary to eliminate deficiencies. The CDA also identifies the Florida Board of Governors' "fair share" cost associated with remediation of impacts. A total amount of \$5,096,906 was identified in the CDA as Florida Polytechnic's fair share for the costs of transportation improvements identified in the CDA. This amount was paid to the 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 occurs when the Campus Master Plan is updated or substantively amended, and when proposed development plans within the context area move forward (i.e. the Williams DRI, which is adjacent to the Florida Polytechnic campus). Annual progress reports of campus development are provided to the City, and regular coordination will continue to be maintained.

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 CDA. Any demand above this amount will need to be evaluated and considered by the City. No wastewater demand was listed in the CDA.

Florida Department of Environmental Protection (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.

Florida Polytechnic will work with the City of Lakeland Parks and Recreation department and other stakeholder entities relative to the future provision of recreational facilities. The University may pursue inter-local agreements, memoranda of understanding or other agreements to ensure that parks and recreation facilities will be available to meet the future needs of its students.

Florida Polytechnic will continue to coordinate with the City of Lakeland and applicable local agencies as the campus is developed. The existing mechanisms that are in place provide a framework for fostering participatory planning, coordination and cooperation.

Polk County

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.

Florida Polytechnic coordinates with the Polk County Emergency (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.

Regional and State Entities

Florida Department of Transportation (FDOT) – District 1: 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 Florida 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.

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 Florida Polytechnic Campus. The University employs a local fire safety officer.

Chapter 9: Capital Improvements

This element evaluates the need for public facilities as identified in other Campus Master Plan elements; 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 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.

Summary of Facility Needs and Requirements

The University develops its facilities needs within the Florida State University System (SUS) guidelines for space use and as funding allows. Based on a comparison of annualized facility space needs presented in Table 12 and existing space provided by the IST building, the following facilities are needed over the next ten years:

<i>Priority 1: Applied Research Center (2021-2022)</i>	Estimated completion; public funding sources – New construction of a 63,000 NASF/95,000 GSF facility that will accommodate laboratories and an entrepreneurship center to assist with the commercialization of products and services created from the University's research. The facility will also provide space to meet the demand for hosting industry research groups as well as national and international meetings.
<i>Priority 2: Academic Building 3 (2023-2026)</i>	New construction of an approximately 58,000 NASF/92,800 GSF facility which will house specialized research spaces and provide computer/office spaces for faculty and students involved in the academic research. The space will be supplemented with campus support spaces providing student services for the research and academic activity. It is anticipated that this project will be funded through a combination of public and private funding.
<i>Priority 3: Residence Hall 3 (2023-2024)</i>	New construction of a 96,000 NASF/134,400 GSF residence hall with 250 beds and planned spaces for learning and living. The addition of this building is based on projected on-campus housing needs described in the Housing Chapter.
<i>Priority 4: Student Achievement Center (2026-2028)</i>	New construction of a 40,986 NASF/65,578 GSF facility that will house an honors college, industry job center, international liaison office, faculty and industry mentorship program, and tutoring programs. Additionally, the facility will house programs that provide support for the psychological and social well-being of students. It is anticipated that this project will be funded and developed through a combination of public and private funding.

In addition to new buildings, specific infrastructure investments are anticipated for the 2020/2021 academic year (chiller expansion), the 2027-2028 timeframe (proposed multi-use parking deck project). Several projects are being completed with Carry Forward funding. The anticipated funding source for the other campus infrastructure improvements is public funding, with the exception of the option for bond or public private partnership financing for the proposed parking structure.

The building and infrastructure needs are also reflected in the 10-Year Capital Improvement Plan (CIP), Table 11 below. The Florida Polytechnic Five-Year CIP is linked to the Campus Master Plan and its 10-Year CIP. The basis for the 10-Year CIP is analysis of facility space needs with projections for space needs by category through the 10-year planning period.

Table 11: Florida Polytechnic University 10-Year Capital Improvement Plan

PROJECT	YEAR										TOTAL NASF/ GSF
	2020 2021	2021 2022	2022 2023	2023 2024	2024 2025	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	
Applied Research Center	63,000 NASF										63,000
	\$15M	\$15M									95,000
Academic Building				58,000 NASF							58,000
				\$12M	\$19M	\$13M					92,800
Student Achievement Center						40,986 NASF					40,986
						\$11M	\$14M	\$3M			65,578
Sub-Totals, Academic Buildings											161,986 253,378
Residence Hall 3 & 4				96000 NASF			96000 NASF				192000
				\$35M			\$35M				268,800
Sub-Totals, Residence Halls											192,000 268,000
Utilities &Infrastructure	**	**	**	**	**	**	**	**	**	**	
		\$2M				\$2M		\$4M			--

* NASF – Net Assignable Square Feet; GSF – Gross Square Feet

** Annual improvements and expansions to campus utilities and infrastructure as well as recreation and parking facilities.

Table 12: Florida Polytechnic University Annualized Space Needs Projections*

YEAR		CLASSROOM	TEACHING LAB	RESEARCH LAB	OFFICE	STUDENT STUDY	SUPPORT
2020	Projected Need	11,250	14,063	23,438	28,125	16,875	5,313
-2021	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-16,735	-16,080	-2,804	-14,494	-34,903	-2,669
2021	Projected Need	12,222	15,278	25,463	30,555	18,333	5,772
-2022	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-15,763	-14,865	-779	-12,064	-33,445	2,285
2022	Projected Need	13,986	17,483	29,138	34,965	20,979	6,605
-2023	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-13,999	-12,660	2,897	-7,654	-30,799	-1,377
2023	Projected Need	15,147	18,934	31,556	37,868	22,721	7,153
-2024	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-12,838	-11,208	5,315	-4,752	-29,058	-829
2024	Projected Need	16,416	20,520	34,200	41,040	24,624	7,752
-2025	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-11,569	-9,622	7,959	-1,579	-27,154	-229
2025	Projected Need	17,730	22,163	36,938	44,325	26,595	8,373
-2026	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-10,255	-7,980	10,697	1,706	-25,183	391
2026	Projected Need	18,468	23,085	38,475	46,170	27,702	8,721
-2027	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-9,517	-7,057	12,234	3,551	-24,076	740
2027	Projected Need	19,602	24,503	40,838	49,005	29,403	9,257
-2028	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-8,383	-5,640	14,597	6,386	-22,375	1,275
2028	Projected Need	20,520	25,650	42,750	51,300	30,780	9,690
-2029	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-7,465	-4,492	16,509	8,681	-20,998	1,709
2029	Projected Need	22,986	28,733	47,888	57,465	34,479	10,855
-2030	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-4,999	-1,410	21,647	14,846	-17,299	2,873
2030	Projected Need	24,624	30,780	51,300	61,560	36,936	11,628
-2031	Existing Space	27,985	30,142	26,241	42,619	51,778	7,981
	Net Need	-3,361	638	25,059	18,941	-14,842	3,647

*Note: All numbers represent NASF (net assignable square feet)

**Assumes completed ARC Building

Source: Florida Polytechnic University Office of Institutional Research (OIR), April 2020

Revenue Sources Available for Capital Improvement Funding***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.

Capital Improvement Trust Fund (CITF)

This source of funds is provided by student fees that each SUS university collects.

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 a 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.

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.

Grants and Donations

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

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 bookstore on line, food services, operation of vending machines, campus mail/package receiving, copy/print services, parking, event management, ID card services and transportation.

General Revenue and Lottery Funds

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

Summary of Facility Needs and Requirements***Public-Private Partnerships***

The University will pursue collaborative public and private partnerships that enhance funding opportunities, including leveraging state and federal funding.

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.

Carry Forward Funds (CFF)

By state statute, the University is permitted to Carry Forward Funds remaining at the end of the fiscal Year, for its use during the first ten years of existence (2013-2023).

Appendix 3

Evaluation and Appraisal Report

Florida Polytechnic University Campus Master Plan 2021-2031

Prepared by:

**Facilities and Safety Services
Florida Polytechnic University**

Appendix 3 includes the Evaluation and Appraisal Report¹ component of the 2021-2031 Campus Master Plan Update. The report provides a summary evaluation of the goals, objectives, and policies of the 2015-2025 Campus Master Plan (dated September, 2016). It is organized by the numbering system assigned to the plan elements in the 2015-2025 Campus Master Plan.

Specific changes, to the 2015-2025 Master Plan, moving forward include:

Evaluation & Appraisal Report

Previous Master Plan 2015-2025: Proposed Changes and Modifications

Chapter 1: Academic Mission and Program

Objective 1C.5 Achieve institutional and program accreditation. (Maybe “Maintain”)

Chapter 2: Future Land Use

Policy 2B.6.3 – Require that all future buildings over 50,000 GSF of space be designed at a minimum of three stories in height.

Policy 2B.6.6 – Prohibit the use of one-story occupied metal trailer buildings except on a short-term basis with removal dates prescribed and monitored.

Chapter 4: Housing

Objective 4A.1 Endeavor to provide up to 1,000 student beds in residence facilities on Campus within 10 years to insure the availability of an adequate supply of housing, as needed.

Chapter 5: General Infrastructure

Goal 5E – Florida Polytechnic University’s goal is to provide adequate steam/hot water/heating in a flexible, efficient and cost-effective manner to support the growth of the campus. (Consider deleting, or writing a new goal for heating.)

Policy 5H.1.3 – Program funds for design and installation to provide adequate copper connectivity for voice, multi-mode fiber for data, and single mode fiber for video/data to all buildings on the Florida Polytechnic campus. (Strike copper for voice [only elevators])

Chapter 7: Recreation and Open Space

Policy 7A.2.1 Maximize the potential of the Wellness Center and construct additional recreational and open space facilities to meet on-campus recreation and physical education needs. (Change to “Student Development Center”)

Appendix 4

Traffic, Water, and Wastewater Report

Florida Polytechnic University Campus Master Plan 2021-2031

2031

Prepared by:

**Facilities and Safety Services
Florida Polytechnic University**



**CivilSurv Design Group, Inc.
Lakeland, Florida**

June 8, 2021

Mr. Brent McLean, EI
Project Manager
Facilities & Safety Services
Florida Polytechnic University
4700 Research Way
Lakeland, Florida 33805
bmclean@floridapoly.edu

**RE: Master Plan Support Services
Letter Report
CivilSurv File: 166001001**

Mr. McLean:

As requested and authorized by Florida Polytechnic University (Florida Polytechnic), CivilSurv Design Group, Inc. (CivilSurv) has performed support services associated with the 2021 Facilities Master Plan update. Specifically, CivilSurv has completed research and analysis related to transportation and water utilities infrastructure. The purpose of this letter report is to summarize our findings and to provide recommendations for Tables 4, 5, 6, 8, and 9 of the 2021-2031 Facilities Master Plan.

EXISTING ROADS

CivilSurv has obtained recent traffic data from the Polk Transportation Planning Organization (Polk TPO) for the roadways identified in the original Facilities Master Plan. These roadway facilities include the Polk Parkway (SR 570), University Boulevard, Research Way, I-4 (SR 400), Memorial Boulevard (US 92 / SR 600), and SR 33 (Commonwealth Avenue). The Polk TPO data was updated in 2019 and is expected to be updated again by the end of the year. The 2019 data is included in this summary as the best available information.

In addition to data obtained from the Polk TPO, Access Control Classification information was obtained from the Florida Department of Transportation (FDOT). The FDOT data was obtained in a kmz file format, dated October 6, 2020. A summary of reviewed data and roadway characteristics, as obtained from the Polk TPO and FDOT is provided in **Table 4** and **Table 5**.



Table 4: Summary of Existing Roadway Characteristics

Roadway Characteristics	Primary Roadways			Secondary Roadways		
	Polk Parkway (SR 570)	University Boulevard	Research Way	I-4 (SR 400)	Memorial Boulevard (US 92 / SR 600)	SR 33 (Commonwealth Avenue)
Roadway Segment	Link 7401: US 98 to CR 546 (Old Dixie Parkway) Link 7402: CR 546 to I-4	Link 6909: SR 33 to Polk Parkway	Link 6910: University Boulevard to University Boulevard	Link 5506: SR 33 to CR 557	Link 5306: SR 659 (Combee Road N) to SR 655 (Recker Highway)	Link 5602: I-4 at Socrum Loop Road to I-4
No. of Lanes	4 Freeway	4 Divided	4 Divided	6 Freeway	4 Divided	2 Bypass Lane
Functional Classification	Principal Arterial	Urban Collector	Urban Collector	Principal Arterial	Principal Arterial	Minor Arterial
Access Control Classification	1	N/A	N/A	1	3 / 5	4 / 5
2019 Traffic Volume (AADT)	16,400 10,000	2,000	500	96,900	32,700	14,900
Peak Hour / Peak Season Level of Service (LOS)	B	C	C	C	C	C

Footnotes:

Access Control Classifications (assigned by FDOT for roadways in the State Highway System) per 14-97.003, F.S.

1 – Limited access facilities which do not provide direct property connections.

3 – Controlled access facilities where direct access to abutting land is controlled to maximize the operation of the through traffic movement. The land adjacent to these roadways is generally not extensively developed and / or the probability of significant land use change exists. These roadways are distinguished by existing or planned restrictive medians.

4 – Controlled access facilities where direct access to abutting land is controlled to maximize the operation of the through traffic movement. The land adjacent to these roadways is generally not extensively developed and / or the probability of significant land use change exists. These roadways are distinguished by existing or planned non-restrictive median treatments.

5 – Controlled access facilities where adjacent land has been extensively developed and where the probability of major land use change is not high. These roadways are distinguished by existing or planned restrictive medians.

N/A – FDOT Access Control Classifications not applicable. Roadways are under the jurisdiction of the City of Lakeland and are subject to the Access Management Standards of the City of Lakeland Land Development Code. Connection locations / standards for University Boulevard and Research Way are also generally depicted in the Williams DRI Development Order.

Table 5: Level of Service Comparison

Roadway	Current LOS Peak Hour	Adopted LOS	Projected LOS in 5 Years	Projected LOS in 10 Years
Polk Parkway (SR 570)	B	D	B	B
I-4 (SR 400)	C	D	D	D
Memorial Boulevard (US 92 / SR 600)	C	D	C	C
SR 33 (Commonwealth Avenue)	C	D	C	C
University Boulevard	C	E	C	C
Research Way	C	E	C	C

ROADWAY CAPACITY

The 10th edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual is the current edition with the release of the 11th edition expected by the end of 2021. The trip generation rates were reviewed for the “University/College” land use category. Based on the review of the current Trip Generation Manual, the trip generation rate per student has decreased from an average of 2.38 to 1.56 as compared to the previous master plan. Similarly, the peak hour trip generation rate has decreased from an average of 0.21 to 0.15. These updated values have been incorporated into **Table 6** along with student population data, as provided to CivilSurv by Florida Polytechnic. Site specific traffic data was not available for review. However, if such data is collected in the future, it could be used to supersede the published trip generation rate data.

Table 6 previously addressed credited daily trips as part of the Williams DRI. However, specific information regarding the credited trips was unable to be verified based on the available information and has been removed from **Table 6** accordingly.

Table 6: Florida Polytechnic Trip Generation

Trip Generation	Year	
	2020-2021	2030-2031
Headcounts – Students	1,422	3,000
Daily Trip Generation		
Daily Trip Generation Rate	$\times 1.56$	$\times 1.56$
Total Daily Trips Generated	2,219	4,680
Peak Hour Trip Generation		
Peak Hour Trip Generation Rate	$\times 0.15$	$\times 0.15$
Total Peak Hour Trips Generated	214	450

CivilSurv has reviewed the FDOT Five Year Work Program to identify projects that involve the subject roadway segments and may affect the capacity. In addition, CivilSurv inquired with the City of Lakeland regarding proposed improvements to University Boulevard and Research Way. A summary of the review is provided as follows.

- Polk Parkway (SR 570)
 - Project: Widen Polk Parkway from Milepost 18 to Milepost 22
 - Type of Work: Add Lanes & Reconstruct
 - Project: Braddock Road Interchange Improvements (Milepost 21)
 - Type of Work: PD&E / EMO Study
- I-4 (SR 400)
 - Project: I-4 at SR 33 Interchange Modification
 - Type of Work: Interchange – Add Lanes
- Memorial Boulevard (US 92 / SR 600)
 - Project: None identified.
- SR 33 (Commonwealth Avenue)
 - Project: SR 33 from Old Combee Road to South of Firstpark Boulevard South
 - Type of Work: Add Lanes & Rehabilitate Pavement
 - Project: SR 33 from Old Combee Road to North of Tomkow Road
 - Type of Work: Preliminary Engineering
- University Boulevard
 - Project: University Boulevard Resurfacing
- Research Way
 - Project: None identified.

POTABLE WATER

CivilSurv has obtained recent data from other State University System institutions in Florida to compare potable water demand estimates. In addition, available relevant data was obtained from Polk County as the City of Lakeland does not maintain standard potable water demand tables based on land use. Historic water use data for the campus was not available for review. A summary of reviewed information is provided as follows.

- Source: Florida Gulf Coast University 2015-2025 Campus Master Plan
 - Potable Water Demand per Enrollment: 25 Gallons per Day (GPD)
 - Potable Water Demand per Campus Resident: 75 GPD
 - Peaking Factor: Not Provided
- Source: Florida State University 2008 Master Plan Update, Revision 7 – November 1, 2019
 - Potable Water Demand per Capita: 35 GPD
 - Peaking Factor: Not Provided
- Source: University of Florida Campus Master Plan 2020-2030
 - Potable Water Demand per Capita: 32 GPD
 - Peaking Factor: 1.36
- Source: Florida Polytechnic University 2015-2025 Campus Master Plan
 - Potable Water Demand per Full Time Equivalent (FTE): 17 GPD
 - Potable Water Demand per Campus Resident: 50 GPD
 - Peaking Factor: 5.0
- Source: Polk County Utilities Code
 - Potable Water Demand for a “Senior High / College Universities” per Student: 24 GPD
 - Potable Water Demand for a “Boarding School” per Student: 75 GPD
 - Peaking Factor: 4.0

Based on the review of available information, the recommended potable water demand factors for FTE and Campus Residents are 25 GPD and 75 GPD, respectively. A peaking factor of 4.0 is recommended for planning purposes.

Florida Polytechnic employs a Fire Safety Inspector / Emergency Management Officer and is the Authority Having Jurisdiction (AHJ) with respect to fire protection. Based on information provided by the Florida Polytechnic Fire Safety Inspector / Emergency Management Officer, Residence Hall II has the highest fire flow demand of 2,400 GPM for four hours at a minimum pressure of 40 psi. The 2,400 GPM fire flow is based on a scenario where two fire hydrants are simultaneously involved to engage a fire, assuming that each fire truck would require flow of 1,200 GPM for fire suppression. **Table 8** provides a summary of projected potable water demand for the campus.

Table 8: Florida Polytechnic University Projected Potable Water Demand Planning Horizon 2030-2031

Category	Demand (GPD)	Peak Flow (GPM)
Residents (1,382)	103,650	288
FTE (2,736)	68,400	190
Fire Flow	N/A	2,400
Totals	172,050	2,878

SANITARY SEWER

Similar to the potable water analysis, CivilSurv obtained recent data from other State University System institutions in Florida, as well as Polk County, for the purpose of comparing wastewater demand factors. A summary of reviewed information is provided as follows.

- Source: Florida Gulf Coast University 2015-2025 Campus Master Plan
 - Wastewater Percentage of Potable Water Demand: 100%
 - Peaking Factor: Not Provided
- Source: Florida State University 2008 Master Plan Update, Revision 7 – November 1, 2019
 - Wastewater Percentage of Potable Water Demand: 85%
 - Peaking Factor: Not Provided
- Source: University of Florida Campus Master Plan 2020-2030
 - Wastewater Percentage of Potable Water Demand: $\pm 75\%$
 - Peaking Factor: Not Provided
- Source: Florida Polytechnic University 2015-2025 Campus Master Plan
 - Wastewater Percentage of Potable Water Demand: 85%
 - Peaking Factor: 5.0
- Source: Polk County Utilities Code
 - Wastewater Percentage of Potable Water Demand for an Equivalent Residential Connection (ERC): 75%
 - Peaking Factor: 3.5 for flows in the range of 100,001 to 250,000 GPD

Based on the reviewed information, the recommended wastewater demand relative to the potable water demand is 85%. A peaking factor of 3.5 is recommended for planning purposes. A summary of projected wastewater demand is provided in **Table 9**. Please note that the residential use is additive to the Full Time Equivalent use to account for use by staff and students during school hours.

**Table 9: Florida Polytechnic University Projected Wastewater Treatment Demand Planning Horizon
2030-2031**

	Demand (GPD)	Peak Flow (GPM)
Residents (1,382)	88,103	214
FTE (2,736)	58,140	141
Totals	146,243	355

CONCLUSION

The table values provided in this letter report represent the best available information for planning purposes. Site specific data collection is recommended to support future master plan updates.

Please feel free to contact our office if there are any questions regarding this letter.

CERTIFICATION STATEMENT

In accordance with Chapter 61G15-23.001, F.A.C., this Engineering Document has been prepared, in its entirety, under the responsible charge of the Professional Engineer. The Professional Engineer is practicing through CivilSurv Design Group, Inc., a duly qualified engineering business organization, located at 2525 Drane Field Road, Suite 7, Lakeland, FL 33811.



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